

4. PRODUCTION AND PROPERTIES OF RADIATIONS

that the electron scattering factors for kinematical calculations should be multiplied by relativistic factors.

For high-energy electrons, the relativistic variations of the electron mass, the electron wavelength and the interaction constant, σ , become significant. The relations are

$$\begin{aligned} m &= m_0(1 - \beta^2)^{-1/2}, \\ \lambda &= h \left[2em_0E \left(1 + \frac{eE}{2m_0c^2} \right) \right]^{-1/2} \\ &= \lambda_c \frac{(1 - \beta^2)^{1/2}}{\beta}, \end{aligned} \quad (4.3.1.33)$$

where m_0 is the rest mass, λ_c is the Compton wavelength, h/m_0c , and $\beta = v/c$. Consequently, σ varies with the incident electron energy as

$$\begin{aligned} \sigma &= 2\pi/\{\lambda E[1 + (1 - \beta^2)^{1/2}]\} \\ &= 2\pi e/hc\beta. \end{aligned} \quad (4.3.1.34)$$

For the calculation of intensities in the kinematical approximation, the values of $f^B(s)$ listed in Tables 4.3.1.1 and 4.3.1.2, which were calculated using m_0 , must be multiplied by $m/m_0 = (1 - \beta^2)^{-1/2}$ for electrons of velocity v . Values of λ , $1/\lambda$, m/m_0 , $\beta = v/c$, and σ are listed for various values of the accelerating voltage, E , in Table 4.3.2.1.

4.3.2. Parameterizations of electron atomic scattering factors (By J. M. Cowley, L. M. Peng, G. Ren, S. L. Dudarev, and M. J. Whelan)

For computer applications, numerical approximations to the $f(s)$ of Tables 4.3.1.1 or 4.3.1.2 are usually preferred and various approximations as sums of Gaussians have been proposed. The initial Gaussian fits were given by Doyle & Turner (1968) for the range $s = 0$ to 2 \AA^{-1} . However, for some purposes, as in the image-simulation programs for high-resolution electron microscopy, atomic scattering factors are needed for higher s values, up to 6 \AA^{-1} , and, as pointed out by Fox, O'Keefe & Tabbernor (1989), extrapolation of the Gaussian fits of Doyle & Turner to values above 2 \AA^{-1} can be highly inaccurate.

An alternative approach to obtaining numerical values for the electron scattering factors is to make use of the polynomial fits to X-ray scattering factors of Fox *et al.* or the more recent tables of X-ray scattering factors produced by Rez, Rez & Grant (1994), who used a multiconfiguration Dirac-Fock code and two parameterizations in terms of four Gaussians, one of higher accuracy over the range of about 2 \AA^{-1} and the other of lower accuracy over the extended range of about 6 \AA^{-1} . The electron scattering factors may then be derived from the X-ray scattering factors by use of the Mott formula (4.3.1.14). For small angles of scattering, the determination of electron scattering factors in this way may give problems, since the X-ray scattering factor tends to the atomic number, and both the numerator and denominator of (4.3.1.14) tend to zero. However, the electron scattering factor may be determined for zero scattering angle using equation (4.3.1.29) and Rez, Rez & Grant (1994) listed values of $f_{\text{el}}(0)$ for many elements and ions.

Recently, Peng, Ren, Dudarev & Whelan (1996) have developed a new algorithm, based on a combined modified simulated-annealing and least-squares method, to parameterize both the elastic and absorptive scattering factors as sums of five Gaussians of the form

$$f_{\text{el}}(s) = \sum_{i=1}^n a_i \exp(-b_i s^2), \quad (4.3.2.1)$$

where a_i and b_i are fitting parameters. The values of their fitting parameters for the range of s values from 0 to 2.0 for elastic electron scattering factors for all neutral atoms with atomic numbers up to 98 are given in Table 4.3.2.2 and the values obtained separately for these atoms for the range of s from 0 to 6.0 \AA^{-1} are given in Table 4.3.2.3. For Table 4.3.2.2, the fitting was made to the values of f given in Table 4.3.1.1. For Table 4.3.2.3, the f values in the range of s from 2.0 to 6.0 \AA^{-1} were those obtained by using the Mott formula to convert the X-ray scattering factors derived from the Dirac-Fock calculations of Rez, Rez & Grant (1994). Similar tables for atomic scattering factors of ions can be found in Peng (1998).

As an indication of the accuracy with which the parameterized f values of (4.3.2.1) reproduce the numerical values of the reference f values, Peng *et al.* (1996) computed values of $\varepsilon = 100 \sigma/f(0)$, where σ is the square root of the mean square deviation, σ^2 , between the numerical and fitted scattering factors. The values of ε are typically in the range 0.02 to 0.05, and are consistently smaller (with a few exceptions) than the corresponding values given for the parameterizations of previous workers (Weickenmeier & Kohl, 1991; Bird & King, 1990; Doyle & Turner, 1968).

For the absorptive scattering factors, corresponding to the imaginary parts added to the real elastic scattering factors as a consequence of inelastic scattering processes, Peng *et al.* (1996) have tabulated values for particular elemental crystals and a selection of crystals of compounds having the zinc-blend structure. The main contribution to the absorptive scattering factors arises from the thermal vibrations of the atoms in the crystals so that the numerical values are not characteristic of the individual atom types but depend on the type of bonding of the atoms in the crystal, as indicated by the Debye-Waller factor, and must be calculated separately for each temperature. The authors offer copies of their computer programs, freely available *via* electronic mail, from which the parameterization of the absorptive scattering factors can be derived for other materials and temperatures, given the values of the atomic numbers of the elements, the Debye-Waller factor and the electron accelerating voltage.

4.3.3. Complex scattering factors for the diffraction of electrons by gases (By A. W. Ross, M. Fink, R. Hilderbrandt, J. Wang, and V. H. Smith Jr)

4.3.3.1. Introduction

This section includes tables of scattering factors of interest for gas-phase electron diffraction from atoms and molecules in the keV energy region. In addition to the tables and a description of their uses, a discussion of the theoretical uncertainties related to the material in the tables is also provided. The tables give scattering factors for elastic and inelastic scattering from free atoms. The theory of molecular scattering based on these atomic quantities is also discussed.

4.3.3.2. Complex atomic scattering factors for electrons

4.3.3.2.1. Elastic scattering factors for atoms

It has long been known that the first Born approximation provides an inadequate description at the 4% accuracy level for elastic and total differential cross sections in the 40 keV energy range for atoms heavier than Ne (Schomaker & Glauber, 1952; Glauber & Schomaker, 1953). Results of early experimental work have been confirmed for both atomic and molecular

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4.3. ELECTRON DIFFRACTION

Table 4.3.1.1. Atomic scattering amplitudes (\AA) for electrons for neutral atoms

Self-consistent field calculations: HF: non-relativistic Hartree-Fock; RHF, *RHF: relativistic Hartree-Fock.

$(\sin \theta)/\lambda$ (\AA^{-1})	Element	H	He	Li	Be	B	C	N	O	F	Ne	Na
	Z Method	1 HF	2 RHF	3 RHF	4 RHF	5 RHF	6 RHF	7 RHF	8 RHF	9 RHF	10 RHF	11 RHF
0.00		0.529	0.418	3.286	3.052	2.794	2.509	2.211	1.983	1.801	1.652	4.778
0.01			0.418	3.265	3.042	2.788	2.505	2.209	1.982	1.800	1.651	4.749
0.02			0.417	3.200	3.011	2.768	2.492	2.201	1.976	1.796	1.648	4.663
0.03			0.415	3.097	2.961	2.736	2.471	2.187	1.966	1.789	1.642	4.527
0.04		0.51	0.413	2.961	2.892	2.693	2.442	2.168	1.953	1.779	1.635	4.348
0.05		0.51	0.410	2.800	2.807	2.638	2.406	2.144	1.937	1.767	1.626	4.138
0.06		0.50	0.407	2.622	2.710	2.574	2.363	2.116	1.917	1.752	1.615	3.908
0.07		0.49	0.404	2.435	2.601	2.502	2.313	2.083	1.893	1.735	1.602	3.667
0.08		0.48	0.399	2.245	2.484	2.423	2.259	2.047	1.867	1.716	1.587	3.425
0.09		0.47	0.395	2.058	2.362	2.339	2.200	2.007	1.839	1.694	1.570	3.190
0.10		0.45	0.390	1.879	2.237	2.250	2.138	1.963	1.808	1.671	1.552	2.967
0.11		0.44	0.384	1.710	2.111	2.159	2.072	1.918	1.774	1.646	1.533	2.759
0.12		0.425	0.378	1.554	1.987	2.067	2.005	1.870	1.739	1.619	1.512	2.569
0.13		0.411	0.372	1.411	1.865	1.974	1.936	1.821	1.702	1.591	1.490	2.395
0.14		0.396	0.366	1.282	1.748	1.882	1.866	1.770	1.664	1.562	1.467	2.239
0.15		0.382	0.359	1.166	1.635	1.791	1.796	1.718	1.625	1.532	1.443	2.099
0.16		0.366	0.352	1.063	1.528	1.702	1.727	1.666	1.585	1.501	1.418	1.974
0.17		0.353	0.345	0.971	1.427	1.616	1.658	1.614	1.545	1.469	1.393	1.863
0.18		0.338	0.338	0.889	1.332	1.533	1.591	1.561	1.504	1.436	1.367	1.763
0.19		0.324	0.330	0.817	1.243	1.453	1.524	1.510	1.463	1.404	1.340	1.674
0.20		0.311	0.323	0.753	1.161	1.377	1.460	1.458	1.422	1.371	1.313	1.594
0.22		0.285	0.308	0.646	1.013	1.235	1.337	1.358	1.341	1.304	1.259	1.458
0.24		0.261	0.293	0.562	0.887	1.107	1.222	1.262	1.261	1.238	1.204	1.344
0.25		0.249	0.286	0.526	0.832	1.048	1.168	1.216	1.222	1.206	1.176	1.295
0.26		0.238	0.278	0.494	0.781	0.993	1.117	1.171	1.184	1.173	1.149	1.249
0.28		0.218	0.264	0.440	0.690	0.892	1.020	1.085	1.110	1.110	1.095	1.167
0.30		0.199	0.250	0.396	0.614	0.803	0.932	1.006	1.040	1.049	1.043	1.095
0.32		0.182	0.236	0.359	0.549	0.725	0.853	0.932	0.974	0.991	0.991	1.031
0.34		0.167	0.224	0.328	0.494	0.657	0.781	0.863	0.911	0.935	0.942	0.973
0.35		0.160	0.217	0.314	0.469	0.625	0.748	0.831	0.881	0.908	0.918	0.946
0.36		0.153	0.211	0.301	0.446	0.596	0.717	0.800	0.853	0.882	0.894	0.921
0.38		0.141	0.200	0.279	0.406	0.543	0.658	0.742	0.798	0.831	0.849	0.872
0.40		0.130	0.189	0.259	0.371	0.497	0.606	0.689	0.747	0.784	0.805	0.827
0.42		0.120	0.178	0.241	0.341	0.455	0.559	0.641	0.700	0.739	0.764	0.785
0.44		0.111	0.169	0.226	0.314	0.419	0.517	0.596	0.656	0.697	0.725	0.746
0.45		0.107	0.164	0.219	0.302	0.402	0.497	0.575	0.635	0.677	0.706	0.727
0.46		0.103	0.159	0.212	0.291	0.387	0.479	0.555	0.615	0.658	0.687	0.709
0.48		0.096	0.151	0.200	0.271	0.358	0.444	0.518	0.577	0.621	0.652	0.675
0.50		0.089	0.143	0.188	0.253	0.333	0.413	0.484	0.542	0.586	0.619	0.642
0.55		0.075	0.125	0.164	0.215	0.280	0.348	0.411	0.466	0.510	0.544	0.569
0.60		0.064	0.110	0.145	0.186	0.239	0.297	0.353	0.403	0.445	0.479	0.505
0.65		0.055	0.097	0.128	0.164	0.207	0.256	0.305	0.350	0.390	0.424	0.450
0.70		0.048	0.086	0.115	0.145	0.182	0.223	0.266	0.307	0.344	0.376	0.403
0.80		0.037	0.068	0.093	0.117	0.144	0.175	0.208	0.241	0.272	0.300	0.325
0.90		0.029	0.055	0.077	0.096	0.118	0.141	0.167	0.193	0.219	0.244	0.266
1.00		0.024	0.046	0.064	0.081	0.098	0.117	0.137	0.159	0.180	0.201	0.221
1.10		0.020	0.038	0.054	0.069	0.083	0.099	0.115	0.133	0.150	0.168	0.185
1.20		0.017	0.032	0.046	0.059	0.072	0.085	0.098	0.113	0.128	0.143	0.158
1.30		0.014	0.028	0.040	0.051	0.062	0.073	0.085	0.097	0.110	0.123	0.135
1.40		0.012	0.024	0.035	0.045	0.055	0.064	0.074	0.085	0.095	0.106	0.117
1.50		0.011	0.021	0.031	0.040	0.048	0.057	0.065	0.074	0.084	0.093	0.103
1.60			0.019	0.028	0.035	0.043	0.051	0.058	0.066	0.074	0.083	0.092
1.70			0.016	0.024	0.031	0.038	0.045	0.052	0.059	0.066	0.074	0.081
1.80			0.015	0.022	0.028	0.035	0.041	0.047	0.053	0.060	0.066	0.073
1.90			0.013	0.019	0.026	0.031	0.037	0.043	0.048	0.054	0.060	0.065
2.00			0.012	0.017	0.023	0.028	0.034	0.039	0.044	0.049	0.054	0.059

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Table 4.3.1.1. *Atomic scattering amplitudes (Å) for electrons for neutral atoms (cont.)*

$(\sin \theta)/\lambda$ (Å ⁻¹)	Element Z Method	Mg 12 RHF	Al 13 RHF	Si 14 RHF	P 15 RHF	S 16 RHF	Cl 17 RHF	Ar 18 RHF	K 19 RHF	Ca 20 RHF	Sc 21 RHF	Ti 22 RHF
0.00		5.207	5.889	5.828	5.488	5.161	4.857	4.580	8.984	9.913	9.307	8.776
0.01		5.187	5.867	5.810	5.476	5.152	4.851	4.576	8.921	9.860	9.264	8.740
0.02		5.124	5.800	5.759	5.439	5.124	4.830	4.559	8.731	9.699	9.134	8.631
0.03		5.022	5.692	5.675	5.378	5.079	4.795	4.531	8.434	9.442	8.926	8.455
0.04		4.884	5.547	5.561	5.296	5.016	4.746	4.493	8.054	9.104	8.649	8.220
0.05		4.717	5.371	5.421	5.192	4.938	4.685	4.444	7.619	8.703	8.318	7.937
0.06		4.527	5.170	5.258	5.071	4.845	4.613	4.386	7.157	8.258	7.946	7.618
0.07		4.320	4.949	5.077	4.935	4.740	4.529	4.320	6.691	7.789	7.548	7.274
0.08		4.102	4.717	4.882	4.785	4.623	4.436	4.245	6.239	7.312	7.139	6.917
0.09		3.879	4.478	4.677	4.625	4.496	4.335	4.163	5.815	6.841	6.729	6.556
0.10		3.656	4.237	4.467	4.457	4.362	4.227	4.074	5.426	6.388	6.328	6.199
0.11		3.437	3.999	4.255	4.285	4.222	4.113	3.980	5.073	5.959	5.944	5.853
0.12		3.226	3.767	4.043	4.109	4.078	3.994	3.881	4.756	5.560	5.580	5.522
0.13		3.025	3.544	3.835	3.933	3.931	3.871	3.779	4.474	5.192	5.239	5.209
0.14		2.835	3.330	3.632	3.758	3.783	3.746	3.674	4.222	4.855	4.924	4.916
0.15		2.657	3.128	3.437	3.586	3.635	3.620	3.566	3.997	4.550	4.633	4.643
0.16		2.492	2.938	3.249	3.417	3.487	3.493	3.458	3.795	4.273	4.366	4.390
0.17		2.340	2.760	3.070	3.253	3.342	3.367	3.348	3.612	4.023	4.122	4.157
0.18		2.199	2.595	2.900	3.094	3.200	3.242	3.239	3.446	3.797	3.899	3.943
0.19		2.071	2.441	2.740	2.942	3.061	3.118	3.130	3.295	3.593	3.695	3.745
0.20		1.953	2.299	2.589	2.796	2.927	2.997	3.022	3.154	3.408	3.509	3.564
0.22		1.748	2.046	2.315	2.525	2.671	2.763	2.811	2.902	3.086	3.183	3.242
0.24		1.577	1.832	2.076	2.281	2.436	2.543	2.609	2.680	2.815	2.906	2.967
0.25		1.502	1.737	1.969	2.169	2.326	2.438	2.512	2.578	2.695	2.783	2.844
0.26		1.434	1.650	1.869	2.064	2.221	2.337	2.417	2.481	2.584	2.669	2.730
0.28		1.313	1.495	1.689	1.872	2.026	2.148	2.238	2.299	2.383	2.462	2.523
0.30		1.211	1.363	1.534	1.702	1.851	1.974	2.070	2.134	2.206	2.281	2.341
0.32		1.123	1.251	1.400	1.553	1.694	1.816	1.915	1.982	2.048	2.119	2.178
0.34		1.047	1.154	1.284	1.422	1.554	1.672	1.772	1.842	1.905	1.974	2.032
0.35		1.013	1.111	1.231	1.362	1.490	1.606	1.705	1.776	1.838	1.906	1.964
0.36		0.980	1.070	1.182	1.306	1.429	1.542	1.641	1.714	1.775	1.842	1.899
0.38		0.921	0.997	1.094	1.205	1.318	1.425	1.522	1.595	1.657	1.722	1.778
0.40		0.868	0.932	1.017	1.115	1.218	1.319	1.412	1.487	1.548	1.612	1.668
0.42		0.821	0.875	0.949	1.036	1.130	1.224	1.313	1.387	1.449	1.511	1.566
0.44		0.777	0.825	0.888	0.965	1.051	1.138	1.223	1.295	1.357	1.418	1.472
0.45		0.757	0.801	0.861	0.933	1.014	1.098	1.181	1.252	1.314	1.374	1.428
0.46		0.738	0.779	0.834	0.903	0.980	1.061	1.141	1.211	1.272	1.332	1.385
0.48		0.701	0.737	0.786	0.847	0.917	0.991	1.066	1.134	1.194	1.252	1.305
0.50		0.667	0.700	0.743	0.797	0.860	0.928	0.998	1.064	1.123	1.179	1.230
0.55		0.592	0.618	0.651	0.692	0.741	0.796	0.854	0.912	0.966	1.018	1.067
0.60		0.528	0.551	0.578	0.610	0.648	0.692	0.740	0.790	0.838	0.885	0.930
0.65		0.473	0.494	0.517	0.543	0.573	0.609	0.648	0.690	0.733	0.775	0.816
0.70		0.425	0.445	0.465	0.487	0.513	0.541	0.574	0.609	0.647	0.684	0.721
0.80		0.347	0.366	0.383	0.401	0.419	0.440	0.462	0.488	0.515	0.544	0.573
0.90		0.286	0.304	0.320	0.335	0.350	0.366	0.383	0.402	0.422	0.444	0.467
1.00		0.239	0.255	0.270	0.284	0.298	0.311	0.324	0.339	0.354	0.371	0.389
1.10		0.202	0.217	0.231	0.243	0.255	0.267	0.278	0.290	0.303	0.316	0.330
1.20		0.172	0.185	0.198	0.210	0.221	0.232	0.242	0.252	0.262	0.273	0.285
1.30		0.148	0.160	0.172	0.183	0.193	0.202	0.212	0.220	0.230	0.239	0.249
1.40		0.129	0.139	0.150	0.160	0.169	0.178	0.187	0.194	0.202	0.211	0.219
1.50		0.113	0.123	0.132	0.141	0.150	0.158	0.166	0.174	0.181	0.188	0.195
1.60		0.100	0.109	0.117	0.125	0.133	0.141	0.148	0.156	0.162	0.169	0.175
1.70		0.089	0.096	0.104	0.111	0.119	0.126	0.132	0.138	0.144	0.151	0.157
1.80		0.080	0.087	0.093	0.100	0.107	0.113	0.119	0.127	0.132	0.137	0.143
1.90		0.072	0.078	0.084	0.090	0.096	0.102	0.108	0.112	0.118	0.124	0.129
2.00		0.065	0.070	0.076	0.082	0.087	0.093	0.098	0.101	0.107	0.112	0.117

4.3. ELECTRON DIFFRACTION

Table 4.3.1.1. Atomic scattering amplitudes (\AA) for electrons for neutral atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As
	Z Method	23 RHF	24 RHF	25 RHF	26 RHF	27 RHF	28 RHF	29 RHF	30 RHF	31 RHF	32 RHF	33 RHF
0.00		8.305	6.969	7.506	7.165	6.854	6.569	5.600	6.065	7.108	7.378	7.320
0.01		8.274	6.945	7.484	7.145	6.836	6.552	5.587	6.051	7.088	7.359	7.306
0.02		8.180	6.875	7.412	7.081	6.779	6.501	5.547	6.009	7.027	7.303	7.260
0.03		8.029	6.762	7.296	6.978	6.687	6.418	5.482	5.941	6.927	7.211	7.184
0.04		7.826	6.610	7.140	6.839	6.562	6.306	5.395	5.849	6.792	7.088	7.081
0.05		7.581	6.427	6.949	6.669	6.410	6.169	5.287	5.735	6.629	6.935	6.953
0.06		7.303	6.221	6.732	6.474	6.234	6.010	5.165	5.603	6.441	6.759	6.803
0.07		7.002	5.997	6.493	6.260	6.040	5.834	5.029	5.457	6.236	6.562	6.634
0.08		6.686	5.764	6.241	6.032	5.834	5.646	4.886	5.299	6.017	6.351	6.449
0.09		6.365	5.527	5.981	5.796	5.619	5.449	4.737	5.133	5.792	6.129	6.253
0.10		6.045	5.291	5.719	5.558	5.401	5.249	4.585	4.962	5.564	5.902	6.048
0.11		5.732	5.061	5.459	5.320	5.182	5.048	4.434	4.790	5.337	5.672	5.838
0.12		5.430	4.838	5.206	5.087	4.967	4.848	4.285	4.618	5.113	5.442	5.625
0.13		5.142	4.625	4.962	4.861	4.758	4.654	4.139	4.449	4.896	5.217	5.411
0.14		4.871	4.423	4.728	4.644	4.555	4.465	3.998	4.283	4.686	4.996	5.200
0.15		4.616	4.231	4.506	4.436	4.361	4.283	3.862	4.123	4.486	4.783	4.992
0.16		4.378	4.051	4.297	4.240	4.177	4.110	3.731	3.969	4.295	4.578	4.789
0.17		4.158	3.882	4.100	4.054	4.002	3.944	3.607	3.822	4.114	4.382	4.593
0.18		3.953	3.723	3.916	3.880	3.836	3.788	3.488	3.681	3.942	4.195	4.404
0.19		3.763	3.574	3.743	3.716	3.681	3.640	3.375	3.547	3.781	4.017	4.222
0.20		3.588	3.434	3.583	3.562	3.534	3.500	3.267	3.421	3.629	3.849	4.048
0.22		3.276	3.179	3.292	3.284	3.267	3.245	3.067	3.186	3.352	3.541	3.724
0.24		3.006	2.953	3.039	3.039	3.032	3.018	2.885	2.977	3.108	3.268	3.433
0.25		2.885	2.849	2.924	2.928	2.924	2.914	2.800	2.880	2.997	3.143	3.299
0.26		2.772	2.750	2.817	2.824	2.823	2.816	2.719	2.789	2.892	3.026	3.172
0.28		2.568	2.568	2.620	2.632	2.637	2.636	2.568	2.620	2.701	2.813	2.940
0.30		2.386	2.403	2.445	2.461	2.471	2.474	2.428	2.468	2.531	2.623	2.733
0.32		2.225	2.252	2.288	2.308	2.321	2.328	2.299	2.329	2.379	2.455	2.548
0.34		2.079	2.114	2.146	2.168	2.184	2.195	2.180	2.203	2.242	2.304	2.384
0.35		2.011	2.049	2.080	2.104	2.121	2.133	2.123	2.144	2.179	2.235	2.308
0.36		1.947	1.987	2.017	2.042	2.060	2.073	2.069	2.087	2.119	2.169	2.237
0.38		1.826	1.870	1.899	1.925	1.946	1.962	1.965	1.980	2.006	2.048	2.105
0.40		1.716	1.761	1.790	1.818	1.841	1.858	1.868	1.882	1.903	1.938	1.986
0.42		1.614	1.660	1.690	1.719	1.743	1.763	1.777	1.790	1.808	1.837	1.878
0.44		1.520	1.567	1.597	1.628	1.653	1.674	1.691	1.704	1.720	1.745	1.780
0.45		1.476	1.523	1.553	1.584	1.610	1.631	1.651	1.663	1.679	1.702	1.734
0.46		1.433	1.480	1.511	1.542	1.569	1.591	1.611	1.624	1.639	1.661	1.691
0.48		1.352	1.399	1.431	1.462	1.490	1.513	1.535	1.549	1.563	1.583	1.608
0.50		1.277	1.323	1.356	1.388	1.416	1.440	1.464	1.478	1.492	1.510	1.533
0.55		1.111	1.155	1.189	1.222	1.251	1.277	1.303	1.319	1.334	1.349	1.367
0.60		0.973	1.014	1.047	1.080	1.110	1.136	1.163	1.181	1.197	1.212	1.228
0.65		0.856	0.894	0.927	0.959	0.988	1.015	1.041	1.061	1.078	1.093	1.108
0.70		0.757	0.792	0.824	0.854	0.883	0.909	0.935	0.955	0.973	0.989	1.004
0.80		0.602	0.631	0.659	0.686	0.712	0.737	0.761	0.781	0.800	0.817	0.832
0.90		0.490	0.514	0.538	0.561	0.583	0.605	0.626	0.646	0.665	0.681	0.697
1.00		0.408	0.427	0.446	0.466	0.485	0.504	0.523	0.541	0.558	0.574	0.589
1.10		0.345	0.361	0.377	0.393	0.409	0.425	0.442	0.457	0.473	0.488	0.502
1.20		0.297	0.310	0.323	0.336	0.350	0.364	0.378	0.391	0.405	0.418	0.431
1.30		0.259	0.269	0.280	0.291	0.303	0.315	0.327	0.339	0.350	0.362	0.374
1.40		0.228	0.237	0.246	0.255	0.265	0.275	0.285	0.296	0.306	0.317	0.327
1.50		0.203	0.210	0.218	0.226	0.235	0.243	0.252	0.261	0.270	0.279	0.288
1.60		0.182	0.188	0.195	0.202	0.209	0.217	0.224	0.232	0.240	0.248	0.256
1.70		0.163	0.169	0.175	0.181	0.188	0.194	0.201	0.208	0.215	0.222	0.229
1.80		0.148	0.154	0.159	0.165	0.170	0.176	0.182	0.188	0.194	0.200	0.206
1.90		0.134	0.139	0.144	0.149	0.154	0.160	0.165	0.170	0.175	0.181	0.187
2.00		0.122	0.127	0.132	0.136	0.141	0.146	0.150	0.155	0.160	0.165	0.170

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.1.1. Atomic scattering amplitudes (\AA) for electrons for neutral atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element Z Method	Se 34 RHF	Br 35 RHF	Kr 36 RHF	Rb 37 RHF	Sr 38 RHF	Y 39 *RHF	Zr 40 *RHF	Nb 41 *RHF	Mo 42 *RHF	Tc 43 *RHF	Ru 44 *RHF
0.00		7.205	7.060	6.897	11.778	13.109	12.674	12.166	10.679	10.260	10.856	9.558
0.01		7.192	7.049	6.889	11.699	13.035				10.230		
0.02		7.154	7.016	6.861	11.460	12.816				10.138		
0.03		7.090	6.962	6.814	11.088	12.468				9.989		
0.04		7.004	6.888	6.750	10.613	12.013	11.79	11.41	10.13	9.790	10.35	9.18
0.05		6.895	6.795	6.670	10.073	11.476	11.34	11.04	9.86	9.548	10.10	8.99
0.06		6.767	6.684	6.574	9.504	10.888	10.84	10.62	9.54	9.272	9.80	8.77
0.07		6.621	6.558	6.464	8.934	10.273	10.31	10.15	9.20	8.972	9.48	8.53
0.08		6.460	6.418	6.341	8.385	9.655	9.77	9.68	8.85	8.655	9.14	8.27
0.09		6.288	6.266	6.207	7.872	9.052	9.23	9.20	8.49	8.330	8.78	8.00
0.10		6.105	6.104	6.064	7.402	8.478	8.70	8.72	8.12	8.004	8.42	7.73
0.11		5.916	5.935	5.913	6.976	7.940	8.20	8.26	7.77	7.680	8.07	7.46
0.12		5.722	5.760	5.755	6.593	7.443	7.722	7.818	7.421	7.364	7.720	7.190
0.13		5.525	5.580	5.593	6.248	6.988	7.278	7.400	7.090	7.058	7.383	6.928
0.14		5.328	5.399	5.428	5.938	6.575	6.865	7.007	6.772	6.763	7.057	6.672
0.15		5.132	5.217	5.260	5.658	6.200	6.485	6.640	6.472	6.481	6.746	6.426
0.16		4.938	5.036	5.092	5.403	5.862	6.136	6.299	6.187	6.213	6.451	6.188
0.17		4.749	4.857	4.925	5.170	5.555	5.816	5.983	5.918	5.957	6.171	5.960
0.18		4.564	4.680	4.759	4.954	5.278	5.523	5.689	5.665	5.715	5.907	5.741
0.19		4.384	4.507	4.595	4.754	5.025	5.254	5.419	5.427	5.486	5.658	5.533
0.20		4.211	4.339	4.434	4.566	4.794	5.008	5.168	5.203	5.269	5.423	5.332
0.22		3.884	4.017	4.123	4.224	4.387	4.570	4.721	4.792	4.868	4.994	4.959
0.24		3.585	3.718	3.829	3.916	4.039	4.195	4.333	4.426	4.507	4.614	4.618
0.25		3.446	3.578	3.690	3.773	3.882	4.027	4.158	4.258	4.341	4.439	4.459
0.26		3.314	3.443	3.556	3.636	3.735	3.869	3.995	4.099	4.182	4.273	4.306
0.28		3.069	3.192	3.303	3.382	3.465	3.583	3.697	3.804	3.888	3.969	4.021
0.30		2.849	2.963	3.071	3.149	3.224	3.329	3.433	3.539	3.622	3.695	3.759
0.32		2.651	2.757	2.858	2.936	3.007	3.101	3.196	3.298	3.379	3.448	3.518
0.34		2.475	2.570	2.665	2.742	2.810	2.895	2.982	3.080	3.158	3.223	3.296
0.35		2.393	2.484	2.575	2.651	2.718	2.799	2.883	2.978	3.054	3.118	3.192
0.36		2.316	2.402	2.490	2.564	2.630	2.708	2.789	2.880	2.955	3.018	3.092
0.38		2.173	2.250	2.330	2.402	2.466	2.538	2.613	2.698	2.770	2.830	2.904
0.40		2.045	2.113	2.186	2.254	2.315	2.383	2.452	2.531	2.600	2.658	2.730
0.42		1.929	1.989	2.055	2.119	2.178	2.241	2.305	2.379	2.444	2.500	2.570
0.44		1.824	1.877	1.936	1.995	2.052	2.111	2.171	2.239	2.300	2.355	2.421
0.45		1.776	1.825	1.881	1.938	1.993	2.049	2.108	2.173	2.233	2.287	2.351
0.46		1.729	1.775	1.828	1.883	1.936	1.991	2.047	2.110	2.168	2.221	2.284
0.48		1.642	1.683	1.730	1.780	1.830	1.881	1.934	1.991	2.046	2.098	2.157
0.50		1.562	1.598	1.640	1.686	1.733	1.780	1.829	1.883	1.934	1.984	2.040
0.55		1.389	1.416	1.447	1.483	1.522	1.562	1.603	1.646	1.690	1.734	1.782
0.60		1.245	1.266	1.290	1.319	1.350	1.383	1.417	1.452	1.490	1.528	1.569
0.65		1.124	1.141	1.160	1.182	1.208	1.235	1.263	1.292	1.324	1.357	1.391
0.70		1.019	1.034	1.050	1.068	1.089	1.111	1.135	1.159	1.185	1.214	1.243
0.80		0.847	0.860	0.873	0.887	0.902	0.918	0.935	0.952	0.971	0.992	1.013
0.90		0.711	0.725	0.737	0.749	0.762	0.774	0.787	0.800	0.814	0.830	0.845
1.00		0.603	0.616	0.628	0.640	0.651	0.662	0.673	0.684	0.695	0.707	0.719
1.10		0.515	0.528	0.540	0.551	0.562	0.572	0.582	0.591	0.601	0.611	0.621
1.20		0.444	0.456	0.467	0.478	0.488	0.498	0.507	0.516	0.525	0.534	0.542
1.30		0.385	0.396	0.407	0.417	0.427	0.436	0.445	0.454	0.462	0.470	0.478
1.40		0.337	0.347	0.357	0.365	0.375	0.384	0.393	0.401	0.408	0.416	0.423
1.50		0.297	0.306	0.315	0.325	0.333	0.341	0.349	0.356	0.364	0.371	0.378
1.60		0.264	0.272	0.280	0.290	0.297	0.303	0.311	0.318	0.325	0.332	0.338
1.70		0.236	0.243	0.250	0.257	0.264	0.272	0.278	0.285	0.291	0.298	0.304
1.80		0.212	0.219	0.225	0.233	0.239	0.244	0.251	0.257	0.263	0.269	0.275
1.90		0.192	0.198	0.204	0.208	0.214	0.221	0.227	0.233	0.238	0.244	0.249
2.00		0.175	0.180	0.185	0.188	0.194	0.201	0.206	0.211	0.216	0.222	0.227

4.3. ELECTRON DIFFRACTION

Table 4.3.1.1. Atomic scattering amplitudes (\AA) for electrons for neutral atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element Z Method	Rh 45 *RHF	Pd 46 *RHF	Ag 47 RHF	Cd 48 RHF	In 49 RHF	Sn 50 RHF	Sb 51 RHF	Te 52 *RHF	I 53 RHF	Xe 54 RHF	Cs 55 RHF
	0.00		9.242	7.583	8.671	9.232	10.434	10.859	10.974	11.003	10.905	10.794
0.01				8.654	9.213	10.406	10.833	10.950		10.887	10.777	16.391
0.02				8.599	9.153	10.320	10.750	10.876		10.828	10.725	16.050
0.03				8.510	9.057	10.181	10.615	10.755		10.731	10.638	15.521
0.04		8.90	7.43	8.391	8.926	9.995	10.433	10.591	10.65	10.599	10.520	14.855
0.05		8.73	7.35	8.244	8.764	9.768	10.209	10.387	10.47	10.434	10.371	14.106
0.06		8.53	7.26	8.075	8.577	9.509	9.950	10.150	10.25	10.238	10.194	13.326
0.07		8.31	7.16	7.888	8.369	9.224	9.664	9.884	10.01	10.017	9.993	12.556
0.08		8.01	7.03	7.689	8.144	8.923	9.357	9.596	9.74	9.773	9.771	11.823
0.09		7.83	6.91	7.480	7.909	8.612	9.037	9.291	9.46	9.511	9.530	11.145
0.10		7.58	6.77	7.267	7.666	8.297	8.709	8.976	9.16	9.235	9.274	10.525
0.11		7.33	6.62	7.052	7.421	7.983	8.380	8.654	8.85	8.948	9.007	9.965
0.12		7.079	6.474	6.837	7.176	7.674	8.053	8.331	8.538	8.654	8.732	9.458
0.13		6.836	6.319	6.625	6.933	7.374	7.732	8.010	8.224	8.357	8.451	9.000
0.14		6.598	6.162	6.418	6.695	7.084	7.419	7.694	7.914	8.059	8.167	8.583
0.15		6.366	6.003	6.215	6.464	6.805	7.118	7.386	7.608	7.764	7.884	8.201
0.16		6.143	5.843	6.018	6.240	6.539	6.829	7.088	7.309	7.472	7.603	7.848
0.17		5.929	5.684	5.827	6.024	6.286	6.552	6.800	7.018	7.186	7.325	7.519
0.18		5.722	5.526	5.643	5.817	6.045	6.289	6.524	6.738	6.908	7.053	7.212
0.19		5.524	5.369	5.464	5.618	5.817	6.039	6.261	6.467	6.639	6.787	6.922
0.20		5.334	5.214	5.293	5.427	5.601	5.803	6.010	6.209	6.379	6.529	6.649
0.22		4.976	4.913	4.967	5.070	5.203	5.368	5.547	5.727	5.889	6.039	6.143
0.24		4.648	4.626	4.665	4.745	4.846	4.979	5.131	5.291	5.442	5.586	5.684
0.25		4.493	4.487	4.522	4.592	4.682	4.801	4.940	5.090	5.234	5.374	5.471
0.26		4.345	4.352	4.384	4.447	4.525	4.633	4.760	4.899	5.036	5.172	5.268
0.28		4.066	4.093	4.122	4.173	4.236	4.323	4.428	4.548	4.670	4.795	4.890
0.30		3.809	3.850	3.878	3.922	3.973	4.044	4.131	4.234	4.341	4.454	4.547
0.32		3.572	3.622	3.651	3.690	3.734	3.792	3.865	3.952	4.046	4.147	4.235
0.34		3.353	3.408	3.440	3.476	3.515	3.564	3.625	3.700	3.780	3.870	3.953
0.35		3.249	3.306	3.339	3.375	3.412	3.458	3.514	3.583	3.658	3.742	3.822
0.36		3.150	3.208	3.242	3.278	3.313	3.356	3.408	3.472	3.541	3.620	3.697
0.38		2.962	3.022	3.058	3.093	3.127	3.165	3.210	3.265	3.325	3.394	3.465
0.40		2.788	2.848	2.886	2.922	2.955	2.990	3.030	3.078	3.130	3.191	3.255
0.42		2.626	2.686	2.726	2.762	2.795	2.828	2.864	2.907	2.953	3.006	3.064
0.44		2.477	2.535	2.576	2.613	2.646	2.678	2.712	2.750	2.791	2.838	2.890
0.45		2.406	2.464	2.505	2.542	2.576	2.608	2.640	2.677	2.715	2.759	2.809
0.46		2.338	2.395	2.436	2.474	2.507	2.539	2.571	2.606	2.642	2.684	2.731
0.48		2.210	2.264	2.306	2.344	2.378	2.409	2.440	2.473	2.506	2.543	2.586
0.50		2.090	2.143	2.185	2.223	2.257	2.288	2.318	2.350	2.380	2.414	2.453
0.55		1.828	1.875	1.915	1.953	1.987	2.019	2.048	2.077	2.104	2.132	2.163
0.60		1.609	1.650	1.688	1.724	1.758	1.790	1.819	1.847	1.871	1.897	1.923
0.65		1.426	1.462	1.497	1.531	1.563	1.594	1.622	1.649	1.673	1.697	1.721
0.70		1.273	1.304	1.335	1.366	1.397	1.426	1.453	1.479	1.503	1.526	1.548
0.80		1.035	1.058	1.082	1.107	1.132	1.157	1.181	1.205	1.227	1.248	1.269
0.90		0.861	0.879	0.897	0.916	0.936	0.956	0.976	0.997	1.016	1.036	1.055
1.00		0.731	0.745	0.758	0.773	0.789	0.805	0.821	0.838	0.855	0.871	0.888
1.10		0.631	0.641	0.652	0.664	0.676	0.688	0.701	0.715	0.729	0.743	0.758
1.20		0.551	0.559	0.568	0.578	0.587	0.597	0.608	0.619	0.630	0.642	0.654
1.30		0.485	0.493	0.500	0.508	0.516	0.525	0.533	0.542	0.551	0.561	0.570
1.40		0.431	0.437	0.444	0.451	0.458	0.465	0.472	0.480	0.487	0.495	0.502
1.50		0.384	0.391	0.397	0.403	0.409	0.416	0.422	0.428	0.435	0.442	0.450
1.60		0.345	0.351	0.357	0.362	0.368	0.374	0.379	0.385	0.391	0.397	0.405
1.70		0.310	0.316	0.321	0.327	0.332	0.337	0.343	0.348	0.353	0.358	0.363
1.80		0.281	0.286	0.291	0.297	0.302	0.307	0.311	0.316	0.321	0.325	0.332
1.90		0.255	0.260	0.265	0.270	0.274	0.279	0.284	0.288	0.293	0.297	0.299
2.00		0.232	0.237	0.241	0.246	0.250	0.255	0.259	0.264	0.268	0.272	0.272

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.1.1. Atomic scattering amplitudes (\AA) for electrons for neutral atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element Z Method	Ba 56 RHF	La 57 *RHF	Ce 58 *RHF	Pr 59 *RHF	Nd 60 *RHF	Pm 61 *RHF	Sm 62 *RHF	Eu 63 RHF	Gd 64 *RHF	Tb 65 *RHF	Dy 66 *RHF
0.00		18.267	17.805	17.378	16.987	16.606	16.243	15.897	15.563	15.266	14.974	14.641
0.01		18.157							15.486			
0.02		17.828							15.260			
0.03		17.309							14.898			
0.04		16.636	16.45	16.10	15.62	15.30	14.99	14.70	14.425	14.30	13.90	13.64
0.05		15.854	15.79	15.46	14.94	14.67	14.39	14.12	13.867	13.81	13.37	13.14
0.06		15.008	15.05	14.77	14.22	13.97	13.72	13.48	13.253	13.27	12.81	12.60
0.07		14.138	14.28	14.03	13.47	13.25	13.03	12.81	12.611	12.70	12.22	12.03
0.08		13.278	13.51	13.29	12.72	12.52	12.33	12.14	11.963	12.11	11.62	11.44
0.09		12.431	12.74	12.56	11.99	11.82	11.65	11.49	11.329	11.52	11.02	10.87
0.10		11.675	12.01	11.85	11.29	11.15	11.00	10.86	10.722	10.95	10.45	10.32
0.11		10.958	11.32	11.19	10.65	10.52	10.40	10.27	10.150	10.39	9.91	9.79
0.12		10.302	10.671	10.561	10.052	9.944	9.833	9.722	9.618	9.871	9.407	9.303
0.13		9.707	10.072	9.981	9.506	9.412	9.316	9.218	9.128	9.382	8.942	8.848
0.14		9.168	9.522	9.448	9.008	8.928	8.843	8.758	8.678	8.926	8.512	8.429
0.15		8.682	9.017	8.958	8.556	8.486	8.413	8.336	8.267	8.505	8.121	8.045
0.16		8.241	8.555	8.507	8.144	8.084	8.020	7.953	7.891	8.114	7.761	7.693
0.17		7.840	8.131	8.094	7.768	7.717	7.661	7.602	7.548	7.754	7.430	7.370
0.18		7.474	7.742	7.714	7.424	7.380	7.332	7.280	7.232	7.422	7.128	7.073
0.19		7.139	7.384	7.365	7.107	7.071	7.029	6.983	6.942	7.114	6.849	6.800
0.20		6.829	7.053	7.041	6.815	6.785	6.749	6.710	6.673	6.828	6.591	6.547
0.22		6.275	6.462	6.462	6.291	6.272	6.247	6.218	6.191	6.316	6.127	6.092
0.24		5.791	5.948	5.957	5.831	5.822	5.806	5.787	5.768	5.868	5.720	5.693
0.25		5.570	5.714	5.728	5.620	5.615	5.605	5.589	5.574	5.664	5.534	5.510
0.26		5.361	5.495	5.512	5.421	5.421	5.413	5.402	5.390	5.472	5.358	5.337
0.28		4.975	5.092	5.115	5.053	5.059	5.059	5.055	5.030	5.117	5.030	5.016
0.30		4.628	4.730	4.759	4.719	4.731	4.737	4.739	4.740	4.796	4.731	4.723
0.32		4.313	4.405	4.438	4.414	4.432	4.443	4.450	4.456	4.504	4.457	4.454
0.34		4.028	4.111	4.146	4.136	4.157	4.173	4.185	4.195	4.238	4.205	4.206
0.35		3.893	3.974	4.010	4.006	4.029	4.047	4.060	4.072	4.113	4.086	4.089
0.36		3.769	3.844	3.881	3.882	3.906	3.925	3.940	3.954	3.993	3.971	3.976
0.38		3.533	3.602	3.640	3.648	3.675	3.697	3.715	3.731	3.767	3.755	3.763
0.40		3.318	3.381	3.420	3.434	3.462	3.486	3.506	3.525	3.559	3.554	3.565
0.42		3.123	3.180	3.219	3.238	3.267	3.292	3.314	3.335	3.367	3.368	3.380
0.44		2.944	2.997	3.035	3.057	3.087	3.114	3.137	3.159	3.189	3.194	3.209
0.43		2.861	2.911	2.949	2.973	3.003	3.029	3.053	3.075	3.105	3.113	3.128
0.46		2.781	2.829	2.866	2.891	2.922	2.948	2.973	2.995	3.025	3.034	3.050
0.48		2.631	2.676	2.712	2.739	2.769	2.796	2.821	2.844	2.872	2.884	2.901
0.50		2.494	2.535	2.570	2.598	2.628	2.655	2.680	2.703	2.730	2.745	2.763
0.55		2.197	2.230	2.262	2.291	2.320	2.346	2.371	2.394	2.419	2.457	2.456
0.60		1.951	1.979	2.008	2.037	2.064	2.089	2.113	2.156	2.138	2.178	2.197
0.65		1.745	1.770	1.796	1.824	1.849	1.872	1.895	1.917	1.937	1.958	1.977
0.70		1.570	1.592	1.617	1.643	1.666	1.688	1.709	1.730	1.749	1.770	1.788
0.80		1.288	1.308	1.329	1.351	1.372	1.391	1.411	1.429	1.446	1.465	1.482
0.90		1.073	1.090	1.109	1.128	1.146	1.164	1.181	1.198	1.213	1.231	1.246
1.00		0.904	0.920	0.936	0.953	0.969	0.985	1.000	1.016	1.030	1.045	1.060
1.10		0.772	0.785	0.799	0.814	0.828	0.842	0.856	0.870	0.883	0.897	0.910
1.20		0.666	0.678	0.690	0.702	0.715	0.727	0.739	0.752	0.763	0.776	0.787
1.30		0.580	0.591	0.602	0.612	0.623	0.634	0.644	0.655	0.666	0.676	0.687
1.40		0.511	0.521	0.530	0.539	0.548	0.557	0.566	0.575	0.583	0.595	0.604
1.50		0.436	0.463	0.470	0.478	0.486	0.494	0.502	0.511	0.519	0.527	0.535
1.60		0.411	0.415	0.421	0.428	0.435	0.442	0.449	0.457	0.463	0.470	0.478
1.70		0.367	0.374	0.380	0.386	0.392	0.398	0.404	0.409	0.416	0.423	0.429
1.80		0.337	0.340	0.345	0.350	0.355	0.360	0.366	0.372	0.377	0.382	0.388
1.90		0.304	0.310	0.314	0.319	0.324	0.328	0.333	0.337	0.343	0.348	0.353
2.00		0.277	0.284	0.288	0.292	0.296	0.301	0.305	0.307	0.313	0.318	0.322

4.3. ELECTRON DIFFRACTION

Table 4.3.1.1. Atomic scattering amplitudes (\AA) for electrons for neutral atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element Z Method	Ho 67 *RHF	Er 68 *RHF	Tm 69 *RHF	Yb 70 *RHF	Lu 71 *RHF	Hf 72 *RHF	Ta 73 *RHF	W 74 *RHF	Re 75 *RHF	Os 76 *RHF	Ir 77 *RHF
	0.00		14.355	14.080	13.814	13.557	13.486	13.177	12.856	12.543	12.263	11.987
0.01												
0.02												
0.03												
0.04		13.57	13.16	12.92	12.70	12.74	12.55	12.31	12.06	11.83	11.59	11.37
0.05		13.14	12.70	12.48	12.28	12.38	12.23	12.01	11.80	11.60	11.39	11.18
0.06		12.66	12.19	12.00	11.81	11.95	11.85	11.69	11.51	11.34	11.15	10.96
0.07		12.15	11.66	11.48	11.31	11.50	11.45	11.33	11.18	11.04	10.88	10.72
0.08		11.61	11.11	10.96	10.80	11.03	11.02	10.95	10.83	10.73	10.59	10.45
0.09		11.08	10.58	10.44	10.29	10.55	10.59	10.55	10.47	10.40	10.29	10.17
0.10		10.55	10.06	9.93	9.80	10.08	10.16	10.15	10.10	10.05	9.98	9.88
0.11		10.05	9.56	9.45	9.33	9.62	9.73	9.75	9.74	9.71	9.65	9.58
0.12		9.562	9.095	8.994	8.892	9.180	9.308	9.363	9.369	9.366	9.334	9.281
0.13		9.108	8.662	8.571	8.480	8.762	8.907	8.982	9.011	9.028	9.016	8.982
0.14		8.681	8.262	8.180	8.098	8.370	8.525	8.616	8.663	8.697	8.702	8.686
0.15		8.284	7.895	7.821	7.746	8.001	8.163	8.266	8.327	8.376	8.396	8.395
0.16		7.917	7.557	7.490	7.421	7.660	7.822	7.933	8.006	8.067	8.099	8.111
0.17		7.577	7.247	7.185	7.123	7.343	7.502	7.617	7.699	7.769	7.813	7.836
0.18		7.262	6.962	6.905	6.849	7.047	7.202	7.321	7.408	7.485	7.537	7.570
0.19		6.971	6.698	6.646	6.595	6.774	6.922	7.040	7.132	7.213	7.272	7.313
0.20		6.700	6.454	6.407	6.360	6.520	6.660	6.776	6.870	6.954	7.019	7.067
0.22		6.213	6.017	5.978	5.938	6.063	6.185	6.295	6.388	6.475	6.547	6.604
0.24		5.788	5.632	5.601	5.568	5.664	5.768	5.867	5.957	6.043	6.117	6.180
0.25		5.595	5.457	5.428	5.398	5.483	5.578	5.672	5.759	5.843	5.917	5.982
0.26		5.412	5.290	5.265	5.238	5.312	5.399	5.487	5.571	5.653	5.727	5.792
0.28		5.075	4.981	4.961	4.940	4.996	5.069	5.147	5.224	5.301	5.372	5.437
0.30		4.771	4.699	4.685	4.669	4.712	4.772	4.840	4.910	4.981	5.049	5.113
0.32		4.494	4.440	4.430	4.419	4.453	4.503	4.563	4.626	4.691	4.755	4.816
0.34		4.240	4.200	4.195	4.188	4.215	4.258	4.310	4.366	4.425	4.485	4.543
0.35		4.121	4.087	4.084	4.078	4.103	4.143	4.191	4.245	4.301	4.359	4.415
0.36		4.007	3.978	3.976	3.973	3.996	4.033	4.078	4.129	4.182	4.237	4.293
0.38		3.790	3.771	3.773	3.773	3.793	3.825	3.865	3.910	3.959	4.010	4.061
0.40		3.591	3.579	3.583	3.586	3.604	3.632	3.668	3.709	3.753	3.800	3.848
0.42		3.405	3.399	3.406	3.411	3.429	3.454	3.486	3.523	3.563	3.606	3.651
0.44		3.233	3.232	3.241	3.248	3.265	3.288	3.317	3.350	3.387	3.427	3.468
0.45		3.151	3.153	3.162	3.170	3.187	3.209	3.237	3.269	3.304	3.342	3.382
0.46		3.073	3.076	3.086	3.095	3.111	3.133	3.159	3.190	3.224	3.260	3.299
0.48		2.924	2.930	2.942	2.952	2.968	2.988	3.013	3.041	3.072	3.105	3.141
0.50		2.785	2.793	2.806	2.818	2.834	2.853	2.876	2.902	2.930	2.961	2.994
0.55		2.477	2.490	2.505	2.518	2.534	2.551	2.571	2.592	2.616	2.641	2.669
0.60		2.216	2.232	2.248	2.263	2.278	2.294	2.311	2.330	2.349	2.371	2.394
0.65		1.995	2.012	2.028	2.043	2.058	2.073	2.089	2.105	2.122	2.140	2.160
0.70		1.085	1.823	1.839	1.854	1.868	1.882	1.896	1.911	1.926	1.942	1.959
0.80		1.497	1.515	1.530	1.545	1.558	1.571	1.583	1.596	1.608	1.621	1.634
0.90		1.260	1.276	1.291	1.305	1.317	1.329	1.341	1.352	1.363	1.374	1.385
1.00		1.073	1.088	1.101	1.114	1.126	1.138	1.148	1.159	1.169	1.179	1.189
1.10		0.922	0.935	0.948	0.960	0.971	0.982	0.993	1.003	1.012	1.022	1.031
1.20		0.799	0.811	0.822	0.833	0.844	0.854	0.864	0.874	0.883	0.892	0.901
1.30		0.698	0.708	0.719	0.729	0.739	0.748	0.758	0.767	0.776	0.784	0.793
1.40		0.614	0.623	0.632	0.642	0.651	0.660	0.668	0.677	0.685	0.694	0.702
1.50		0.544	0.552	0.560	0.569	0.577	0.585	0.593	0.601	0.609	0.617	0.624
1.60		0.485	0.492	0.500	0.507	0.515	0.522	0.530	0.537	0.544	0.551	0.558
1.70		0.436	0.442	0.449	0.455	0.462	0.469	0.475	0.482	0.489	0.495	0.502
1.80		0.394	0.399	0.405	0.411	0.417	0.423	0.429	0.435	0.441	0.447	0.453
1.90		0.358	0.363	0.368	0.373	0.379	0.384	0.389	0.395	0.400	0.406	0.411
2.00		0.327	0.331	0.336	0.341	0.345	0.350	0.355	0.360	0.365	0.370	0.374

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.1.1. Atomic scattering amplitudes (\AA) for electrons for neutral atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	Fr	Ra
	Z Method	78 *RHF	79 RHF	80 RHF	81 *RHF	82 RHF	83 RHF	84 *RHF	85 *RHF	86 RHF	87 *RHF	88 *RHF
0.00		10.813	10.573	10.964	12.109	12.597	13.096	13.368	13.473	13.492	18.715	20.561
0.01			10.559	10.948		12.573	13.070			13.470		
0.02			10.511	10.897		12.494	12.989			13.403		
0.03			10.434	10.813		12.366	12.857			13.292		
0.04		10.55	10.328	10.698	11.71	12.193	12.678	12.95	13.09	13.139	17.14	18.94
0.05		10.40	10.195	10.555	11.51	11.979	12.456	12.74	12.89	12.949	16.41	18.15
0.06		10.23	10.040	10.387	11.27	11.730	12.197	12.49	12.65	12.724	15.64	17.31
0.07		10.03	9.865	10.197	11.00	11.454	11.908	12.21	12.38	12.469	14.87	16.42
0.08		9.82	9.673	9.989	10.72	11.155	11.595	11.90	12.08	12.187	14.13	15.54
0.09		9.60	9.467	9.766	10.42	10.840	11.264	11.57	11.76	11.884	13.42	14.69
0.10		9.37	9.251	9.533	10.12	10.516	10.921	11.22	11.43	11.565	12.77	13.88
0.11		9.13	9.028	9.291	9.81	10.186	10.571	10.87	11.08	11.232	12.16	13.12
0.12		8.882	8.799	9.045	9.500	9.855	10.219	10.509	10.729	10.892	11.605	12.419
0.13		8.636	8.568	8.796	9.195	9.527	9.869	10.153	10.375	10.546	11.093	11.776
0.14		8.389	8.337	8.547	8.896	9.203	9.523	9.798	10.021	10.199	10.620	11.187
0.15		8.145	8.106	8.299	8.603	8.888	9.186	9.449	9.671	9.854	10.180	10.648
0.16		7.904	7.877	8.055	8.320	8.581	8.857	9.109	9.328	9.512	9.770	10.155
0.17		7.667	7.652	7.815	8.046	8.285	8.539	8.779	8.991	9.177	9.386	9.702
0.18		7.436	7.431	7.579	7.781	7.999	8.233	8.459	8.666	8.849	9.023	9.285
0.19		7.210	7.214	7.350	7.526	7.724	7.939	8.151	8.350	8.531	8.681	8.899
0.20		6.991	7.003	7.128	7.282	7.461	7.658	7.856	8.046	8.223	8.356	8.540
0.22		6.572	6.598	6.702	6.822	6.969	7.132	7.303	3.474	7.639	7.754	7.891
0.24		6.181	6.216	6.305	6.399	6.520	6.654	6.800	6.952	7.102	7.208	7.318
0.25		5.995	6.035	6.116	6.201	6.310	6.432	6.567	6.709	6.852	6.954	7.055
0.26		5.817	5.859	5.934	6.011	6.110	6.221	6.345	6.477	6.612	6.712	6.807
0.28		5.478	5.525	5.591	5.654	5.736	5.828	5.933	6.047	6.166	6.261	6.347
0.30		5.164	5.214	5.272	5.327	5.395	5.472	5.560	5.658	5.762	5.852	5.931
0.32		4.873	4.924	4.976	5.025	5.083	5.148	5.222	5.305	5.397	5.480	5.555
0.34		4.603	4.654	4.702	4.746	4.797	4.852	4.915	4.987	5.065	5.141	5.212
0.35		4.475	4.526	4.572	4.614	4.662	4.714	4.772	4.838	4.912	4.984	5.053
0.36		4.352	4.403	4.447	4.488	4.533	4.581	4.636	4.697	4.765	4.834	4.900
0.38		4.120	4.169	4.211	4.249	4.290	4.333	4.380	4.433	4.492	4.555	4.616
0.40		3.905	3.952	3.991	4.028	4.066	4.104	4.146	4.192	4.244	4.300	4.356
0.42		3.704	3.750	3.787	3.823	3.858	3.893	3.931	3.972	4.017	4.067	4.118
0.44		3.518	3.562	3.597	3.632	3.665	3.698	3.732	3.769	3.808	3.854	3.901
0.45		3.430	3.472	3.507	3.541	3.573	3.606	3.639	3.673	3.711	3.754	3.798
0.46		3.345	3.386	3.420	3.454	3.485	3.517	3.548	3.582	3.617	3.658	3.700
0.48		3.184	3.223	3.256	3.288	3.318	3.348	3.378	3.408	3.441	3.477	3.516
0.50		3.034	3.070	3.102	3.133	3.162	3.191	3.219	3.248	3.277	3.311	3.346
0.55		2.701	2.732	2.760	2.789	2.816	2.842	2.868	2.893	2.918	2.945	2.974
0.60		2.420	2.446	2.471	2.497	2.522	2.546	2.570	2.593	2.616	2.639	2.663
0.65		2.181	2.203	2.225	2.248	2.271	2.293	2.315	2.337	2.358	2.378	2.399
0.70		1.976	1.995	2.015	2.035	2.055	2.076	2.096	2.116	2.135	2.154	2.173
0.80		1.647	1.661	1.676	1.692	1.708	1.725	1.742	1.758	1.775	1.791	1.808
0.90		1.396	1.407	1.419	1.431	1.444	1.457	1.471	1.485	1.499	1.513	1.527
1.00		1.198	1.208	1.218	1.228	1.239	1.249	1.260	1.272	1.283	1.295	1.307
1.10		1.040	1.048	1.057	1.066	1.075	1.084	1.093	1.102	1.112	1.122	1.132
1.20		0.909	0.918	0.926	0.934	0.942	0.949	0.957	0.965	0.974	0.982	0.990
1.30		0.801	0.809	0.816	0.824	0.831	0.838	0.846	0.853	0.860	0.867	0.874
1.40		0.709	0.717	0.724	0.731	0.738	0.745	0.752	0.758	0.765	0.771	0.778
1.50		0.632	0.639	0.646	0.653	0.659	0.666	0.672	0.678	0.684	0.690	0.696
1.60		0.565	0.572	0.579	0.585	0.591	0.598	0.603	0.609	0.615	0.621	0.626
1.70		0.508	0.514	0.521	0.527	0.533	0.538	0.544	0.550	0.555	0.561	0.566
1.80		0.459	0.465	0.471	0.476	0.482	0.488	0.493	0.498	0.503	0.508	0.513
1.90		0.416	0.422	0.427	0.432	0.438	0.443	0.448	0.453	0.458	0.463	0.468
2.00		0.379	0.384	0.389	0.394	0.399	0.404	0.409	0.413	0.418	0.423	0.427

4.3. ELECTRON DIFFRACTION

Table 4.3.1.1. Atomic scattering amplitudes (\AA) for electrons for neutral atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element Z	Ac 89	Th 90	Pa 91	U 92	Np 93	Pu 94	Am 95	Cm 96	Bk 97	Cf 98
	Method	*RHF	*RHF	*RHF	RHF	*RHF	*RHF	*RHF	*RHF	*RHF	*RHF
0.00		20.484	20.115	19.568	19.119	18.759	18.191	17.840	17.710	17.406	16.841
0.01					19.047						
0.02					18.825						
0.03					18.470						
0.04		19.10	18.92	18.37	17.999	17.70	17.10	16.80	16.80	16.53	16.28
0.05		18.41	18.33	17.77	17.436	17.16	16.55	16.28	16.33	16.08	15.85
0.06		17.64	17.66	17.11	16.805	16.55	15.95	15.70	15.80	15.58	15.37
0.07		16.84	16.93	16.39	16.131	15.91	15.31	15.09	15.24	15.04	14.84
0.08		16.01	16.19	15.66	15.436	15.25	14.65	14.47	14.66	14.48	14.30
0.09		15.19	15.43	14.92	14.738	14.58	14.00	13.84	14.06	13.91	13.75
0.10		14.40	14.68	14.20	14.052	13.92	13.37	13.24	13.47	13.33	13.20
0.11		13.64	13.95	13.51	13.389	13.28	12.76	12.65	12.90	12.78	12.66
0.12		12.923	13.255	12.850	12.756	12.665	12.191	12.095	12.344	12.241	12.135
0.13		12.253	12.594	12.228	12.157	12.085	11.653	11.572	11.817	11.729	11.637
0.14		11.632	11.972	11.646	11.595	11.540	11.149	11.083	11.319	11.243	11.164
0.15		11.058	11.388	11.102	11.069	11.029	10.679	10.626	10.848	10.784	10.716
0.16		10.528	10.845	10.597	10.579	10.551	10.243	10.200	10.407	10.353	10.294
0.17		10.038	10.339	10.128	10.122	10.104	9.836	9.803	9.993	9.948	9.898
0.18		9.586	9.868	9.691	9.696	9.688	9.457	9.433	9.605	9.568	9.527
0.19		9.168	9.430	9.285	9.299	9.300	9.102	9.086	9.241	9.212	9.178
0.20		8.780	9.022	8.906	8.928	8.936	8.770	8.760	8.900	8.878	8.850
0.22		8.083	8.287	8.221	8.254	8.275	8.163	8.164	8.277	8.266	8.249
0.24		7.474	7.645	7.617	7.659	7.689	7.619	7.631	7.721	7.720	7.713
0.25		7.196	7.353	7.341	7.387	7.420	7.368	7.384	7.465	7.468	7.466
0.26		6.935	7.079	7.081	7.129	7.165	7.129	7.148	7.222	7.229	7.231
0.28		6.455	6.578	6.600	6.652	6.694	6.683	6.708	6.770	6.784	6.793
0.30		6.025	6.129	6.167	6.221	6.266	6.274	6.304	6.358	6.378	6.393
0.32		5.637	5.727	5.775	5.830	5.878	5.899	5.933	5.981	6.006	6.026
0.34		5.285	5.364	5.418	5.473	5.523	5.553	5.591	5.635	5.664	5.687
0.35		5.122	5.196	5.252	5.307	5.357	5.391	5.429	5.472	5.502	5.528
0.36		4.966	5.036	5.093	5.148	5.197	5.235	5.274	5.316	5.347	5.374
0.38		4.675	4.738	4.796	4.850	4.899	4.940	4.981	5.021	5.055	5.084
0.40		4.410	4.466	4.524	4.576	4.625	4.669	4.710	4.749	4.784	4.815
0.42		4.168	4.218	4.275	4.325	4.372	4.417	4.459	4.497	4.532	4.565
0.44		3.946	3.992	4.046	4.094	4.140	4.185	4.226	4.263	4.299	4.333
0.45		3.842	3.885	3.938	3.985	4.030	4.076	4.116	4.152	4.189	4.222
0.46		3.742	3.784	3.835	3.881	3.925	3.970	4.010	4.046	4.082	4.116
0.48		3.554	3.592	3.641	3.685	3.727	3.771	3.810	3.844	3.880	3.914
0.50		3.381	3.416	3.462	3.503	3.543	3.586	3.624	3.657	3.693	3.726
0.55		3.003	3.032	3.071	3.106	3.141	3.179	3.213	3.244	3.277	3.309
0.60		2.687	2.712	2.744	2.775	2.805	2.839	2.869	2.897	2.927	2.957
0.65		2.421	2.442	2.470	2.495	2.522	2.551	2.578	2.603	2.630	2.657
0.70		2.193	2.212	2.235	2.257	2.280	2.306	2.330	2.352	2.376	2.400
0.80		1.824	1.840	1.857	1.875	1.893	1.912	1.930	1.949	1.968	1.987
0.90		1.541	1.554	1.568	1.582	1.597	1.611	1.626	1.641	1.657	1.673
1.00		1.318	1.330	1.342	1.353	1.365	1.377	1.389	1.402	1.415	1.427
1.10		1.142	1.152	1.161	1.171	1.181	1.191	1.201	1.212	1.222	1.233
1.20		0.999	1.007	1.016	1.024	1.033	1.041	1.049	1.058	1.067	1.076
1.30		0.882	0.889	0.896	0.904	0.911	0.918	0.926	0.933	0.941	0.948
1.40		0.784	0.791	0.797	0.803	0.810	0.816	0.823	0.830	0.836	0.843
1.50		0.702	0.708	0.714	0.720	0.725	0.731	0.737	0.743	0.748	0.754
1.60		0.632	0.637	0.643	0.649	0.653	0.659	0.664	0.669	0.674	0.679
1.70		0.571	0.576	0.581	0.585	0.591	0.596	0.601	0.606	0.611	0.615
1.80		0.518	0.523	0.528	0.534	0.537	0.542	0.547	0.551	0.555	0.560
1.90		0.472	0.477	0.481	0.485	0.490	0.495	0.499	0.503	0.507	0.511
2.00		0.432	0.436	0.440	0.443	0.449	0.453	0.457	0.461	0.465	0.469

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.1.2. *Atomic scattering amplitudes (Å) for electrons for ionized atoms*

A discussion of the values quoted here for $s = 0$ is given in Subsection 4.3.1.6. Self-consistent field calculations: HF: non-relativistic Hartree–Fock; DS: modified Dirac–Slater; RHF, *RHF: relativistic Hartree–Fock.

$(\sin \theta)/\lambda$ (Å ⁻¹)	Element	H ¹⁻	Li ¹⁺	Be ²⁺	O ¹⁻	F ¹⁻	Na ¹⁺	Mg ²⁺	Al ³⁺	Si ⁴⁺	Cl ¹⁻	K ¹⁺
	Z	1	3	4	8	9	11	12	13	14	17	19
	Method	HF	RHF	RHF	HF	HF	RHF	RHF	HF	HF	RHF	RHF
0.00			0.157	0.082			1.130	0.831			6.770	3.436
0.01			239.497	478.762			240.469	479.511			-232.585	242.773
0.02			59.992	119.752			60.963	120.500			-53.125	63.260
0.03			26.750	53.268			27.719	54.015			-19.957	30.004
0.04		-12.00	15.115	29.999	-11.74	-12.21	16.081	30.745	45.52	60.34	-8.423	18.349
0.05		-6.78	9.730	19.229	-6.41	-6.85	10.692	19.972	29.36	38.80	-3.162	12.939
0.06		-4.03	6.804	13.378	-3.55	-3.97	7.762	14.119	20.58	27.10	-0.381	9.983
0.07		-2.45	5.040	9.850	-1.86	-2.25	5.993	10.589	15.29	20.05	1.219	8.184
0.08		-1.48	3.894	7.560	-0.79	-1.16	4.841	8.296	11.85	15.46	2.187	6.999
0.09		-0.87	3.109	5.990	-0.09	-0.43	4.049	6.722	9.49	12.32	2.783	6.169
0.10		-0.47	2.546	4.867	0.39	0.08	3.480	5.595	7.81	10.08	3.147	5.559
0.11		-0.20	2.130	4.036	0.72	0.43	3.056	4.760	6.56	8.41	3.361	5.092
0.12		-0.023	1.813	3.404	0.949	0.688	2.731	4.123	5.610	7.147	3.472	4.720
0.13		0.095	1.567	2.912	1.107	0.870	2.475	3.626	4.868	6.162	3.513	4.416
0.14		0.173	1.370	2.522	1.215	1.000	2.269	3.230	4.280	5.379	3.504	4.160
0.15		0.224	1.212	2.207	1.285	1.092	2.100	2.909	3.804	4.747	3.461	3.939
0.16		0.257	1.082	1.949	1.329	1.157	1.960	2.645	3.413	4.230	3.393	3.745
0.17		0.276	0.974	1.735	1.352	1.200	1.841	2.425	3.089	3.800	3.308	3.571
0.18		0.286	0.883	1.556	1.359	1.226	1.738	2.239	2.817	3.440	3.211	3.414
0.19		0.288	0.806	1.404	1.355	1.239	1.650	2.081	2.585	3.135	3.108	3.269
0.20		0.287	0.740	1.274	1.343	1.242	1.571	1.944	2.387	2.873	3.000	3.135
0.22		0.276	0.634	1.066	1.300	1.228	1.440	1.720	2.066	2.451	2.779	2.893
0.24		0.259	0.552	0.907	1.243	1.194	1.332	1.546	1.819	2.129	2.563	2.676
0.25		0.250	0.518	0.841	1.212	1.173	1.284	1.472	1.716	1.995	2.458	2.575
0.26		0.240	0.487	0.783	1.179	1.150	1.240	1.406	1.624	1.876	2.357	2.479
0.28		0.221	0.435	0.685	1.112	1.099	1.161	1.290	1.466	1.674	2.165	2.300
0.30		0.203	0.393	0.605	1.046	1.046	1.092	1.193	1.336	1.509	1.988	2.135
0.32		0.186	0.357	0.539	0.981	0.992	1.029	1.110	1.228	1.372	1.827	1.983
0.34		0.170	0.327	0.485	0.918	0.939	0.972	1.038	1.136	1.257	1.680	1.843
0.35		0.163	0.314	0.461	0.889	0.912	0.946	1.005	1.094	1.206	1.613	1.778
0.36		0.156	0.301	0.439	0.860	0.887	0.920	0.974	1.056	1.159	1.548	1.715
0.38		0.143	0.279	0.400	0.804	0.837	0.872	0.917	0.987	1.075	1.429	1.596
0.40		0.132	0.259	0.366	0.753	0.789	0.827	0.866	0.925	1.001	1.322	1.488
0.42		0.122	0.242	0.337	0.704	0.744	0.785	0.820	0.871	0.937	1.226	1.388
0.44		0.112	0.227	0.312	0.660	0.702	0.746	0.777	0.822	0.880	1.139	1.296
0.45		0.108	0.220	0.300	0.639	0.682	0.727	0.757	0.799	0.853	1.099	1.253
0.46		0.104	0.213	0.290	0.618	0.662	0.709	0.738	0.778	0.829	1.061	1.212
0.48		0.096	0.200	0.270	0.580	0.625	0.675	0.701	0.737	0.783	0.991	1.135
0.50		0.090	0.189	0.252	0.544	0.590	0.642	0.668	0.701	0.741	0.928	1.064
0.55		0.075	0.165	0.216	0.467	0.512	0.569	0.593	0.620	0.652	0.796	0.912
0.60		0.064	0.145	0.188	0.403	0.446	0.506	0.529	0.553	0.580	0.691	0.789
0.65		0.055	0.129	0.165	0.351	0.391	0.451	0.474	0.496	0.519	0.608	0.690
0.70		0.048	0.115	0.146	0.307	0.345	0.403	0.426	0.447	0.468	0.541	0.609
0.80		0.037	0.093	0.118	0.241	0.272	0.325	0.347	0.367	0.385	0.439	0.488
0.90		0.029	0.077	0.097	0.193	0.219	0.266	0.286	0.305	0.321	0.366	0.402
1.00		0.024	0.064	0.081	0.159	0.180	0.221	0.239	0.256	0.271	0.311	0.338
1.10		0.020	0.054	0.069	0.133	0.150	0.185	0.201	0.217	0.231	0.267	0.290
1.20		0.017	0.046	0.059	0.113	0.128	0.157	0.172	0.186	0.198	0.232	0.252
1.30		0.014	0.040	0.052	0.097	0.110	0.135	0.148	0.160	0.172	0.202	0.221
1.40		0.012	0.035	0.045	0.085	0.095	0.118	0.129	0.140	0.150	0.178	0.195
1.50		0.011	0.031	0.040	0.075	0.084	0.103	0.113	0.123	0.132	0.158	0.173
1.60			0.027	0.035			0.091	0.100			0.141	0.155
1.70			0.024	0.032			0.081	0.089			0.126	0.139
1.80			0.022	0.028			0.073	0.080			0.113	0.125
1.90			0.020	0.026			0.066	0.072			0.102	0.114
2.00			0.018	0.023			0.060	0.065			0.093	0.103

4.3. ELECTRON DIFFRACTION

Table 4.3.1.2. Atomic scattering amplitudes (\AA) for electrons for ionized atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element	Ca ²⁺	Sc ³⁺	Ti ²⁺	Ti ³⁺	Ti ⁴⁺	V ²⁺	V ³⁺	V ⁵⁺	Cr ²⁺	Cr ³⁺	Mn ²⁺
	Z	20	21	22	22	22	23	23	23	24	24	25
	Method	RHF	HF	HF	HF	HF	RHF	HF	HF	HF	HF	RHF
0.00		2.711					2.904					2.846
0.01		481.390					481.582					481.525
0.02		122.375					122.566					122.510
0.03		55.883					56.074					56.018
0.04		32.602	47.08	32.80	47.15	61.67	32.791	47.18	76.36	32.79	47.19	32.738
0.05		21.817	30.91	22.01	30.98	40.13	22.005	31.02	49.43	22.00	31.03	21.953
0.06		15.948	22.13	16.14	22.19	28.42	16.134	22.23	34.80	16.13	22.24	16.085
0.07		12.399	16.82	12.59	16.89	21.35	12.583	16.92	25.98	12.58	16.93	12.537
0.08		10.085	13.37	10.27	13.44	16.77	10.267	13.47	20.24	10.26	13.48	10.225
0.09		8.489	11.00	8.67	11.07	13.62	8.668	11.10	16.31	8.67	11.11	8.630
0.10		7.336	9.30	7.52	9.36	11.36	7.514	9.39	13.49	7.51	9.41	7.479
0.11		6.473	8.03	6.65	8.09	9.68	6.648	8.13	11.41	6.65	8.14	6.618
0.12		5.807	7.057	5.977	7.120	8.400	5.980	7.155	9.815	5.983	7.172	5.954
0.13		5.279	6.295	5.444	6.359	7.400	5.449	6.394	8.574	5.455	6.410	5.428
0.14		4.850	5.684	5.011	5.747	6.603	5.018	5.782	7.584	5.026	5.800	5.002
0.15		4.495	5.185	4.653	5.247	5.954	4.661	5.284	6.784	4.671	5.302	4.650
0.16		4.196	4.770	4.349	4.832	5.418	4.360	4.868	6.126	4.372	4.888	4.353
0.17		3.939	4.421	4.089	4.481	4.971	4.102	4.518	5.577	4.116	4.539	4.100
0.18		3.716	4.121	3.863	4.182	4.591	3.877	4.220	5.113	3.894	4.242	3.880
0.19		3.519	3.863	3.663	3.923	4.266	3.679	3.961	4.719	3.698	3.984	3.686
0.20		3.343	3.637	3.485	3.697	3.984	3.503	3.735	4.378	3.523	3.759	3.514
0.22		3.041	3.259	3.178	3.318	3.520	3.200	3.358	3.824	3.224	3.384	3.220
0.24		2.787	2.953	2.920	3.012	3.155	2.946	3.053	3.391	2.973	3.081	2.975
0.25		2.674	2.821	2.806	2.879	2.998	2.833	2.921	3.209	2.862	2.950	2.865
0.26		2.568	2.699	2.699	2.757	2.857	2.727	2.799	3.045	2.758	2.830	2.764
0.28		2.376	2.482	2.504	2.540	2.610	2.536	2.584	2.761	2.569	2.616	2.579
0.30		2.204	2.294	2.331	2.352	2.399	2.365	2.396	2.524	2.401	2.430	2.415
0.32		2.049	2.128	2.174	2.185	2.217	2.211	2.231	2.322	2.249	2.266	2.266
0.34		1.907	1.980	2.032	2.037	2.057	2.071	2.073	2.147	2.111	2.120	2.131
0.35		1.842	1.911	1.966	1.968	1.984	2.005	2.015	2.068	2.046	2.053	2.068
0.36		1.778	1.846	1.903	1.903	1.915	1.943	1.950	1.994	1.984	1.988	2.007
0.38		1.660	1.725	1.783	1.781	1.788	1.825	1.829	1.858	1.867	1.868	1.893
0.40		1.551	1.614	1.673	1.670	1.673	1.716	1.718	1.736	1.759	1.758	1.787
0.42		1.451	1.512	1.572	1.568	1.569	1.615	1.616	1.627	1.659	1.657	1.688
0.44		1.359	1.419	1.478	1.474	1.473	1.522	1.522	1.528	1.566	1.563	1.597
0.45		1.316	1.375	1.433	1.429	1.428	1.477	1.477	1.481	1.522	1.519	1.553
0.46		1.274	1.333	1.391	1.387	1.385	1.435	1.434	1.437	1.480	1.476	1.511
0.48		1.196	1.253	1.310	1.306	1.304	1.354	1.354	1.354	1.399	1.395	1.432
0.50		1.124	1.180	1.235	1.232	1.229	1.279	1.279	1.277	1.324	1.320	1.357
0.55		0.967	1.019	1.070	1.068	1.066	1.113	1.113	1.110	1.156	1.154	1.190
0.60		0.838	0.886	0.933	0.931	0.930	0.973	0.974	0.971	1.015	1.013	1.049
0.65		0.733	0.776	0.818	0.817	0.816	0.856	0.857	0.855	0.895	0.894	0.928
0.70		0.647	0.685	0.722	0.722	0.721	0.757	0.758	0.756	0.793	0.792	0.824
0.80		0.515	0.544	0.574	0.574	0.574	0.602	0.603	0.603	0.632	0.632	0.659
0.90		0.422	0.444	0.467	0.467	0.467	0.490	0.491	0.491	0.515	0.515	0.538
1.00		0.354	0.371	0.389	0.389	0.389	0.408	0.408	0.408	0.427	0.427	0.446
1.10		0.302	0.316	0.331	0.331	0.330	0.345	0.346	0.345	0.361	0.361	0.377
1.20		0.262	0.273	0.285	0.285	0.285	0.297	0.297	0.297	0.310	0.310	0.323
1.30		0.230	0.239	0.249	0.249	0.249	0.259	0.259	0.259	0.270	0.270	0.280
1.40		0.203	0.211	0.220	0.220	0.219	0.228	0.228	0.228	0.237	0.237	0.246
1.50		0.180	0.188	0.195	0.195	0.195	0.203	0.203	0.202	0.211	0.211	0.218
1.60		0.161					0.181					0.195
1.70		0.145					0.163					0.175
1.80		0.131					0.148					0.159
1.90		0.119					0.134					0.144
2.00		0.108					0.123					0.132

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.1.2. Atomic scattering amplitudes (\AA) for electrons for ionized atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element Z	Mn ³⁺ 25	Mn ⁴⁺ 25	Fe ²⁺ 26	Fe ³⁺ 26	Co ²⁺ 27	Co ³⁺ 27	Ni ²⁺ 28	Ni ³⁺ 28	Cu ¹⁺ 29	Cu ²⁺ 29	Zn ²⁺ 30
	Method	HF	HF	RHF	RHF	RHF	HF	RHF	HF	RHF	HF	RHF
0.00				2.802	2.298	2.754		2.703		3.280		2.599
0.01				481.481	720.318	481.433		481.382		242.618		481.278
0.02				122.467	181.800	122.419		122.368		63.107		122.265
0.03				55.976	82.070	55.928		55.878		29.855		55.776
0.04		47.18	61.76	32.696	47.160	32.650	47.15	32.600	47.12	18.206	32.55	32.499
0.05		31.02	40.22	21.913	30.996	21.867	30.98	21.819	30.96	12.803	21.77	21.719
0.06		22.23	28.51	16.046	22.210	16.002	22.20	15.955	22.17	9.856	15.90	15.857
0.07		16.93	21.44	12.500	16.907	12.457	16.90	12.411	16.87	8.066	12.36	12.316
0.08		13.48	16.85	10.189	13.459	10.148	13.45	10.103	13.43	6.893	10.06	10.011
0.09		11.11	13.70	8.596	11.089	8.556	11.08	8.513	11.06	6.076	8.47	8.424
0.10		9.41	11.45	7.447	9.388	7.409	9.38	7.368	9.36	5.479	7.33	7.282
0.11		8.14	9.77	6.588	8.124	6.553	8.12	6.513	8.10	5.027	6.47	6.430
0.12		7.174	8.492	5.926	7.156	5.893	7.150	5.856	7.132	4.671	5.817	5.776
0.13		6.413	7.492	5.403	6.398	5.371	6.393	5.336	6.376	4.383	5.299	5.260
0.14		5.804	6.695	4.979	5.790	4.950	5.787	4.917	5.770	4.144	4.883	4.845
0.15		5.307	6.047	4.629	5.294	4.603	5.293	4.572	5.277	3.942	4.540	4.504
0.16		4.894	5.514	4.335	4.884	4.311	4.883	4.283	4.869	3.766	4.253	4.219
0.17		4.547	5.068	4.084	4.538	4.063	4.538	4.036	4.526	3.612	4.009	3.976
0.18		4.251	4.689	3.867	4.243	3.847	4.245	3.824	4.234	3.474	3.799	3.768
0.19		3.995	4.366	3.676	3.989	3.659	3.993	3.638	3.983	3.349	3.615	3.586
0.20		3.771	4.086	3.506	3.767	3.492	3.772	3.473	3.764	3.234	3.453	3.426
0.22		3.399	3.625	3.217	3.397	3.207	3.405	3.193	3.400	3.030	3.178	3.154
0.24		3.099	3.262	2.976	3.100	2.971	3.111	2.961	3.109	2.851	2.950	2.930
0.25		2.969	3.108	2.869	2.972	2.866	2.984	2.858	2.984	2.769	2.850	2.831
0.26		2.850	2.968	2.769	2.855	2.768	2.868	2.763	2.869	2.690	2.757	2.740
0.28		2.639	2.723	2.589	2.646	2.592	2.662	2.590	2.666	2.544	2.588	2.574
0.30		2.455	2.516	2.428	2.466	2.434	2.484	2.436	2.490	2.410	2.438	2.428
0.32		2.294	2.336	2.282	2.307	2.293	2.327	2.298	2.336	2.285	2.303	2.296
0.34		2.149	2.179	2.150	2.165	2.163	2.187	2.172	2.199	2.169	2.180	2.176
0.35		2.083	2.107	2.088	2.099	2.103	2.123	2.113	2.135	2.114	2.123	2.120
0.36		2.019	2.039	2.029	2.037	2.045	2.061	2.056	2.075	2.061	2.067	2.066
0.38		1.900	1.913	1.917	1.920	1.935	1.946	1.949	1.962	1.959	1.963	1.964
0.40		1.791	1.799	1.813	1.813	1.833	1.841	1.849	1.858	1.864	1.866	1.869
0.42		1.691	1.695	1.716	1.715	1.739	1.743	1.756	1.762	1.774	1.775	1.781
0.44		1.598	1.600	1.626	1.623	1.650	1.653	1.670	1.674	1.690	1.690	1.697
0.45		1.554	1.555	1.583	1.580	1.608	1.610	1.628	1.631	1.649	1.649	1.658
0.46		1.512	1.512	1.542	1.538	1.567	1.569	1.588	1.591	1.610	1.610	1.619
0.48		1.432	1.431	1.463	1.459	1.489	1.490	1.512	1.513	1.535	1.535	1.546
0.50		1.357	1.355	1.389	1.385	1.416	1.417	1.440	1.441	1.464	1.464	1.476
0.55		1.190	1.188	1.223	1.220	1.252	1.252	1.277	1.278	1.303	1.303	1.319
0.60		1.049	1.047	1.081	1.079	1.111	1.111	1.137	1.138	1.163	1.164	1.182
0.65		0.928	0.927	0.959	0.958	0.989	0.989	1.015	1.016	1.042	1.043	1.061
0.70		0.825	0.824	0.855	0.854	0.883	0.884	0.910	0.910	0.935	0.936	0.956
0.80		0.660	0.660	0.687	0.686	0.713	0.713	0.737	0.738	0.761	0.762	0.782
0.90		0.538	0.538	0.561	0.561	0.583	0.584	0.605	0.606	0.627	0.628	0.646
1.00		0.447	0.447	0.466	0.466	0.485	0.486	0.504	0.505	0.523	0.524	0.541
1.10		0.377	0.377	0.393	0.393	0.409	0.410	0.425	0.426	0.441	0.442	0.457
1.20		0.323	0.323	0.336	0.336	0.350	0.350	0.364	0.364	0.378	0.378	0.391
1.30		0.281	0.281	0.291	0.291	0.303	0.304	0.315	0.315	0.327	0.327	0.339
1.40		0.246	0.246	0.256	0.256	0.265	0.266	0.275	0.276	0.286	0.286	0.296
1.50		0.219	0.218	0.226	0.226	0.235	0.235	0.243	0.244	0.252	0.253	0.261
1.60				0.202	0.202	0.209		0.217		0.224		0.232
1.70				0.182	0.182	0.188		0.195		0.201		0.208
1.80				0.164	0.164	0.170		0.176		0.182		0.188
1.90				0.149	0.149	0.155		0.160		0.165		0.170
2.00				0.136	0.136	0.141		0.146		0.150		0.155

4.3. ELECTRON DIFFRACTION

Table 4.3.1.2. Atomic scattering amplitudes (\AA) for electrons for ionized atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element	Ga ³⁺	Ge ⁴⁺	Br ¹⁻	Rb ¹⁺	Sr ²⁺	Y ³⁺	Zr ⁴⁺	Nb ³⁺	Nb ⁵⁺	Mo ³⁺	Mo ⁵⁺
	Z Method	31 HF	32 HF	35 RHF	37 RHF	38 RHF	39 *DS	40 *DS	41 *DS	41 *DS	42 *DS	42 *DS
0.00				9.357	5.545	4.642						
0.01				-230.004	244.880	483.320						
0.02				-50.565	65.359	124.299						
0.03				-17.431	32.090	57.798						
0.04		47.03	61.67	-5.942	20.419	34.505	48.84	63.31	49.33	77.86	49.44	78.04
0.05		30.87	40.13	-0.738	14.987	23.704	32.67	41.74	33.15	50.92	33.26	51.09
0.06		22.09	28.43	1.978	12.005	17.816	23.86	30.02	24.34	36.28	24.45	36.45
0.07		16.78	21.37	3.508	10.176	14.246	18.54	22.95	19.01	27.45	19.11	27.61
0.08		13.34	16.78	4.399	8.957	11.907	15.07	18.34	15.52	21.70	15.63	21.87
0.09		10.97	13.63	4.917	8.091	10.283	12.68	15.17	13.12	17.76	13.23	17.92
0.10		9.28	11.38	5.202	7.442	9.101	10.95	12.90	11.38	14.92	11.49	15.09
0.11		8.02	9.71	5.335	6.932	8.206	9.66	11.20	10.07	12.82	10.18	12.98
0.12		7.057	8.437	5.367	6.516	7.506	8.658	9.898	9.062	11.212	9.170	11.369
0.13		6.305	7.442	5.331	6.166	6.942	7.867	8.874	8.257	9.952	8.364	10.105
0.14		5.703	6.650	5.248	5.863	6.477	7.227	8.052	7.601	8.945	7.708	9.094
0.15		5.213	5.818	5.132	5.595	6.084	6.696	7.378	7.057	8.124	7.163	8.269
0.16		4.809	5.481	4.996	5.352	5.746	6.249	6.817	6.596	7.444	6.702	7.586
0.17		4.470	5.041	4.846	5.130	5.449	5.867	6.343	6.200	6.873	6.304	7.012
0.18		4.182	4.669	4.688	4.925	5.186	5.534	5.936	5.853	6.388	5.957	6.523
0.19		3.934	4.351	4.527	4.733	4.949	5.242	5.582	5.548	5.969	5.650	6.101
0.20		3.719	4.078	4.365	4.552	4.734	4.981	5.273	5.275	5.605	5.376	5.733
0.22		3.364	3.631	4.046	4.218	4.352	4.535	4.751	4.805	5.002	4.903	5.123
0.24		3.081	3.281	3.745	3.914	4.021	4.161	4.327	4.410	4.520	4.505	4.634
0.25		2.960	3.133	3.602	3.773	3.871	3.995	4.143	4.233	4.313	4.327	4.424
0.26		2.849	3.000	3.465	3.638	3.729	3.841	3.972	4.069	4.124	4.162	4.232
0.28		2.654	2.769	3.208	3.384	3.466	3.560	3.668	3.771	3.791	3.860	3.892
0.30		2.487	2.574	2.975	3.151	3.228	3.311	3.403	3.507	3.505	3.592	3.599
0.32		2.340	2.407	2.765	2.938	3.012	3.088	3.168	3.269	3.255	3.351	3.344
0.34		2.210	2.262	2.576	2.744	2.815	2.886	2.957	3.054	3.034	3.132	3.117
0.35		2.150	2.195	2.488	2.652	2.723	2.792	2.860	2.955	2.933	3.031	3.013
0.36		2.093	2.133	2.405	2.565	2.635	2.702	2.768	2.859	2.837	2.934	2.915
0.38		1.986	2.018	2.252	2.403	2.470	2.534	2.596	2.681	2.659	2.752	2.732
0.40		1.888	1.914	2.114	2.254	2.319	2.381	2.439	2.518	2.497	2.585	2.566
0.42		1.798	1.819	1.990	2.119	2.180	2.240	2.295	2.369	2.350	2.432	2.414
0.44		1.714	1.732	1.877	1.996	2.053	2.111	2.163	2.231	2.215	2.292	2.276
0.45		1.674	1.691	1.825	1.938	1.994	2.050	2.102	2.167	2.152	2.225	2.211
0.46		1.635	1.652	1.775	1.883	1.937	1.992	2.042	2.105	2.092	2.162	2.148
0.48		1.562	1.577	1.682	1.780	1.831	1.883	1.931	1.988	1.978	2.042	2.031
0.50		1.493	1.507	1.598	1.686	1.733	1.782	1.828	1.881	1.872	1.931	1.922
0.55		1.337	1.351	1.415	1.483	1.522	1.564	1.604	1.647	1.643	1.690	1.686
0.60		1.201	1.216	1.266	1.318	1.350	1.385	1.419	1.454	1.453	1.491	1.489
0.65		1.082	1.098	1.140	1.182	1.208	1.237	1.266	1.295	1.295	1.326	1.326
0.70		0.977	0.994	1.034	1.068	1.089	1.113	1.137	1.161	1.163	1.188	1.188
0.80		0.803	0.821	0.860	0.887	0.902	0.919	0.937	0.954	0.955	0.973	0.974
0.90		0.667	0.684	0.725	0.749	0.761	0.775	0.788	0.801	0.802	0.815	0.816
1.00		0.559	0.575	0.616	0.640	0.651	0.662	0.673	0.684	0.685	0.696	0.696
1.10		0.474	0.489	0.528	0.551	0.562	0.572	0.582	0.591	0.592	0.601	0.601
1.20		0.406	0.419	0.456	0.478	0.488	0.498	0.507	0.516	0.516	0.525	0.525
1.30		0.351	0.363	0.396	0.417	0.427	0.436	0.445	0.453	0.453	0.462	0.462
1.40		0.307	0.317	0.347	0.366	0.376	0.384	0.393	0.401	0.401	0.408	0.408
1.50		0.271	0.280	0.306	0.324	0.332	0.340	0.348	0.356	0.356	0.363	0.363
1.60				0.272	0.288	0.296	0.303	0.311	0.318	0.318	0.325	0.325
1.70				0.243	0.257	0.265	0.271	0.278	0.285	0.285	0.292	0.292
1.80				0.219	0.232	0.238	0.244	0.251	0.257	0.257	0.263	0.263
1.90				0.198	0.209	0.215	0.221	0.227	0.232	0.232	0.238	0.238
2.00				0.180	0.190	0.196	0.201	0.206	0.211	0.211	0.216	0.216

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.1.2. Atomic scattering amplitudes (\AA) for electrons for ionized atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element	Mo ³⁺	Ru ³⁺	Ru ⁴⁺	Rh ³⁺	Rh ⁴⁺	Pd ²⁺	Pd ⁴⁺	Ag ¹⁺	Ag ²⁺	Cd ²⁺	In ³⁺
	Z Method	*DS	*DS	*DS	*DS	*DS	*DS	*DS	*DS	*DS	*DS	*DS
0.00												
0.01												
0.02												
0.03												
0.04		92.49	49.53	63.83	49.53	63.87	35.30	63.89	21.21	35.23	35.15	49.41
0.05		60.17	33.34	42.27	33.35	42.31	24.50	42.32	15.77	24.43	24.36	33.23
0.06		42.61	24.54	30.54	24.55	30.58	18.61	30.61	12.79	18.54	18.47	24.43
0.07		32.01	19.21	23.46	19.22	23.50	15.03	23.52	10.96	14.97	14.90	19.11
0.08		25.13	15.73	18.85	15.74	18.89	12.69	18.92	9.73	12.63	12.56	15.65
0.09		20.40	13.33	15.68	13.34	15.72	11.06	15.75	8.87	11.00	10.94	13.26
0.10		17.02	11.59	13.39	11.61	13.44	9.87	13.46	8.22	9.82	9.76	11.53
0.11		14.50	10.29	11.69	10.31	11.74	8.97	11.76	7.70	8.92	8.87	10.24
0.12		12.585	9.281	10.381	9.301	10.430	8.259	10.458	7.287	8.217	8.169	9.249
0.13		11.086	8.480	9.351	8.502	9.399	7.687	9.431	6.935	7.652	7.608	8.463
0.14		9.891	7.827	8.521	7.853	8.571	7.214	8.603	6.631	7.184	7.146	7.826
0.15		8.919	7.286	7.840	7.313	7.891	6.813	7.924	6.361	6.789	6.756	7.299
0.16		8.118	6.827	7.271	6.858	7.322	6.467	7.357	6.117	6.448	6.419	6.856
0.17		7.449	6.432	6.788	6.465	6.841	6.163	6.877	5.894	6.149	6.126	6.476
0.18		6.881	6.088	6.372	6.124	6.426	5.892	6.464	5.687	5.883	5.865	6.147
0.19		6.395	5.784	6.011	5.822	6.065	5.647	6.105	5.494	5.643	5.629	5.858
0.20		5.975	5.511	5.692	5.553	5.747	5.423	5.788	5.312	5.424	5.416	5.600
0.22		5.283	5.042	5.153	5.087	5.211	5.026	5.255	4.975	5.036	5.036	5.158
0.24		4.739	4.646	4.712	4.695	4.771	4.679	4.818	4.667	4.697	4.705	4.786
0.25		4.508	4.469	4.519	4.520	4.578	4.521	4.626	4.522	4.541	4.553	4.621
0.26		4.297	4.304	4.340	4.356	4.400	4.370	4.449	4.383	4.394	4.410	4.466
0.28		3.931	4.003	4.020	4.057	4.080	4.090	4.130	4.120	4.121	4.142	4.184
0.30		3.620	3.733	3.738	3.789	3.799	3.836	3.850	3.876	3.871	3.898	3.930
0.32		3.352	3.490	3.488	3.547	3.548	3.601	3.601	3.649	3.640	3.672	3.701
0.34		3.118	3.269	3.263	3.327	3.323	3.385	3.376	3.437	3.427	3.463	3.490
0.35		3.011	3.166	3.158	3.224	3.218	3.284	3.271	3.336	3.327	3.363	3.390
0.36		2.910	3.067	3.058	3.125	3.118	3.185	3.171	3.239	3.230	3.268	3.295
0.38		2.725	2.882	2.872	2.939	2.931	3.000	2.984	3.055	3.046	3.086	3.115
0.40		2.557	2.711	2.702	2.768	2.759	2.828	2.812	2.883	2.875	2.917	2.947
0.42		2.406	2.553	2.545	2.609	2.601	2.668	2.653	2.723	2.716	2.759	2.790
0.44		2.267	2.408	2.400	2.462	2.454	2.520	2.505	2.573	2.567	2.611	2.643
0.45		2.202	2.339	2.332	2.393	2.385	2.450	2.436	2.502	2.497	2.541	2.574
0.46		2.140	2.273	2.266	2.326	2.319	2.382	2.369	2.434	2.429	2.473	2.506
0.48		2.024	2.148	2.143	2.199	2.193	2.253	2.242	2.304	2.300	2.343	2.378
0.50		1.916	2.033	2.028	2.082	2.077	2.133	2.124	2.182	2.179	2.222	2.258
0.55		1.682	1.779	1.776	1.823	1.820	1.869	1.863	1.913	1.912	1.953	1.989
0.60		1.487	1.568	1.567	1.607	1.606	1.647	1.644	1.687	1.686	1.725	1.760
0.65		1.325	1.392	1.392	1.426	1.426	1.461	1.460	1.496	1.496	1.531	1.564
0.70		1.189	1.244	1.244	1.274	1.274	1.304	1.304	1.335	1.335	1.367	1.397
0.80		0.975	1.014	1.015	1.036	1.037	1.059	1.060	1.083	1.083	1.107	1.132
0.90		0.817	0.846	0.846	0.863	0.863	0.880	0.880	0.898	0.898	0.917	0.936
1.00		0.696	0.719	0.720	0.732	0.732	0.745	0.746	0.759	0.759	0.774	0.789
1.10		0.602	0.621	0.621	0.631	0.631	0.642	0.642	0.653	0.653	0.664	0.676
1.20		0.525	0.542	0.542	0.551	0.551	0.560	0.560	0.569	0.569	0.578	0.588
1.30		0.462	0.477	0.477	0.485	0.485	0.493	0.493	0.501	0.501	0.508	0.516
1.40		0.409	0.423	0.423	0.430	0.430	0.437	0.437	0.444	0.444	0.451	0.458
1.50		0.363	0.377	0.377	0.384	0.384	0.391	0.391	0.397	0.397	0.403	0.409
1.60		0.325	0.338	0.338	0.344	0.344	0.350	0.350	0.356	0.356	0.362	0.368
1.70		0.292	0.304	0.304	0.310	0.310	0.316	0.316	0.322	0.322	0.327	0.332
1.80		0.263	0.275	0.275	0.280	0.280	0.286	0.286	0.291	0.291	0.296	0.301
1.90		0.238	0.249	0.249	0.254	0.254	0.260	0.260	0.265	0.265	0.270	0.274
2.00		0.216	0.227	0.227	0.232	0.232	0.237	0.237	0.241	0.241	0.246	0.251

4.3. ELECTRON DIFFRACTION

Table 4.3.1.2. Atomic scattering amplitudes (\AA) for electrons for ionized atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element	Sn ²⁺	Sn ⁴⁺	Sb ³⁺	Sb ⁵⁺	I ⁻	Cs ¹⁺	Ba ²⁺	La ³⁺	Ce ³⁺	Ce ⁴⁺	Pr ³⁺
	Z	50	50	51	51	53	55	56	57	58	58	59
Method	RHF	RHF	*DS	*DS	RHF	RHF	*DS	*DS	*DS	*DS	*DS	*DS
0.00		6.144	3.971			13.835	9.035					
0.01		484.819	961.330			-225.540	248.365					
0.02		125.792	243.305			-46.145	68.827					
0.03		59.280	110.331			-13.083	35.532					
0.04		35.972	63.782	50.16	78.38	-1.690	23.823	37.64	51.70	51.62	65.94	51.53
0.05		25.152	42.227	33.97	51.44	3.399	18.344	26.81	35.49	35.42	44.36	35.34
0.06		19.242	30.510	25.14	36.81	5.981	15.307	20.87	26.65	26.59	32.62	26.51
0.07		15.646	23.435	19.81	27.97	7.365	13.414	17.25	21.30	21.23	25.51	21.15
0.08		13.280	18.833	16.32	22.22	8.103	12.124	14.86	17.78	17.72	20.87	17.65
0.09		11.625	15.668	13.91	18.28	8.462	11.180	13.17	15.34	15.29	17.66	15.22
0.10		10.411	13.395	12.16	15.45	8.586	10.448	11.92	13.57	13.51	15.34	13.45
0.11		9.484	11.703	10.85	13.35	8.560	9.851	10.96	12.22	12.17	13.60	12.11
0.12		8.750	10.407	9.825	11.743	8.437	9.345	10.185	11.163	11.119	12.258	11.064
0.13		8.152	9.388	9.010	10.486	8.249	8.903	9.547	10.313	10.275	11.185	10.224
0.14		7.653	8.571	8.344	9.480	8.021	8.506	9.003	9.610	9.576	10.312	9.531
0.15		7.227	7.902	7.790	8.660	7.767	8.143	8.531	9.016	8.987	9.586	8.947
0.16		6.856	7.345	7.319	7.982	7.500	7.806	8.113	8.505	8.482	8.972	8.446
0.17		6.528	6.875	6.911	7.413	7.228	7.491	7.738	8.056	8.038	8.441	8.008
0.18		6.234	6.473	6.555	6.928	6.955	7.193	7.395	7.658	7.645	7.979	7.619
0.19		5.968	6.124	6.239	6.512	6.685	6.911	7.080	7.300	7.292	7.569	7.270
0.20		5.725	5.818	5.955	6.149	6.423	6.643	6.787	6.974	6.970	7.202	6.954
0.22		5.293	5.304	5.464	5.548	5.925	6.143	6.256	6.398	6.403	6.568	6.396
0.24		4.918	4.886	5.050	5.067	5.468	5.688	5.785	5.900	5.912	6.033	5.914
0.25		4.747	4.703	4.864	4.860	5.255	5.475	5.568	5.674	5.690	5.794	5.695
0.26		4.586	4.535	4.691	4.671	5.054	5.272	5.362	5.461	5.480	5.570	5.489
0.28		4.289	4.232	4.375	4.336	4.681	4.893	4.980	5.069	5.094	5.163	5.109
0.30		4.021	3.967	4.094	4.048	4.348	4.549	4.633	4.716	4.745	4.800	4.766
0.32		3.778	3.730	3.840	3.793	4.049	4.237	4.318	4.396	4.429	4.474	4.454
0.34		3.556	3.516	3.611	3.567	3.782	3.954	4.032	4.106	4.142	4.179	4.170
0.35		3.452	3.416	3.503	3.463	3.658	3.823	3.899	3.971	4.008	4.042	4.037
0.36		3.352	3.320	3.401	3.363	3.541	3.698	3.772	3.843	3.880	3.911	3.910
0.38		3.164	3.140	3.208	3.177	3.325	3.466	3.536	3.602	3.640	3.667	3.673
0.40		2.991	2.973	3.031	3.006	3.129	3.255	3.321	3.383	3.422	3.444	3.455
0.42		2.830	2.817	2.867	2.848	2.951	3.064	3.124	3.183	3.221	3.240	3.255
0.44		2.680	2.672	2.716	2.702	2.789	2.890	2.946	3.000	3.038	3.054	3.072
0.45		2.610	2.604	2.644	2.632	2.714	2.808	2.862	2.914	2.952	2.967	2.986
0.46		2.541	2.537	2.575	2.565	2.641	2.731	2.782	2.832	2.870	2.883	2.904
0.48		2.412	2.410	2.444	2.438	2.505	2.586	2.632	2.679	2.715	2.726	2.749
0.50		2.290	2.291	2.322	2.319	2.379	2.452	2.495	2.538	2.573	2.582	2.606
0.55		2.020	2.023	2.050	2.051	2.103	2.163	2.197	2.232	2.264	2.268	2.295
0.60		1.791	1.794	1.819	1.822	1.871	1.923	1.951	1.980	2.010	2.011	2.038
0.65		1.594	1.597	1.622	1.625	1.673	1.721	1.745	1.770	1.797	1.796	1.823
0.70		1.426	1.428	1.453	1.455	1.503	1.548	1.570	1.592	1.617	1.615	1.641
0.80		1.157	1.157	1.181	1.182	1.227	1.269	1.288	1.307	1.328	1.326	1.349
0.90		0.956	0.956	0.976	0.977	1.017	1.055	1.072	1.090	1.108	1.107	1.126
1.00		0.805	0.804	0.821	0.821	0.855	0.888	0.904	0.920	0.936	0.935	0.952
1.10		0.688	0.688	0.702	0.702	0.729	0.757	0.771	0.785	0.799	0.799	0.813
1.20		0.597	0.597	0.608	0.608	0.630	0.654	0.666	0.678	0.690	0.690	0.702
1.30		0.525	0.524	0.534	0.533	0.551	0.571	0.581	0.591	0.602	0.602	0.612
1.40		0.465	0.465	0.473	0.473	0.487	0.504	0.512	0.521	0.530	0.530	0.539
1.50		0.416	0.416	0.422	0.422	0.435	0.448	0.456	0.463	0.471	0.471	0.478
1.60		0.374	0.374	0.379	0.379	0.391	0.402	0.409	0.415	0.421	0.421	0.428
1.70		0.338	0.338	0.343	0.343	0.353	0.364	0.369	0.374	0.380	0.380	0.386
1.80		0.306	0.306	0.311	0.311	0.321	0.330	0.335	0.340	0.345	0.345	0.350
1.90		0.279	0.279	0.284	0.284	0.293	0.301	0.306	0.310	0.314	0.314	0.319
2.00		0.255	0.255	0.259	0.259	0.268	0.276	0.280	0.284	0.288	0.288	0.292

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.1.2. Atomic scattering amplitudes (\AA) for electrons for ionized atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element	Pr ⁴⁺	Nd ³⁺	Pm ³⁺	Sm ³⁺	Eu ²⁺	Eu ³⁺	Gd ³⁺	Tb ³⁺	Dy ³⁺	Ho ³⁺	Er ³⁺
	Z Method	59 *DS	60 *DS	61 *DS	62 *DS	63 *DS	63 *DS	64 *DS	65 *DS	66 *DS	67 *DS	68 *DS
0.00												
0.01												
0.02												
0.03												
0.04		65.86	51.44	51.35	51.26	36.99	51.17	51.08	51.04	50.92	50.83	50.74
0.05		44.30	35.25	35.15	35.07	26.17	34.97	34.90	34.85	34.72	34.64	34.55
0.06		32.55	26.42	26.33	26.25	20.26	26.15	26.08	26.02	25.92	25.83	25.74
0.07		25.44	21.07	20.98	20.90	16.67	20.81	20.74	20.68	20.58	20.50	20.41
0.08		20.81	17.57	17.49	17.41	14.30	17.32	17.25	17.19	17.09	17.01	16.93
0.09		17.60	15.14	15.06	14.98	12.65	14.90	14.83	14.77	14.68	14.60	14.53
0.10		15.29	13.38	13.30	13.23	11.44	13.15	13.08	13.02	12.94	12.86	12.79
0.11		13.55	12.04	11.97	11.90	10.51	11.83	11.76	11.71	11.62	11.55	11.48
0.12		12.210	11.003	10.937	10.870	9.770	10.802	10.739	10.681	10.604	10.538	10.469
0.13		11.141	10.167	10.106	10.044	9.167	9.979	9.919	9.863	9.792	9.728	9.664
0.14		10.272	9.480	9.422	9.366	8.663	9.305	9.248	9.194	9.128	9.068	9.007
0.15		9.550	8.901	8.849	8.796	8.229	8.740	8.686	8.634	8.574	8.517	8.460
0.16		8.939	8.405	8.357	8.310	7.850	8.257	8.207	8.158	8.102	8.049	7.995
0.17		8.413	7.972	7.930	7.886	7.511	7.838	7.791	7.746	7.694	7.645	7.594
0.18		7.955	7.589	7.551	7.512	7.206	7.468	7.425	7.383	7.335	7.290	7.242
0.19		7.549	7.245	7.212	7.177	6.927	7.138	7.099	7.059	7.016	6.974	6.930
0.20		7.187	6.932	6.904	6.874	6.669	6.839	6.804	6.768	6.729	6.690	6.650
0.22		6.561	6.384	6.364	6.342	6.204	6.316	6.289	6.258	6.227	6.196	6.162
0.24		6.033	5.910	5.899	5.884	5.792	5.865	5.845	5.822	5.798	5.773	5.745
0.25		5.797	5.695	5.687	5.677	5.601	5.661	5.645	5.625	5.604	5.582	5.557
0.26		5.577	5.492	5.488	5.481	5.419	5.469	5.456	5.439	5.421	5.402	5.380
0.28		5.176	5.118	5.121	5.120	5.080	5.115	5.107	5.096	5.085	5.071	5.055
0.30		4.818	4.780	4.789	4.793	4.768	4.794	4.792	4.787	4.780	4.772	4.760
0.32		4.496	4.473	4.486	4.496	4.482	4.501	4.504	4.504	4.502	4.498	4.492
0.34		4.205	4.193	4.210	4.224	4.218	4.233	4.240	4.244	4.247	4.247	4.244
0.35		4.069	4.061	4.081	4.096	4.093	4.107	4.116	4.122	4.126	4.128	4.128
0.36		3.939	3.936	3.956	3.973	3.973	3.987	3.997	4.005	4.011	4.014	4.016
0.38		3.697	3.700	3.724	3.743	3.748	3.759	3.773	3.784	3.793	3.799	3.804
0.40		3.476	3.484	3.509	3.531	3.540	3.550	3.566	3.579	3.590	3.600	3.607
0.42		3.273	3.285	3.312	3.335	3.347	3.356	3.374	3.389	3.403	3.414	3.423
0.44		3.087	3.103	3.130	3.155	3.168	3.176	3.196	3.213	3.228	3.241	3.253
0.45		3.000	3.017	3.045	3.069	3.084	3.092	3.112	3.130	3.146	3.160	3.172
0.46		2.916	2.934	2.962	2.988	3.003	3.010	3.031	3.049	3.066	3.081	3.094
0.48		2.759	2.779	2.807	2.833	2.850	2.856	2.878	2.897	2.915	2.931	2.945
0.50		2.614	2.636	2.664	2.690	2.709	2.714	2.736	2.756	2.775	2.791	2.807
0.55		2.299	2.324	2.351	2.376	2.397	2.400	2.423	2.444	2.463	2.481	2.498
0.60		2.040	2.065	2.091	2.115	2.137	2.138	2.160	2.181	2.201	2.220	2.237
0.65		1.823	1.848	1.872	1.895	1.917	1.917	1.939	1.959	1.978	1.997	2.014
0.70		1.639	1.664	1.686	1.708	1.730	1.729	1.749	1.769	1.788	1.806	1.823
0.80		1.347	1.369	1.389	1.408	1.428	1.427	1.445	1.463	1.480	1.497	1.513
0.90		1.125	1.144	1.162	1.179	1.197	1.196	1.212	1.228	1.244	1.260	1.274
1.00		0.951	0.968	0.984	0.999	1.015	1.014	1.029	1.044	1.058	1.072	1.086
1.10		0.813	0.827	0.841	0.855	0.869	0.869	0.882	0.895	0.908	0.921	0.934
1.20		0.702	0.714	0.727	0.739	0.751	0.751	0.763	0.775	0.787	0.798	0.810
1.30		0.612	0.623	0.634	0.644	0.655	0.655	0.666	0.676	0.687	0.697	0.708
1.40		0.539	0.548	0.557	0.567	0.576	0.576	0.585	0.595	0.604	0.613	0.623
1.50		0.478	0.486	0.494	0.502	0.510	0.510	0.519	0.527	0.535	0.544	0.552
1.60		0.428	0.435	0.442	0.449	0.456	0.456	0.463	0.470	0.478	0.485	0.492
1.70		0.386	0.392	0.398	0.404	0.410	0.410	0.416	0.423	0.429	0.436	0.442
1.80		0.350	0.355	0.360	0.366	0.371	0.371	0.377	0.382	0.388	0.394	0.399
1.90		0.319	0.324	0.328	0.333	0.338	0.338	0.343	0.348	0.353	0.358	0.363
2.00		0.292	0.296	0.301	0.305	0.309	0.309	0.313	0.318	0.322	0.327	0.331

4.3. ELECTRON DIFFRACTION

Table 4.3.1.2. Atomic scattering amplitudes (\AA) for electrons for ionized atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element Z Method	Tm ³⁺ 69 *DS	Yb ²⁺ 70 *DS	Yb ³⁺ 70 *DS	Lu ³⁺ 71 *DS	Hf ⁴⁺ 72 *DS	Ta ⁵⁺ 73 *DS	W ⁶⁺ 74 *DS	Os ⁴⁺ 76 *DS	Ir ³⁺ 77 *DS	Ir ⁴⁺ 77 *DS	Pt ²⁺ 78 *DS
0.00												
0.01												
0.02												
0.03												
0.04		50.67	36.30	50.58	50.50	64.91	79.42	94.00	65.56	51.44	65.65	37.41
0.05		34.47	25.49	34.40	34.32	43.35	52.47	61.68	44.00	35.25	44.09	26.60
0.06		25.67	19.61	25.59	25.52	31.63	37.84	44.11	32.26	26.43	32.36	20.68
0.07		20.34	16.03	20.27	20.19	24.54	28.99	33.51	25.17	21.09	25.26	17.09
0.08		16.86	13.68	16.79	16.72	19.93	23.24	26.62	20.55	17.60	20.64	14.72
0.09		14.46	12.05	14.39	14.32	16.76	19.29	21.89	17.36	15.18	17.45	13.06
0.10		12.72	10.86	12.65	12.59	14.47	16.45	18.50	15.06	13.42	15.15	11.84
0.11		11.42	9.95	11.35	11.29	12.77	14.34	15.98	13.34	12.10	13.43	10.91
0.12		10.406	9.243	10.343	10.282	11.463	12.727	14.051	12.019	11.071	12.108	10.170
0.13		9.603	8.669	9.542	9.484	10.432	11.460	12.545	10.971	10.248	11.061	9.567
0.14		8.950	8.191	8.891	8.835	9.600	10.443	11.341	10.122	9.571	10.211	9.058
0.15		8.405	7.788	8.349	8.296	8.918	9.613	10.361	9.421	9.006	9.510	8.623
0.16		7.943	7.436	7.890	7.839	8.348	8.924	9.550	8.833	8.523	8.919	8.241
0.17		7.545	7.128	7.495	7.447	7.863	8.343	8.870	8.330	8.104	8.415	7.902
0.18		7.196	6.852	7.150	7.104	7.445	7.847	8.292	7.895	7.734	7.978	7.595
0.19		6.888	6.601	6.843	6.801	7.081	7.418	7.795	7.512	7.404	7.594	7.314
0.20		6.610	6.372	6.569	6.529	6.760	7.042	7.364	7.172	7.107	7.253	7.055
0.22		6.128	5.962	6.093	6.058	6.214	6.415	6.650	6.591	6.585	6.668	6.587
0.24		5.717	5.601	5.688	5.659	5.765	5.907	6.080	6.107	6.138	6.181	6.173
0.25		5.532	5.434	5.505	5.479	5.566	5.687	5.836	5.893	5.936	5.965	5.981
0.26		5.358	5.276	5.334	5.310	5.382	5.485	5.613	5.693	5.745	5.764	5.799
0.28		5.038	4.980	5.019	5.000	5.049	5.124	5.220	5.331	5.395	5.398	5.458
0.30		4.748	4.708	4.734	4.720	4.754	4.809	4.882	5.009	5.078	5.072	5.145
0.32		4.484	4.456	4.474	4.464	4.489	4.530	4.586	4.719	4.789	4.779	4.857
0.34		4.240	4.221	4.234	4.228	4.247	4.279	4.323	4.456	4.524	4.512	4.590
0.35		4.126	4.110	4.122	4.117	4.134	4.162	4.201	4.333	4.400	4.387	4.464
0.36		4.015	4.003	4.013	4.010	4.025	4.051	4.086	4.215	4.280	4.267	4.343
0.38		3.806	3.800	3.807	3.807	3.821	3.843	3.872	3.994	4.055	4.042	4.114
0.40		3.612	3.609	3.616	3.618	3.632	3.650	3.675	3.789	3.845	3.834	3.900
0.42		3.431	3.432	3.437	3.442	3.455	3.473	3.495	3.599	3.651	3.641	3.702
0.44		3.262	3.266	3.271	3.277	3.291	3.307	3.327	3.423	3.471	3.462	3.518
0.45		3.182	3.187	3.191	3.199	3.213	3.229	3.248	3.340	3.385	3.377	3.430
0.46		3.105	3.110	3.115	3.123	3.137	3.153	3.172	3.259	3.303	3.295	3.346
0.48		2.958	2.965	2.969	2.979	2.993	3.009	3.027	3.106	3.146	3.140	3.186
0.50		2.820	2.829	2.833	2.844	2.859	2.875	2.892	2.963	3.000	2.995	3.036
0.55		2.514	2.526	2.528	2.541	2.557	2.573	2.590	2.646	2.675	2.672	2.704
0.60		2.253	2.267	2.269	2.283	2.299	2.315	2.331	2.375	2.399	2.398	2.423
0.65		2.031	2.046	2.047	2.061	2.077	2.092	2.108	2.144	2.164	2.164	2.184
0.70		1.839	1.855	1.855	1.870	1.885	1.900	1.914	1.945	1.962	1.962	1.979
0.80		1.529	1.544	1.544	1.558	1.572	1.585	1.598	1.623	1.636	1.636	1.649
0.90		1.289	1.304	1.303	1.317	1.329	1.341	1.353	1.375	1.386	1.386	1.397
1.00		1.099	1.113	1.112	1.125	1.137	1.148	1.159	1.179	1.189	1.189	1.199
1.10		0.946	0.959	0.958	0.970	0.981	0.992	1.002	1.021	1.031	1.031	1.040
1.20		0.821	0.833	0.832	0.843	0.854	0.864	0.873	0.892	0.901	0.901	0.909
1.30		0.718	0.728	0.728	0.738	0.748	0.757	0.766	0.784	0.792	0.792	0.800
1.40		0.632	0.641	0.641	0.650	0.659	0.668	0.677	0.693	0.701	0.701	0.709
1.50		0.560	0.569	0.569	0.577	0.585	0.593	0.601	0.616	0.624	0.624	0.631
1.60		0.500	0.507	0.507	0.515	0.522	0.529	0.537	0.551	0.558	0.558	0.565
1.70		0.449	0.455	0.455	0.462	0.469	0.475	0.482	0.495	0.502	0.502	0.508
1.80		0.405	0.411	0.411	0.417	0.423	0.429	0.435	0.447	0.453	0.453	0.459
1.90		0.368	0.373	0.373	0.379	0.384	0.389	0.395	0.405	0.411	0.411	0.416
2.00		0.336	0.341	0.341	0.345	0.350	0.355	0.360	0.370	0.374	0.374	0.379

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.1.2. Atomic scattering amplitudes (\AA) for electrons for ionized atoms (cont.)

$(\sin \theta)/\lambda$ (\AA^{-1})	Element	Pt ⁴⁺	Au ¹⁺	Au ³⁺	Hg ¹⁺	Hg ²⁺	Tl ¹⁺	Tl ³⁺	Pb ²⁺	Pb ⁴⁺	Bi ³⁺	Bi ⁵⁺
	Z Method	78 *DS	79 *DS	79 *DS	80 *DS	80 *DS	81 *DS	81 *DS	82 *DS	82 *DS	83 *DS	83 *DS
0.00												
0.01												
0.02												
0.03												
0.04		65.73	23.52	51.50	23.84	37.35	24.11	51.46	37.98	65.83	52.12	80.28
0.05		44.16	18.07	35.32	18.38	26.53	18.65	35.29	27.15	44.27	35.91	53.34
0.06		32.42	15.05	26.49	15.36	20.63	15.62	26.48	21.23	32.54	27.09	38.69
0.07		25.33	13.19	21.15	13.49	17.04	13.74	21.15	17.62	25.45	21.74	29.85
0.08		20.71	11.94	17.67	12.23	14.67	12.47	17.67	15.24	20.83	18.23	24.09
0.09		17.52	11.04	15.25	11.31	13.03	11.54	15.26	13.57	17.65	15.81	20.13
0.10		15.22	10.35	13.50	10.60	11.82	10.83	13.51	12.34	15.35	14.04	17.29
0.11		13.50	9.80	12.18	10.04	10.89	10.26	12.20	11.40	13.64	12.70	15.17
0.12		12.178	9.341	11.153	9.565	10.165	9.775	11.178	10.642	12.316	11.663	13.539
0.13		11.130	8.946	10.331	9.156	9.569	9.356	10.362	10.024	11.272	10.827	12.262
0.14		10.281	8.599	9.660	8.795	9.072	8.983	9.696	9.500	10.427	10.138	11.234
0.15		9.579	8.285	9.097	8.466	8.644	8.645	9.139	9.049	9.730	9.559	10.392
0.16		8.988	7.997	8.617	8.166	8.271	8.335	8.664	8.653	9.144	9.061	9.690
0.17		8.484	7.731	8.201	7.887	7.940	8.045	8.253	8.297	8.644	8.629	9.097
0.18		8.047	7.480	7.834	7.624	7.640	7.773	7.890	7.975	8.211	8.245	8.587
0.19		7.662	7.243	7.506	7.376	7.367	7.516	7.567	7.679	7.830	7.901	8.144
0.20		7.320	7.018	7.211	7.141	7.114	7.272	7.275	7.406	7.492	7.589	7.755
0.22		6.735	6.598	6.693	6.703	6.658	6.817	6.765	6.912	6.913	7.040	7.100
0.24		6.246	6.210	6.247	6.301	6.253	6.400	6.326	6.472	6.429	6.566	6.564
0.25		6.029	6.028	6.046	6.112	6.065	6.205	6.127	6.268	6.214	6.351	6.329
0.26		5.827	5.852	5.855	5.930	5.886	6.017	5.939	6.075	6.014	6.148	6.111
0.28		5.459	5.519	5.505	5.587	5.550	5.664	5.591	5.714	5.647	5.773	5.721
0.30		5.131	5.209	5.186	5.270	5.240	5.337	5.275	5.383	5.320	5.433	5.377
0.32		4.385	4.921	4.895	4.975	4.953	5.035	4.985	5.078	5.023	5.123	5.069
0.34		4.565	4.652	4.627	4.702	4.686	4.756	4.718	4.797	4.751	4.838	4.790
0.35		4.439	4.525	4.501	4.573	4.560	4.624	4.591	4.664	4.623	4.704	4.660
0.36		4.318	4.402	4.379	4.448	4.437	4.497	4.469	4.536	4.501	4.576	4.535
0.38		4.090	4.170	4.149	4.212	4.206	4.257	4.238	4.295	4.269	4.333	4.300
0.40		3.880	3.953	3.936	3.993	3.990	4.034	4.022	4.072	4.053	4.108	4.083
0.42		3.684	3.752	3.737	3.789	3.788	3.827	3.821	3.864	3.851	3.899	3.881
0.44		3.502	3.564	3.552	3.599	3.600	3.635	3.633	3.671	3.663	3.705	3.692
0.45		3.416	3.475	3.464	3.509	3.511	3.544	3.544	3.579	3.574	3.613	3.603
0.46		3.333	3.389	3.379	3.422	3.424	3.456	3.457	3.491	3.488	3.524	3.516
0.48		3.176	3.225	3.218	3.258	3.260	3.290	3.293	3.323	3.323	3.355	3.351
0.50		3.028	3.073	3.068	3.104	3.107	3.134	3.139	3.166	3.168	3.197	3.197
0.55		2.700	2.735	2.733	2.762	2.765	2.790	2.795	2.819	2.823	2.847	2.850
0.60		2.422	2.449	2.448	2.474	2.476	2.498	2.502	2.524	2.528	2.549	2.554
0.96		2.184	2.206	2.206	2.227	2.229	2.249	2.252	2.272	2.276	2.295	2.300
0.70		1.980	1.998	1.998	2.017	2.017	2.036	2.038	2.057	2.059	2.077	2.080
0.80		1.650	1.663	1.663	1.678	1.678	1.693	1.694	1.709	1.710	1.726	1.727
0.90		1.397	1.408	1.408	1.420	1.420	1.432	1.432	1.445	1.445	1.458	1.458
1.00		1.199	1.208	1.209	1.218	1.218	1.229	1.228	1.239	1.239	1.250	1.249
1.10		1.040	1.048	1.048	1.057	1.057	1.066	1.066	1.075	1.075	1.084	1.084
1.20		0.909	0.917	0.917	0.926	0.925	0.934	0.933	0.942	0.941	0.950	0.949
1.30		0.800	0.808	0.808	0.816	0.816	0.824	0.824	0.831	0.831	0.838	0.838
1.40		0.709	0.717	0.716	0.724	0.724	0.731	0.731	0.738	0.738	0.745	0.745
1.50		0.631	0.638	0.638	0.645	0.645	0.652	0.652	0.659	0.659	0.665	0.665
1.60		0.565	0.572	0.572	0.578	0.578	0.585	0.585	0.591	0.591	0.597	0.597
1.70		0.508	0.514	0.514	0.520	0.520	0.526	0.527	0.532	0.533	0.538	0.538
1.80		0.459	0.465	0.465	0.470	0.470	0.476	0.476	0.482	0.482	0.487	0.487
1.90		0.416	0.422	0.422	0.427	0.427	0.432	0.432	0.438	0.438	0.443	0.443
2.00		0.379	0.384	0.384	0.389	0.389	0.394	0.394	0.399	0.399	0.404	0.404

4.3. ELECTRON DIFFRACTION

Table 4.3.1.2. Atomic scattering amplitudes (\AA) for electrons for ionized atoms (cont.)

Element Z Method	Ra ²⁺ 88 *DS	Ac ³⁺ 89 *DS	U ³⁺ 92 *DS	U ⁴⁺ 92 *DS	U ⁶⁺ 92 *DS
0.00					
0.01					
0.02					
0.03					
0.04	40.04	54.00	54.02	68.15	96.83
0.05	29.19	37.78	37.81	46.56	64.49
0.06	23.23	28.91	28.95	34.80	46.89
0.07	19.57	23.53	23.57	27.67	36.26
0.08	17.14	19.98	20.03	23.01	29.33
0.09	15.42	17.51	17.57	19.78	24.56
0.10	14.12	15.70	15.76	17.44	21.12
0.11	13.11	14.31	14.39	15.67	18.55
0.12	12.291	13.217	13.300	14.296	16.573
0.13	11.602	12.324	12.416	13.192	15.010
0.14	11.008	11.577	11.679	12.287	13.749
0.15	10.486	10.939	11.050	11.528	12.709
0.16	10.018	10.382	10.503	10.879	11.837
0.17	9.592	9.889	10.018	10.314	11.093
0.18	9.200	9.446	9.583	9.816	10.451
0.19	8.836	9.042	9.188	9.371	9.889
0.20	8.495	8.671	8.824	8.967	9.391
0.22	7.873	8.008	8.174	8.261	8.544
0.24	7.315	7.427	7.602	7.655	7.843
0.25	7.057	7.161	7.340	7.380	7.534
0.26	6.811	6.909	7.091	7.122	7.247
0.28	6.355	6.444	6.629	6.647	6.729
0.30	5.940	6.022	6.208	6.219	6.273
0.32	5.563	5.639	5.824	5.830	5.865
0.34	5.219	5.291	5.472	5.475	5.497
0.35	5.059	5.128	5.307	5.309	5.327
0.36	4.906	4.973	5.149	5.151	5.164
0.38	4.621	4.683	4.853	4.853	4.861
0.40	4.360	4.417	4.580	4.580	4.584
0.42	4.122	4.174	4.329	4.328	4.330
0.44	3.904	3.951	4.098	4.097	4.096
0.45	3.801	3.847	3.989	3.988	3.987
0.46	3.703	3.747	3.885	3.883	3.881
0.48	3.518	3.558	3.688	3.686	3.683
0.50	3.348	3.385	3.506	3.504	3.500
0.55	2.975	3.005	3.107	3.106	3.100
0.60	2.664	2.689	2.776	2.774	2.768
0.65	2.400	2.421	2.496	2.494	2.489
0.70	2.174	2.193	2.258	2.256	2.252
0.80	1.808	1.824	1.875	1.874	1.872
0.90	1.527	1.541	1.583	1.582	1.582
1.00	1.307	1.319	1.354	1.354	1.354
1.10	1.132	1.142	1.171	1.172	1.172
1.20	0.991	0.999	1.024	1.025	1.025
1.30	0.874	0.882	0.904	0.904	0.905
1.40	0.778	0.784	0.804	0.804	0.804
1.50	0.696	0.702	0.720	0.720	0.720
1.60	0.626	0.632	0.648	0.648	0.648
1.70	0.566	0.571	0.586	0.586	0.586
1.80	0.513	0.518	0.533	0.533	0.533
1.90	0.467	0.472	0.486	0.486	0.486
2.00	0.427	0.431	0.444	0.444	0.444

Table 4.3.2.1. Parameters useful in electron diffraction as a function of accelerating voltage, E

E (keV)	λ	$1/\lambda$	m/m_0	v/c	σ
1	0.387629	2.57979	1.00196	0.06247	0.0081126
2	0.273961	3.65016	1.00391	0.08821	0.0057448
3	0.223579	4.47270	1.00587	0.10788	0.0046975
4	0.193530	5.16715	1.00783	0.12439	0.0040741
5	0.173015	5.77986	1.00978	0.13887	0.0036493
6	0.157863	6.33460	1.01174	0.15191	0.0033361
7	0.146082	6.84548	1.01370	0.16384	0.0030931
8	0.136581	7.32168	1.01566	0.17490	0.0028975
9	0.128707	7.76958	1.01761	0.18524	0.0027358
10	0.122043	8.19383	1.01957	0.19498	0.0025991
15	0.099407	10.05963	1.02935	0.23711	0.0021374
20	0.085882	11.64383	1.03914	0.27186	0.0018641
25	0.076632	13.04940	1.04892	0.30184	0.0016790
30	0.069789	14.32899	1.05871	0.32837	0.0015433
35	0.064459	15.51381	1.06849	0.35227	0.0014386
40	0.060153	16.62414	1.07828	0.37406	0.0013548
45	0.056580	17.67403	1.08806	0.39410	0.0012859
50	0.053551	18.67366	1.09784	0.41268	0.0012280
55	0.050941	19.63072	1.10763	0.43000	0.0011786
60	0.048659	20.55115	1.11741	0.44622	0.0011357
65	0.046642	21.43968	1.12720	0.46147	0.0010982
70	0.044843	22.30012	1.13698	0.47586	0.0010650
75	0.043223	23.13560	1.14677	0.48948	0.0010354
80	0.041756	23.94874	1.15655	0.50239	0.0010087
85	0.040418	24.74173	1.16634	0.51467	0.0009847
90	0.039190	25.51646	1.17612	0.52637	0.0009628
95	0.038060	26.27454	1.18591	0.53754	0.0009428
100	0.037013	27.01738	1.19569	0.54822	0.0009244
120	0.033491	29.85866	1.23483	0.58667	0.0008638
140	0.030739	32.53222	1.27397	0.61956	0.0008180
160	0.028509	35.07642	1.31310	0.64810	0.0007820
180	0.026654	37.51759	1.35224	0.67314	0.0007529
200	0.025079	39.87466	1.39138	0.69531	0.0007289
250	0.021986	45.48412	1.48922	0.74101	0.0006839
300	0.019687	50.79517	1.58707	0.77652	0.0006526
350	0.017891	55.89295	1.68491	0.80483	0.0006297
400	0.016439	60.83109	1.78276	0.82786	0.0006122
450	0.015233	65.64563	1.88060	0.84691	0.0005984
500	0.014212	70.36195	1.97845	0.86286	0.0005873
550	0.013334	74.99858	2.07629	0.87638	0.0005783
600	0.012568	79.56945	2.17414	0.88794	0.0005707
650	0.011893	84.08529	2.27198	0.89793	0.0005644
700	0.011292	88.55452	2.36983	0.90661	0.0005590
750	0.010755	92.98385	2.46767	0.91421	0.0005543
800	0.010269	97.37874	2.56552	0.92091	0.0005503
850	0.009829	101.74364	2.66336	0.92684	0.0005468
900	0.009427	106.08226	2.76121	0.93212	0.0005437
950	0.009058	110.39769	2.85905	0.93684	0.0005410
1000	0.008719	114.69256	2.95690	0.94108	0.0005385
1100	0.008115	123.22919	3.15259	0.94836	0.0005344
1200	0.007593	131.70646	3.34828	0.95436	0.0005310
1300	0.007136	140.13516	3.54397	0.95936	0.0005282
1400	0.006733	148.52355	3.73966	0.96358	0.0005259
1500	0.006374	156.87810	3.93535	0.96718	0.0005240

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.2.2. *Elastic atomic scattering factors of electrons for neutral atoms and s up to 2.0 Å⁻¹*

Element	Z	a ₁	a ₂	a ₃	a ₄	a ₅	b ₁	b ₂	b ₃	b ₄	b ₅
H	1	0.0349	0.1201	0.1970	0.0573	0.1195	0.5347	3.5867	12.3471	18.9525	38.6269
He	2	0.0317	0.0838	0.1526	0.1334	0.0164	0.2507	1.4751	4.4938	12.6646	31.1653
Li	3	0.0750	0.2249	0.5548	1.4954	0.9354	0.3864	2.9383	15.3829	53.5545	138.7337
Be	4	0.0780	0.2210	0.6740	1.3867	0.6925	0.3131	2.2381	10.1517	30.9061	78.3273
B	5	0.0909	0.2551	0.7738	1.2136	0.4606	0.2995	2.1155	8.3816	24.1292	63.1314
C	6	0.0893	0.2563	0.7570	1.0487	0.3575	0.2465	1.7100	6.4094	18.6113	50.2523
N	7	0.1022	0.3219	0.7982	0.8197	0.1715	0.2451	1.7481	6.1925	17.3894	48.1431
O	8	0.0974	0.2921	0.6910	0.6990	0.2039	0.2067	1.3815	4.6943	12.7105	32.4726
F	9	0.1083	0.3175	0.6487	0.5846	0.1421	0.2057	1.3439	4.2788	11.3932	28.7881
Ne	10	0.1269	0.3535	0.5582	0.4674	0.1460	0.2200	1.3779	4.0203	9.4934	23.1278
Na	11	0.2142	0.6853	0.7692	1.6589	1.4482	0.3334	2.3446	10.0830	48.3037	138.2700
Mg	12	0.2314	0.6866	0.9677	2.1882	1.1339	0.3278	2.2720	10.9241	39.2898	101.9748
Al	13	0.2390	0.6573	1.2011	2.5586	1.2312	0.3138	2.1063	10.4163	34.4552	98.5344
Si	14	0.2519	0.6372	1.3795	2.5082	1.0500	0.3075	2.0174	9.6746	29.3744	80.4732
P	15	0.2548	0.6106	1.4541	2.3204	0.8477	0.2908	1.8740	8.5176	24.3434	63.2996
S	16	0.2497	0.5628	1.3899	2.1865	0.7715	0.2681	1.6711	7.0267	19.5377	50.3888
Cl	17	0.2443	0.5397	1.3919	2.0197	0.6621	0.2468	1.5242	6.1537	16.6687	42.3086
Ar	18	0.2385	0.5017	1.3428	1.8899	0.6079	0.2289	1.3694	5.2561	14.0928	35.5361
K	19	0.4115	1.4031	2.2784	2.6742	2.2162	0.3703	3.3874	13.1029	68.9592	194.4329
Ca	20	0.4054	1.3880	2.1602	3.7532	2.2063	0.3499	3.0991	11.9608	53.9353	142.3892
Sc	21	0.3787	1.2181	2.0594	3.2618	2.3870	0.3133	2.5856	9.5813	41.7688	116.7282
Ti	22	0.3825	1.2598	2.0008	3.0617	2.0694	0.3040	2.4863	9.2783	39.0751	109.4583
V	23	0.3876	1.2750	1.9109	2.8314	1.8979	0.2967	2.3780	8.7981	35.9528	101.7201
Cr	24	0.4046	1.3696	1.8941	2.0800	1.2196	0.2986	2.3958	9.1406	37.4701	113.7121
Mn	25	0.3796	1.2094	1.7815	2.5420	1.5937	0.2699	2.0455	7.4726	31.0604	91.5622
Fe	26	0.3946	1.2725	1.7031	2.3140	1.4795	0.2717	2.0443	7.6007	29.9714	86.2265
Co	27	0.4118	1.3161	1.6493	2.1930	1.2830	0.2742	2.0372	7.7205	29.9680	84.9383
Ni	28	0.3860	1.1765	1.5451	2.0730	1.3814	0.2478	1.7660	6.3107	25.2204	74.3146
Cu	29	0.4314	1.3208	1.5236	1.4671	0.8562	0.2694	1.9223	7.3474	28.9892	90.6246
Zn	30	0.4288	1.2646	1.4472	1.8294	1.0934	0.2593	1.7998	6.7500	25.5860	73.5284
Ga	31	0.4818	1.4032	1.6561	2.4605	1.1054	0.2825	1.9785	8.7546	32.5238	98.5523
Ge	32	0.4655	1.3014	1.6088	2.6998	1.3003	0.2647	1.7926	7.6071	26.5541	77.5238
As	33	0.4517	1.2229	1.5852	2.7958	1.2638	0.2493	1.6436	6.8154	22.3681	62.0390
Se	34	0.4477	1.1678	1.5843	2.8087	1.1956	0.2405	1.5442	6.3231	19.4610	52.0233
Br	35	0.4798	1.1948	1.8695	2.6953	0.8203	0.2504	1.5963	6.9653	19.8492	50.3233
Kr	36	0.4546	1.0993	1.7696	2.7068	0.8672	0.2309	1.4279	5.9449	16.6752	42.2243
Rb	37	1.0160	2.8528	3.5466	-7.7804	12.1148	0.4853	5.0925	25.7851	130.4515	138.6775
Sr	38	0.6703	1.4926	3.3368	4.4600	3.1501	0.3190	2.2287	10.3504	52.3291	151.2216
Y	39	0.6894	1.5474	3.2450	4.2126	2.9764	0.3189	2.2904	10.0062	44.0771	125.0120
Zr	40	0.6719	1.4684	3.1668	3.9557	2.8920	0.3036	2.1249	8.9236	36.8458	108.2049
Nb	41	0.6123	1.2677	3.0348	3.3841	2.3683	0.2709	1.7683	7.2489	27.9465	98.5624
Mo	42	0.6773	1.4798	3.1788	3.0824	1.8384	0.2920	2.0606	8.1129	30.5336	100.0658
Tc	43	0.7082	1.6392	3.1993	3.4327	1.8711	0.2976	2.2106	8.5246	33.1456	96.6377
Ru	44	0.6735	1.4934	3.0966	2.7254	1.5597	0.2773	1.9716	7.3249	26.6891	90.5581
Rh	45	0.6413	1.3690	2.9854	2.6952	1.5433	0.2580	1.7721	6.3854	23.2549	85.1517
Pd	46	0.5904	1.1775	2.6519	2.2875	0.8689	0.2324	1.5019	5.1591	15.5428	46.8213
Ag	47	0.6377	1.3790	2.8294	2.3631	1.4553	0.2466	1.6974	5.7656	20.0943	76.7372
Cd	48	0.6364	1.4247	2.7802	2.5973	1.7886	0.2407	1.6823	5.6588	20.7219	69.1109
In	49	0.6768	1.6589	2.7740	3.1835	2.1326	0.2522	1.8545	6.2936	25.1457	84.5448

4.3. ELECTRON DIFFRACTION

Table 4.3.2.2. *Elastic atomic scattering factors of electrons for neutral atoms and s up to 2.0 \AA^{-1} (cont.)*

Element	Z	a_1	a_2	a_3	a_4	a_5	b_1	b_2	b_3	b_4	b_5
Sn	50	0.7224	1.9610	2.7161	3.5603	1.8972	0.2651	2.0604	7.3011	27.5493	81.3349
Sb	51	0.7106	1.9247	2.6149	3.8322	1.8899	0.2562	1.9646	6.8852	24.7648	68.9168
Te	52	0.6947	1.8690	2.5356	4.0013	1.8955	0.2459	1.8542	6.4411	22.1730	59.2206
I	53	0.7047	1.9484	2.5940	4.1526	1.5057	0.2455	1.8638	6.7639	21.8007	56.4395
Xe	54	0.6737	1.7908	2.4129	4.2100	1.7058	0.2305	1.6890	5.8218	18.3928	47.2496
Cs	55	1.2704	3.8018	5.6618	0.9205	4.8105	0.4356	4.2058	23.4342	136.7783	171.7561
Ba	56	0.9049	2.6076	4.8498	5.1603	4.7388	0.3066	2.4363	12.1821	54.6135	161.9978
La	57	0.8405	2.3863	4.6139	5.1514	4.7949	0.2791	2.1410	10.3400	41.9148	132.0204
Ce	58	0.8551	2.3915	4.5772	5.0278	4.5118	0.2805	2.1200	10.1808	42.0633	130.9893
Pr	59	0.9096	2.5313	4.5266	4.6376	4.3690	0.2939	2.2471	10.8266	48.8842	147.6020
Nd	60	0.8807	2.4183	4.4448	4.6858	4.1725	0.2802	2.0836	10.0357	47.4506	146.9976
Pm	61	0.9471	2.5463	4.3523	4.4789	3.9080	0.2977	2.2276	10.5762	49.3619	145.3580
Sm	62	0.9699	2.5837	4.2778	4.4575	3.5985	0.3003	2.2447	10.6487	50.7994	146.4179
Eu	63	0.8694	2.2413	3.9196	3.9694	4.5498	0.2653	1.8590	8.3998	36.7397	125.7089
Gd	64	0.9673	2.4702	4.1148	4.4972	3.2099	0.2909	2.1014	9.7067	43.4270	125.9474
Tb	65	0.9325	2.3673	3.8791	3.9674	3.7996	0.2761	1.9511	8.9296	41.5937	131.0122
Dy	66	0.9505	2.3705	3.8218	4.0471	3.4451	0.2773	1.9469	8.8862	43.0938	133.1396
Ho	67	0.9248	2.2428	3.6182	3.7910	3.7912	0.2660	1.8183	7.9655	33.1129	101.8139
Er	68	1.0373	2.4824	3.6558	3.8925	3.0056	0.2944	2.0797	9.4156	45.8056	132.7720
Tm	69	1.0075	2.3787	3.5440	3.6932	3.1759	0.2816	1.9486	8.7162	41.8420	125.0320
Yb	70	1.0347	2.3911	3.4619	3.6556	3.0052	0.2855	1.9679	8.7619	42.3304	125.6499
Lu	71	0.9927	2.2436	3.3554	3.7813	3.0994	0.2701	1.8073	7.8112	34.4849	103.3526
Hf	72	1.0295	2.2911	3.4110	3.9497	2.4925	0.2761	1.8625	8.0961	34.2712	98.5295
Ta	73	1.0190	2.2291	3.4097	3.9252	2.2679	0.2694	1.7962	7.6944	31.0942	91.1089
W	74	0.9853	2.1167	3.3570	3.7981	2.2798	0.2569	1.6745	7.0098	26.9234	81.3910
Re	75	0.9914	2.0858	3.4531	3.8812	1.8526	0.2548	1.6518	6.8845	26.7234	81.7215
Os	76	0.9813	2.0322	3.3665	3.6235	1.9741	0.2487	1.5973	6.4737	23.2817	70.9254
Ir	77	1.0194	2.0645	3.4425	3.4914	1.6976	0.2554	1.6475	6.5966	23.2269	70.0272
Pt	78	0.9148	1.8096	3.2134	3.2953	1.5754	0.2263	1.3813	5.3243	17.5987	60.0171
Au	79	0.9674	1.8916	3.3993	3.0524	1.2607	0.2358	1.4712	5.6758	18.7119	61.5286
Hg	80	1.0033	1.9469	3.4396	3.1548	1.4180	0.2413	1.5298	5.8009	19.4520	60.5753
Tl	81	1.0689	2.1038	3.6039	3.4927	1.8283	0.2540	1.6715	6.3509	23.1531	78.7099
Pb	82	1.0891	2.1867	3.6160	3.8031	1.8994	0.2552	1.7174	6.5131	23.9170	74.7039
Bi	83	1.1007	2.2306	3.5689	4.1549	2.0382	0.2546	1.7351	6.4948	23.6464	70.3780
Po	84	1.1568	2.4353	3.6459	4.4064	1.7179	0.2648	1.8786	7.1749	25.1766	69.2821
At	85	1.0909	2.1976	3.3831	4.6700	2.1277	0.2466	1.6707	6.0197	20.7657	57.2663
Rn	86	1.0756	2.1630	3.3178	4.8852	2.0489	0.2402	1.6169	5.7644	19.4568	52.5009
Fr	87	1.4282	3.5081	5.6767	4.1964	3.8946	0.3183	2.6889	13.4816	54.3866	200.8321
Ra	88	1.3127	3.1243	5.2988	5.3891	5.4133	0.2887	2.2897	10.8276	43.5389	145.6109
Ac	89	1.3128	3.1021	5.3385	5.9611	4.7562	0.2861	2.2509	10.5287	41.7796	128.2973
Th	90	1.2553	2.9178	5.0862	6.1206	4.7122	0.2701	2.0636	9.3051	34.5977	107.9200
Pa	91	1.3218	3.1444	5.4371	5.6444	4.0107	0.2827	2.2250	10.2454	41.1162	124.4449
U	92	1.3382	3.2043	5.4558	5.4839	3.6342	0.2838	2.2452	10.2519	41.7251	124.9023
Np	93	1.5193	4.0053	6.5327	-1.1402	6.7489	0.3213	2.8206	14.8878	68.9103	81.7257
Pu	94	1.3517	3.2937	5.3213	4.6466	3.5714	0.2813	2.2418	9.9952	42.7939	132.1739
Am	95	1.2135	2.7962	4.7545	4.5731	4.4786	0.2483	1.8437	7.5421	29.3841	112.4579
Cm	96	1.2937	3.1100	5.0393	4.7546	3.5031	0.2638	2.0341	8.7101	35.2992	109.4972
Bk	97	1.2915	3.1023	4.9309	4.6009	3.4661	0.2611	2.0023	8.4377	34.1559	105.8911
Cf	98	1.2089	2.7391	4.3482	4.0047	4.6497	0.2421	1.7487	6.7262	23.2153	80.3108

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.2.3. *Elastic atomic scattering factors of electrons for neutral atoms and s up to 6.0\AA^{-1}*

Element	Z	a_1	a_2	a_3	a_4	a_5	b_1	b_2	b_3	b_4	b_5
H	1	0.0088	0.0449	0.1481	0.2356	0.0914	0.1152	1.0867	4.9755	16.5591	43.2743
He	2	0.0084	0.0443	0.1314	0.1671	0.0666	0.0596	0.5360	2.4274	7.7852	20.3126
Li	3	0.0478	0.2048	0.5253	1.5225	0.9853	0.2258	2.1032	12.9349	50.7501	136.6280
Be	4	0.0423	0.1874	0.6019	1.4311	0.7891	0.1445	1.4180	8.1165	27.9705	74.8684
B	5	0.0436	0.1898	0.6788	1.3273	0.5544	0.1207	1.1595	6.2474	21.0460	59.3619
C	6	0.0489	0.2091	0.7537	1.1420	0.3555	0.1140	1.0825	5.4281	17.8811	51.1341
N	7	0.0267	0.1328	0.5301	1.1020	0.4215	0.0541	0.5165	2.8207	10.6297	34.3764
O	8	0.0365	0.1729	0.5805	0.8814	0.3121	0.0652	0.6184	2.9449	9.6298	28.2194
F	9	0.0382	0.1822	0.5972	0.7707	0.2130	0.0613	0.5753	2.6858	8.8214	25.6668
Ne	10	0.0380	0.1785	0.5494	0.6942	0.1918	0.0554	0.5087	2.2639	7.3316	21.6912
Na	11	0.1260	0.6442	0.8893	1.8197	1.2988	0.1684	1.7150	8.8386	50.8265	147.2073
Mg	12	0.1130	0.5575	0.9046	2.1580	1.4735	0.1356	1.3579	6.9255	32.3165	92.1138
Al	13	0.1165	0.5504	1.0179	2.6295	1.5711	0.1295	1.2619	6.8242	28.4577	88.4750
Si	14	0.0567	0.3365	0.8104	2.4960	2.1186	0.0582	0.6155	3.2522	16.7929	57.6767
P	15	0.1005	0.4615	1.0663	2.5854	1.2725	0.0977	0.9084	4.9654	18.5471	54.3648
S	16	0.0915	0.4312	1.0847	2.4671	1.0852	0.0838	0.7788	4.3462	15.5846	44.6365
Cl	17	0.0799	0.3891	1.0037	2.3332	1.0507	0.0694	0.6443	3.5351	12.5058	35.8633
Ar	18	0.1044	0.4551	1.4232	2.1533	0.4459	0.0853	0.7701	4.4684	14.5864	41.2474
K	19	0.2149	0.8703	2.4999	2.3591	3.0318	0.1660	1.6906	8.7447	46.7825	165.6923
Ca	20	0.2355	0.9916	2.3959	3.7252	2.5647	0.1742	1.8329	8.8407	47.4583	134.9613
Sc	21	0.4636	2.0802	2.9003	1.4193	2.4323	0.3682	4.0312	22.6493	71.8200	103.3691
Ti	22	0.2123	0.8960	2.1765	3.0436	2.4439	0.1399	1.4568	6.7534	33.1168	101.8238
V	23	0.2369	1.0774	2.1894	3.0825	1.7190	0.1505	1.6392	7.5691	36.8741	107.8517
Cr	24	0.1970	0.8228	2.0200	2.1717	1.7516	0.1197	1.1985	5.4097	25.2361	94.4290
Mn	25	0.1943	0.8190	1.9296	2.4968	2.0625	0.1135	1.1313	5.0341	24.1798	80.5598
Fe	26	0.1929	0.8239	1.8689	2.3694	1.9060	0.1087	1.0806	4.7637	22.8500	76.7309
Co	27	0.2186	0.9861	1.8540	2.3258	1.4685	0.1182	1.2300	5.4177	25.7602	80.8542
Ni	28	0.2313	1.0657	1.8229	2.2609	1.1883	0.1210	1.2691	5.6870	27.0917	83.0285
Cu	29	0.3501	1.6558	1.9582	0.2134	1.4109	0.1867	1.9917	11.3396	53.2619	63.2520
Zn	30	0.1780	0.8096	1.6744	1.9499	1.4495	0.0876	0.8650	3.8612	18.8726	64.7016
Ga	31	0.2135	0.9768	1.6669	2.5662	1.6790	0.1020	1.0219	4.6275	22.8742	80.1535
Ge	32	0.2135	0.9761	1.6555	2.8938	1.6356	0.0989	0.9845	4.5527	21.5563	70.3903
As	33	0.2059	0.9518	1.6372	3.0490	1.4756	0.0926	0.9182	4.3291	19.2996	58.9329
Se	34	0.1574	0.7614	1.4834	3.0016	1.7978	0.0686	0.6808	3.1163	14.3458	44.0455
Br	35	0.1899	0.8983	1.6358	3.1845	1.1518	0.0810	0.7957	3.9054	15.7701	45.6124
Kr	36	0.1742	0.8447	1.5944	3.1507	1.1338	0.0723	0.7123	3.5192	13.7724	39.1148
Rb	37	0.3781	1.4904	3.5753	3.0031	3.3272	0.1557	1.5347	9.9947	51.4251	185.9828
Sr	38	0.3723	1.4598	3.5124	4.4612	3.3031	0.1480	1.4643	9.2320	49.8807	148.0937
Y	39	0.3234	1.2737	3.2115	4.0563	3.7962	0.1244	1.1948	7.2756	34.1430	111.2079
Zr	40	0.2997	1.1879	3.1075	3.9740	3.5769	0.1121	1.0638	6.3891	28.7081	97.4289
Nb	41	0.1680	0.9370	2.7300	3.8150	3.0053	0.0597	0.6524	4.4317	19.5540	85.5011
Mo	42	0.3069	1.1714	3.2293	3.4254	2.1224	0.1101	1.0222	5.9613	25.1965	93.5831
Tc	43	0.2928	1.1267	3.1675	3.6619	2.5942	0.1020	0.9481	5.4713	23.8153	82.8991
Ru	44	0.2604	1.0442	3.0761	3.2175	1.9448	0.0887	0.8240	4.8278	19.8977	80.4566
Rh	45	0.2713	1.0556	3.1416	3.0451	1.7179	0.0907	0.8324	4.7702	19.7862	80.2540
Pd	46	0.2003	0.8779	2.6135	2.8594	1.0258	0.0659	0.6111	3.5563	12.7638	44.4283
Ag	47	0.2739	1.0503	3.1564	2.7543	1.4328	0.0881	0.8028	4.4451	18.7011	79.2633
Cd	48	0.3072	1.1303	3.2046	2.9329	1.6560	0.0966	0.8856	4.6273	20.6789	73.4723
In	49	0.3564	1.3011	3.2424	3.4839	2.0459	0.1091	1.0452	5.0900	24.6578	88.0513

4.3. ELECTRON DIFFRACTION

Table 4.3.2.3. Elastic atomic scattering factors of electrons for neutral atoms and s up to 6.0 \AA^{-1} (cont.)

Element	Z	a_1	a_2	a_3	a_4	a_5	b_1	b_2	b_3	b_4	b_5
Sn	50	0.2966	1.1157	3.0973	3.8156	2.5281	0.0896	0.8268	4.2242	20.6900	71.3399
Sb	51	0.2725	1.0651	2.9940	4.0697	2.5682	0.0809	0.7488	3.8710	18.8800	60.6499
Te	52	0.2422	0.9692	2.8114	4.1509	2.8161	0.0708	0.6472	3.3609	16.0752	50.1724
I	53	0.2617	1.0325	2.8097	4.4809	2.3190	0.0749	0.6914	3.4634	16.3603	48.2522
Xe	54	0.2334	0.9496	2.6381	4.4680	2.5020	0.0655	0.6050	3.0389	14.0809	41.0005
Cs	55	0.5713	2.4866	4.9795	4.0198	4.4403	0.1626	1.8213	11.1049	49.0568	202.9987
Ba	56	0.5229	2.2874	4.7243	5.0807	5.6389	0.1434	1.6019	9.4511	42.7685	148.4969
La	57	0.5461	2.3856	5.0653	5.7601	4.0463	0.1479	1.6552	10.0059	47.3245	145.8464
Ce	58	0.2227	1.0760	2.9482	5.8496	7.1834	0.0571	0.5946	3.2022	16.4253	95.7030
Pr	59	0.5237	2.2913	4.6161	4.7233	4.8173	0.1360	1.5068	8.8213	41.9536	141.2424
Nd	60	0.5368	2.3301	4.6058	4.6621	4.4622	0.1378	1.5140	8.8719	43.5967	141.8065
Pm	61	0.5232	2.2627	4.4552	4.4787	4.5073	0.1317	1.4336	8.3087	40.6010	135.9196
Sm	62	0.5162	2.2302	4.3449	4.3598	4.4292	0.1279	1.3811	7.9629	39.1213	132.7846
Eu	63	0.5272	2.2844	4.3361	4.3178	4.0908	0.1285	1.3943	8.1081	40.9631	134.1233
Gd	64	0.9664	3.4052	5.0803	1.4991	4.2528	0.2641	2.6586	16.2213	80.2060	92.5359
Tb	65	0.5110	2.1570	4.0308	3.9936	4.2466	0.1210	1.2704	7.1368	35.0354	123.5062
Dy	66	0.4974	2.1097	3.8906	3.8100	4.3084	0.1157	1.2108	6.7377	32.4150	116.9225
Ho	67	0.4679	1.9693	3.7191	3.9632	4.2432	0.1069	1.0994	5.9769	27.1491	96.3119
Er	68	0.5034	2.1088	3.8232	3.7299	3.8963	0.1141	1.1769	6.6087	33.4332	116.4913
Tm	69	0.4839	2.0262	3.6851	3.5874	4.0037	0.1081	1.1012	6.1114	30.3728	110.5988
Yb	70	0.5221	2.1695	3.7567	3.6685	3.4274	0.1148	1.1860	6.7520	35.6807	118.0692
Lu	71	0.4680	1.9466	3.5428	3.8490	3.6594	0.1015	1.0195	5.6058	27.4899	95.2846
Hf	72	0.4048	1.7370	3.3399	3.9448	3.7293	0.0868	0.8585	4.6378	21.6900	80.2408
Ta	73	0.3835	1.6747	3.2986	4.0462	3.4303	0.0810	0.8020	4.3545	19.9644	73.6337
W	74	0.3661	1.6191	3.2455	4.0856	3.2064	0.0761	0.7543	4.0952	18.2886	68.0967
Re	75	0.3933	1.6973	3.4202	4.1274	2.6158	0.0806	0.7972	4.4237	19.5692	68.7477
Os	76	0.3854	1.6555	3.4129	4.1111	2.4106	0.0787	0.7638	4.2441	18.3700	65.1071
Ir	77	0.3510	1.5620	3.2946	4.0615	2.4382	0.0706	0.6904	3.8266	16.0812	58.7638
Pt	78	0.3083	1.4158	2.9662	3.9349	2.1709	0.0609	0.5993	3.1921	12.5285	49.7675
Au	79	0.3055	1.3945	2.9617	3.8990	2.0026	0.0596	0.5827	3.1035	11.9693	47.9106
Hg	80	0.3593	1.5736	3.5237	3.8109	1.6953	0.0694	0.6758	3.8457	15.6203	56.6614
Tl	81	0.3511	1.5489	3.5676	4.0900	2.5251	0.0672	0.6522	3.7420	15.9791	65.1354
Pb	82	0.3540	1.5453	3.5975	4.3152	2.7743	0.0668	0.6465	3.6968	16.2056	61.4909
Bi	83	0.3530	1.5258	3.5815	4.5532	3.0714	0.0661	0.6324	3.5906	15.9962	57.5760
Po	84	0.3673	1.5772	3.7079	4.8582	2.8440	0.0678	0.6527	3.7396	17.0668	55.9789
At	85	0.3547	1.5206	3.5621	5.0184	3.0075	0.0649	0.6188	3.4696	15.6090	49.4818
Rn	86	0.4586	1.7781	3.9877	5.7273	1.5460	0.0831	0.7840	4.3599	20.0128	62.1535
Fr	87	0.8282	2.9941	5.6597	4.9292	4.2889	0.1515	1.6163	9.7752	42.8480	190.7366
Ra	88	1.4129	4.4269	7.0460	-1.0573	8.6430	0.2921	3.1381	19.6767	102.0436	113.9798
Ac	89	0.7169	2.5710	5.1791	6.3484	5.6474	0.1263	1.2900	7.3686	32.4490	118.0558
Th	90	0.6958	2.4936	5.1269	6.6988	5.0799	0.1211	1.2247	6.9398	30.0991	105.1960
Pa	91	1.2502	4.2284	7.0489	1.1390	5.8222	0.2415	2.6442	16.3313	73.5757	91.9401
U	92	0.6410	2.2643	4.8713	5.9287	5.3935	0.1097	1.0644	5.7907	25.0261	101.3899
Np	93	0.6938	2.4652	5.1227	5.5965	4.8543	0.1171	1.1757	6.4053	27.5217	103.0482
Pu	94	0.6902	2.4509	5.1284	5.0339	4.8575	0.1153	1.1545	6.2291	27.0741	111.3150
Am	95	0.7577	2.7264	5.4184	4.8198	4.1013	0.1257	1.3044	7.1035	32.4649	118.8647
Cm	96	0.7567	2.7565	5.4364	5.1918	3.5643	0.1239	1.2979	7.0798	32.7871	110.1512
Bk	97	0.7492	2.7267	5.3521	5.0369	3.5321	0.1217	1.2651	6.8101	31.6088	106.4853
Cf	98	0.8100	3.0001	5.4635	4.1756	3.5066	0.1310	1.4038	7.6057	34.0186	90.5226

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms*
H; Z = 1

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	5.3956E-01	2.1835E-02	5.7106E-01	1.1403E-02	5.8501E-01	9.6111E-03	6.0222E-01	8.2636E-03
1	4.8779E-01	2.3657E-02	5.1682E-01	1.2341E-02	5.3150E-01	1.0363E-02	5.5125E-01	8.8468E-03
2	3.7546E-01	2.8959E-02	3.9784E-01	1.5102E-02	4.1121E-01	1.2624E-02	4.3188E-01	1.0653E-02
3	2.6709E-01	3.7159E-02	2.8276E-01	1.9391E-02	2.9248E-01	1.6207E-02	3.0790E-01	1.3658E-02
4	1.8733E-01	4.7280E-02	1.9824E-01	2.4676E-02	2.0522E-01	2.0617E-02	2.1554E-01	1.7432E-02
5	1.3383E-01	5.8258E-02	1.4159E-01	3.0404E-02	1.4658E-01	2.5411E-02	1.5436E-01	2.1443E-02
6	9.8468E-02	6.9249E-02	1.0417E-01	3.6134E-02	1.0784E-01	3.0211E-02	1.1349E-01	2.5524E-02
7	7.4696E-02	7.9743E-02	7.9010E-02	4.1605E-02	8.1814E-02	3.4784E-02	8.5989E-02	2.9437E-02
8	5.8260E-02	8.9502E-02	6.1621E-02	4.6690E-02	6.3786E-02	3.9055E-02	6.7184E-02	3.2990E-02
9	4.6554E-02	9.8462E-02	4.9235E-02	5.1360E-02	5.0981E-02	4.2952E-02	5.3638E-02	3.6328E-02
10	3.7970E-02	1.0665E-01	4.0156E-02	5.5626E-02	4.1569E-02	4.6535E-02	4.3702E-02	3.9395E-02
11	3.1489E-02	1.1414E-01	3.3300E-02	5.9528E-02	3.4468E-02	4.9806E-02	3.6249E-02	4.2156E-02
12	2.6551E-02	1.2100E-01	2.8077E-02	6.3104E-02	2.9065E-02	5.2796E-02	3.0577E-02	4.4678E-02
13	2.2685E-02	1.2732E-01	2.3987E-02	6.6395E-02	2.4832E-02	5.5549E-02	2.6126E-02	4.7004E-02
14	1.9591E-02	1.3316E-01	2.0715E-02	6.9437E-02	2.1445E-02	5.8097E-02	2.2568E-02	4.9149E-02
15	1.7086E-02	1.3858E-01	1.8065E-02	7.2263E-02	1.8702E-02	6.0463E-02	1.9680E-02	5.1163E-02
16	1.5030E-02	1.4364E-01	1.5891E-02	7.4898E-02	1.6451E-02	6.2669E-02	1.7307E-02	5.3039E-02
17	1.3322E-02	1.4838E-01	1.4085E-02	7.7366E-02	1.4581E-02	6.4736E-02	1.5344E-02	5.4773E-02
18	1.1889E-02	1.5283E-01	1.2569E-02	7.9685E-02	1.3012E-02	6.6678E-02	1.3692E-02	5.6427E-02
19	1.0674E-02	1.5703E-01	1.1285E-02	8.1873E-02	1.1682E-02	6.8509E-02	1.2290E-02	5.7987E-02
20	9.6365E-03	1.6100E-01	1.0188E-02	8.3943E-02	1.0546E-02	7.0243E-02	1.1097E-02	5.9439E-02
21	8.7427E-03	1.6477E-01	9.2423E-03	8.5908E-02	9.5673E-03	7.1887E-02	1.0067E-02	6.0840E-02
22	7.9675E-03	1.6836E-01	8.4226E-03	8.7776E-02	8.7186E-03	7.3452E-02	9.1718E-03	6.2174E-02
23	7.2908E-03	1.7178E-01	7.7070E-03	8.9558E-02	7.9778E-03	7.4943E-02	8.3943E-03	6.3421E-02
24	6.6968E-03	1.7505E-01	7.0789E-03	9.1261E-02	7.3275E-03	7.6369E-02	7.7096E-03	6.4635E-02
25	6.1724E-03	1.7818E-01	6.5244E-03	9.2892E-02	6.7534E-03	7.7734E-02	7.1041E-03	6.5801E-02
26	5.7072E-03	1.8118E-01	6.0325E-03	9.4456E-02	6.2442E-03	7.9043E-02	6.5697E-03	6.6894E-02
27	5.2927E-03	1.8407E-01	5.5942E-03	9.5959E-02	5.7904E-03	8.0301E-02	6.0920E-03	6.7965E-02
28	4.9217E-03	1.8685E-01	5.2019E-03	9.7406E-02	5.3842E-03	8.1512E-02	5.6635E-03	6.9001E-02
29	4.5884E-03	1.8952E-01	4.8494E-03	9.8800E-02	5.0193E-03	8.2679E-02	5.2805E-03	6.9974E-02
30	4.2878E-03	1.9211E-01	4.5316E-03	1.0014E-01	4.6903E-03	8.3805E-02	4.9342E-03	7.0931E-02
31	4.0157E-03	1.9460E-01	4.2440E-03	1.0145E-01	4.3925E-03	8.4893E-02	4.6200E-03	7.1865E-02
32	3.7688E-03	1.9702E-01	3.9829E-03	1.0270E-01	4.1222E-03	8.5946E-02	4.3363E-03	7.2741E-02
33	3.5440E-03	1.9936E-01	3.7451E-03	1.0392E-01	3.8760E-03	8.6966E-02	4.0773E-03	7.3607E-02
34	3.3387E-03	2.0162E-01	3.5280E-03	1.0510E-01	3.6513E-03	8.7954E-02	3.8401E-03	7.4456E-02
35	3.1507E-03	2.0382E-01	3.3293E-03	1.0625E-01	3.4455E-03	8.8913E-02	3.6241E-03	7.5254E-02
36	2.9781E-03	2.0596E-01	3.1468E-03	1.0736E-01	3.2566E-03	8.9845E-02	3.4254E-03	7.6044E-02
37	2.8194E-03	2.0804E-01	2.9790E-03	1.0844E-01	3.0828E-03	9.0751E-02	3.2419E-03	7.6823E-02
38	2.6730E-03	2.1006E-01	2.8242E-03	1.0949E-01	2.9226E-03	9.1631E-02	3.0738E-03	7.7555E-02
39	2.5377E-03	2.1202E-01	2.6812E-03	1.1052E-01	2.7745E-03	9.2489E-02	2.9180E-03	7.8282E-02
40	2.4124E-03	2.1394E-01	2.5487E-03	1.1152E-01	2.6374E-03	9.3324E-02	2.7732E-03	7.9002E-02
41	2.2962E-03	2.1581E-01	2.4258E-03	1.1249E-01	2.5101E-03	9.4138E-02	2.6397E-03	7.9679E-02
42	2.1882E-03	2.1763E-01	2.3116E-03	1.1344E-01	2.3919E-03	9.4934E-02	2.5153E-03	8.0351E-02
43	2.0876E-03	2.1941E-01	2.2053E-03	1.1437E-01	2.2818E-03	9.5709E-02	2.3991E-03	8.1021E-02
44	1.9939E-03	2.2115E-01	2.1061E-03	1.1527E-01	2.1791E-03	9.6466E-02	2.2913E-03	8.1649E-02
45	1.9062E-03	2.2284E-01	2.0134E-03	1.1616E-01	2.0832E-03	9.7207E-02	2.1905E-03	8.2275E-02
46	1.8243E-03	2.2451E-01	1.9268E-03	1.1702E-01	1.9935E-03	9.7931E-02	2.0957E-03	8.2901E-02
47	1.7475E-03	2.2613E-01	1.8456E-03	1.1787E-01	1.9095E-03	9.8638E-02	2.0075E-03	8.3489E-02
48	1.6755E-03	2.2771E-01	1.7694E-03	1.1870E-01	1.8306E-03	9.9331E-02	1.9246E-03	8.4073E-02
49	1.6078E-03	2.2927E-01	1.6979E-03	1.1951E-01	1.7565E-03	1.0001E-01	1.8463E-03	8.4662E-02
50	1.5441E-03	2.3080E-01	1.6306E-03	1.2030E-01	1.6868E-03	1.0068E-01	1.7732E-03	8.5214E-02
51	1.4842E-03	2.3229E-01	1.5672E-03	1.2108E-01	1.6212E-03	1.0133E-01	1.7042E-03	8.5761E-02
52	1.4277E-03	2.3376E-01	1.5074E-03	1.2184E-01	1.5593E-03	1.0197E-01	1.6388E-03	8.6315E-02
53	1.3743E-03	2.3519E-01	1.4510E-03	1.2259E-01	1.5009E-03	1.0259E-01	1.5775E-03	8.6837E-02
54	1.3239E-03	2.3660E-01	1.3977E-03	1.2333E-01	1.4457E-03	1.0321E-01	1.5195E-03	8.7353E-02
55	1.2762E-03	2.3798E-01	1.3473E-03	1.2405E-01	1.3935E-03	1.0381E-01	1.4644E-03	8.7876E-02
56	1.2311E-03	2.3934E-01	1.2995E-03	1.2476E-01	1.3441E-03	1.0440E-01	1.4125E-03	8.8368E-02
57	1.1882E-03	2.4068E-01	1.2543E-03	1.2545E-01	1.2972E-03	1.0499E-01	1.3633E-03	8.8858E-02
58	1.1476E-03	2.4199E-01	1.2113E-03	1.2614E-01	1.2528E-03	1.0556E-01	1.3162E-03	8.9357E-02
59	1.1091E-03	2.4327E-01	1.1706E-03	1.2681E-01	1.2105E-03	1.0612E-01	1.2719E-03	8.9826E-02
60	1.0724E-03	2.4454E-01	1.1319E-03	1.2746E-01	1.1705E-03	1.0667E-01	1.2301E-03	9.0263E-02

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
He; $Z = 2$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	4.2610E-01	4.1776E-02	4.4985E-01	2.1809E-02	4.6272E-01	1.8383E-02	4.7861E-01	1.5783E-02
1	4.0739E-01	4.3327E-02	4.3041E-01	2.2602E-02	4.4354E-01	1.9017E-02	4.6026E-01	1.6277E-02
2	3.5950E-01	4.7901E-02	3.8022E-01	2.4959E-02	3.9327E-01	2.0925E-02	4.1119E-01	1.7781E-02
3	2.9975E-01	5.5216E-02	3.1704E-01	2.8767E-02	3.2862E-01	2.4069E-02	3.4590E-01	2.0325E-02
4	2.4232E-01	6.4811E-02	2.5619E-01	3.3776E-02	2.6545E-01	2.8275E-02	2.7985E-01	2.3848E-02
5	1.9367E-01	7.6153E-02	2.0478E-01	3.9673E-02	2.1206E-01	3.3235E-02	2.2303E-01	2.8110E-02
6	1.5495E-01	8.8676E-02	1.6384E-01	4.6186E-02	1.6975E-01	3.8674E-02	1.7832E-01	3.2760E-02
7	1.2497E-01	1.0185E-01	1.3209E-01	5.3056E-02	1.3689E-01	4.4420E-02	1.4407E-01	3.7568E-02
8	1.0190E-01	1.1529E-01	1.0770E-01	6.0041E-02	1.1154E-01	5.0301E-02	1.1756E-01	4.2489E-02
9	8.4110E-02	1.2864E-01	8.8879E-02	6.6990E-02	9.2057E-02	5.6121E-02	9.6885E-02	4.7481E-02
10	7.0272E-02	1.4169E-01	7.4222E-02	7.3795E-02	7.6918E-02	6.1790E-02	8.0827E-02	5.2361E-02
11	5.9355E-02	1.5431E-01	6.2676E-02	8.0359E-02	6.4950E-02	6.7298E-02	6.8289E-02	5.6980E-02
12	5.0706E-02	1.6642E-01	5.3536E-02	8.6655E-02	5.5459E-02	7.2590E-02	5.8394E-02	6.1393E-02
13	4.3748E-02	1.7797E-01	4.6181E-02	9.2663E-02	4.7842E-02	7.7613E-02	5.0369E-02	6.5675E-02
14	3.8074E-02	1.8895E-01	4.0185E-02	9.8371E-02	4.1636E-02	8.2387E-02	4.3787E-02	6.9788E-02
15	3.3405E-02	1.9937E-01	3.5252E-02	1.0379E-01	3.6518E-02	8.6940E-02	3.8403E-02	7.3638E-02
16	2.9524E-02	2.0926E-01	3.1151E-02	1.0893E-01	3.2266E-02	9.1254E-02	3.3963E-02	7.7224E-02
17	2.6267E-02	2.1865E-01	2.7711E-02	1.1380E-01	2.8707E-02	9.5322E-02	3.0223E-02	8.0661E-02
18	2.3511E-02	2.2755E-01	2.4801E-02	1.1843E-01	2.5693E-02	9.9196E-02	2.7031E-02	8.4002E-02
19	2.1160E-02	2.3601E-01	2.2319E-02	1.2283E-01	2.3117E-02	1.0290E-01	2.4310E-02	8.7168E-02
20	1.9139E-02	2.4407E-01	2.0186E-02	1.2701E-01	2.0907E-02	1.0640E-01	2.1995E-02	9.0098E-02
21	1.7392E-02	2.5174E-01	1.8342E-02	1.3100E-01	1.8999E-02	1.0972E-01	1.9998E-02	9.2866E-02
22	1.5871E-02	2.5906E-01	1.6736E-02	1.3480E-01	1.7336E-02	1.1291E-01	1.8244E-02	9.5585E-02
23	1.4539E-02	2.6606E-01	1.5330E-02	1.3843E-01	1.5876E-02	1.1598E-01	1.6700E-02	9.8232E-02
24	1.3366E-02	2.7275E-01	1.4093E-02	1.4191E-01	1.4596E-02	1.1888E-01	1.5350E-02	1.0071E-01
25	1.2329E-02	2.7917E-01	1.2999E-02	1.4524E-01	1.3464E-02	1.2166E-01	1.4166E-02	1.0300E-01
26	1.1407E-02	2.8533E-01	1.2026E-02	1.4844E-01	1.2456E-02	1.2435E-01	1.3110E-02	1.0524E-01
27	1.0585E-02	2.9124E-01	1.1158E-02	1.5152E-01	1.1555E-02	1.2694E-01	1.2158E-02	1.0748E-01
28	9.8473E-03	2.9695E-01	1.0381E-02	1.5447E-01	1.0750E-02	1.2940E-01	1.1305E-02	1.0963E-01
29	9.1842E-03	3.0243E-01	9.6810E-03	1.5733E-01	1.0027E-02	1.3178E-01	1.0546E-02	1.1162E-01
30	8.5856E-03	3.0772E-01	9.0497E-03	1.6007E-01	9.3719E-03	1.3410E-01	9.8633E-03	1.1350E-01
31	8.0433E-03	3.1285E-01	8.4779E-03	1.6273E-01	8.7787E-03	1.3633E-01	9.2390E-03	1.1540E-01
32	7.5508E-03	3.1779E-01	7.9583E-03	1.6530E-01	8.2418E-03	1.3846E-01	8.6674E-03	1.1729E-01
33	7.1020E-03	3.2257E-01	7.4850E-03	1.6779E-01	7.7520E-03	1.4054E-01	8.1506E-03	1.1907E-01
34	6.6919E-03	3.2722E-01	7.0526E-03	1.7019E-01	7.3030E-03	1.4258E-01	7.6836E-03	1.2071E-01
35	6.3164E-03	3.3171E-01	6.6564E-03	1.7253E-01	6.8925E-03	1.4454E-01	7.2541E-03	1.2233E-01
36	5.9714E-03	3.3608E-01	6.2927E-03	1.7480E-01	6.5168E-03	1.4641E-01	6.8548E-03	1.2399E-01
37	5.6538E-03	3.4032E-01	5.9580E-03	1.7700E-01	6.1700E-03	1.4826E-01	6.4869E-03	1.2561E-01
38	5.3611E-03	3.4444E-01	5.6492E-03	1.7914E-01	5.8492E-03	1.5008E-01	6.1519E-03	1.2710E-01
39	5.0903E-03	3.4846E-01	5.3637E-03	1.8123E-01	5.5538E-03	1.5182E-01	5.8440E-03	1.2851E-01
40	4.8395E-03	3.5236E-01	5.0994E-03	1.8325E-01	5.2807E-03	1.5349E-01	5.5555E-03	1.2996E-01
41	4.6069E-03	3.5616E-01	4.8540E-03	1.8523E-01	5.0263E-03	1.5516E-01	5.2853E-03	1.3143E-01
42	4.3905E-03	3.5988E-01	4.6259E-03	1.8716E-01	4.7894E-03	1.5679E-01	5.0360E-03	1.3281E-01
43	4.1891E-03	3.6349E-01	4.4136E-03	1.8904E-01	4.5698E-03	1.5835E-01	4.8068E-03	1.3408E-01
44	4.0012E-03	3.6703E-01	4.2154E-03	1.9087E-01	4.3651E-03	1.5987E-01	4.5923E-03	1.3535E-01
45	3.8256E-03	3.7049E-01	4.0303E-03	1.9267E-01	4.1730E-03	1.6139E-01	4.3890E-03	1.3667E-01
46	3.6614E-03	3.7386E-01	3.8572E-03	1.9442E-01	3.9932E-03	1.6288E-01	4.1985E-03	1.3797E-01
47	3.5074E-03	3.7716E-01	3.6949E-03	1.9613E-01	3.8257E-03	1.6429E-01	4.0225E-03	1.3916E-01
48	3.3630E-03	3.8038E-01	3.5426E-03	1.9781E-01	3.6682E-03	1.6568E-01	3.8584E-03	1.4028E-01
49	3.2273E-03	3.8355E-01	3.3996E-03	1.9945E-01	3.5195E-03	1.6708E-01	3.7024E-03	1.4144E-01
50	3.0997E-03	3.8664E-01	3.2651E-03	2.0106E-01	3.3800E-03	1.6843E-01	3.5541E-03	1.4265E-01
51	2.9795E-03	3.8966E-01	3.1383E-03	2.0263E-01	3.2493E-03	1.6972E-01	3.4155E-03	1.4379E-01
52	2.8661E-03	3.9264E-01	3.0188E-03	2.0417E-01	3.1256E-03	1.7102E-01	3.2866E-03	1.4482E-01
53	2.7591E-03	3.9555E-01	2.9060E-03	2.0569E-01	3.0082E-03	1.7231E-01	3.1646E-03	1.4585E-01
54	2.6580E-03	3.9840E-01	2.7994E-03	2.0717E-01	2.8979E-03	1.7355E-01	3.0475E-03	1.4695E-01
55	2.5623E-03	4.0120E-01	2.6986E-03	2.0863E-01	2.7939E-03	1.7474E-01	2.9364E-03	1.4804E-01
56	2.4717E-03	4.0396E-01	2.6031E-03	2.1005E-01	2.6948E-03	1.7595E-01	2.8328E-03	1.4903E-01
57	2.3858E-03	4.0666E-01	2.5125E-03	2.1146E-01	2.6006E-03	1.7715E-01	2.7354E-03	1.4996E-01
58	2.3044E-03	4.0930E-01	2.4266E-03	2.1284E-01	2.5119E-03	1.7829E-01	2.6417E-03	1.5094E-01
59	2.2271E-03	4.1189E-01	2.3451E-03	2.1419E-01	2.4280E-03	1.7938E-01	2.5516E-03	1.5197E-01
60	2.1533E-03	4.1451E-01	2.2675E-03	2.1553E-01	2.3472E-03	1.8053E-01	2.4666E-03	1.5295E-01

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

Li; $Z = 3$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	3.3440E+00	3.4566E-02	3.5370E+00	1.8036E-02	3.6606E+00	1.5125E-02	3.8345E+00	1.2836E-02
1	2.2942E+00	4.6591E-02	2.4277E+00	2.4302E-02	2.5141E+00	2.0369E-02	2.6390E+00	1.7258E-02
2	1.0905E+00	8.0922E-02	1.1545E+00	4.2187E-02	1.1963E+00	3.5347E-02	1.2584E+00	2.9910E-02
3	5.7692E-01	1.2235E-01	6.1069E-01	6.3773E-02	6.3285E-01	5.3436E-02	6.6585E-01	4.5230E-02
4	3.6834E-01	1.5631E-01	3.8977E-01	8.1464E-02	4.0391E-01	6.8263E-02	4.2502E-01	5.7792E-02
5	2.6569E-01	1.8224E-01	2.8107E-01	9.4973E-02	2.9126E-01	7.9585E-02	3.0650E-01	6.7386E-02
6	2.0504E-01	2.0358E-01	2.1686E-01	1.0609E-01	2.2472E-01	8.8897E-02	2.3649E-01	7.5278E-02
7	1.6450E-01	2.2257E-01	1.7394E-01	1.1596E-01	1.8024E-01	9.7177E-02	1.8968E-01	8.2294E-02
8	1.3523E-01	2.4027E-01	1.4296E-01	1.2518E-01	1.4814E-01	1.0490E-01	1.5589E-01	8.8837E-02
9	1.1308E-01	2.5720E-01	1.1952E-01	1.3398E-01	1.2384E-01	1.1227E-01	1.3033E-01	9.5088E-02
10	9.5794E-02	2.7357E-01	1.0122E-01	1.4250E-01	1.0488E-01	1.1941E-01	1.1037E-01	1.0113E-01
11	8.2007E-02	2.8939E-01	8.6630E-02	1.5072E-01	8.9757E-02	1.2630E-01	9.4457E-02	1.0697E-01
12	7.0897E-02	3.0474E-01	7.4873E-02	1.5870E-01	7.7575E-02	1.3299E-01	8.1634E-02	1.1264E-01
13	6.1809E-02	3.1959E-01	6.5258E-02	1.6641E-01	6.7611E-02	1.3945E-01	7.1147E-02	1.1812E-01
14	5.4277E-02	3.3393E-01	5.7291E-02	1.7386E-01	5.9355E-02	1.4569E-01	6.2458E-02	1.2341E-01
15	4.7985E-02	3.4776E-01	5.0636E-02	1.8105E-01	5.2458E-02	1.5172E-01	5.5200E-02	1.2851E-01
16	4.2685E-02	3.6110E-01	4.5031E-02	1.8798E-01	4.6650E-02	1.5752E-01	4.9087E-02	1.3343E-01
17	3.8184E-02	3.7395E-01	4.0273E-02	1.9465E-01	4.1720E-02	1.6311E-01	4.3898E-02	1.3816E-01
18	3.4337E-02	3.8631E-01	3.6206E-02	2.0107E-01	3.7506E-02	1.6849E-01	3.9463E-02	1.4272E-01
19	3.1025E-02	3.9820E-01	3.2707E-02	2.0724E-01	3.3880E-02	1.7366E-01	3.5647E-02	1.4710E-01
20	2.8158E-02	4.0964E-01	2.9678E-02	2.1317E-01	3.0741E-02	1.7863E-01	3.2344E-02	1.5131E-01
21	2.5660E-02	4.2064E-01	2.7040E-02	2.1888E-01	2.8008E-02	1.8341E-01	2.9468E-02	1.5536E-01
22	2.3473E-02	4.3123E-01	2.4730E-02	2.2437E-01	2.5615E-02	1.8801E-01	2.6950E-02	1.5926E-01
23	2.1549E-02	4.4142E-01	2.2699E-02	2.2966E-01	2.3510E-02	1.9244E-01	2.4735E-02	1.6301E-01
24	1.9847E-02	4.5123E-01	2.0903E-02	2.3475E-01	2.1650E-02	1.9670E-01	2.2777E-02	1.6663E-01
25	1.8336E-02	4.6069E-01	1.9308E-02	2.3965E-01	1.9998E-02	2.0081E-01	2.1038E-02	1.7011E-01
26	1.6988E-02	4.6981E-01	1.7886E-02	2.4438E-01	1.8525E-02	2.0477E-01	1.9489E-02	1.7346E-01
27	1.5782E-02	4.7861E-01	1.6614E-02	2.4894E-01	1.7207E-02	2.0859E-01	1.8101E-02	1.7670E-01
28	1.4698E-02	4.8711E-01	1.5471E-02	2.5335E-01	1.6022E-02	2.1228E-01	1.6855E-02	1.7982E-01
29	1.3720E-02	4.9532E-01	1.4440E-02	2.5761E-01	1.4955E-02	2.1585E-01	1.5732E-02	1.8285E-01
30	1.2836E-02	5.0327E-01	1.3508E-02	2.6172E-01	1.3989E-02	2.1930E-01	1.4716E-02	1.8577E-01
31	1.2034E-02	5.1096E-01	1.2663E-02	2.6571E-01	1.3114E-02	2.2264E-01	1.3795E-02	1.8859E-01
32	1.1304E-02	5.1840E-01	1.1894E-02	2.6957E-01	1.2317E-02	2.2587E-01	1.2957E-02	1.9133E-01
33	1.0638E-02	5.2562E-01	1.1192E-02	2.7331E-01	1.1590E-02	2.2900E-01	1.2192E-02	1.9398E-01
34	1.0029E-02	5.3262E-01	1.0550E-02	2.7694E-01	1.0925E-02	2.3204E-01	1.1492E-02	1.9656E-01
35	9.4702E-03	5.3942E-01	9.9617E-03	2.8046E-01	1.0316E-02	2.3499E-01	1.0851E-02	1.9906E-01
36	8.9566E-03	5.4603E-01	9.4206E-03	2.8388E-01	9.7552E-03	2.3786E-01	1.0261E-02	2.0149E-01
37	8.4834E-03	5.5245E-01	8.9223E-03	2.8721E-01	9.2390E-03	2.4065E-01	9.7179E-03	2.0385E-01
38	8.0465E-03	5.5870E-01	8.4623E-03	2.9044E-01	8.7626E-03	2.4335E-01	9.2166E-03	2.0614E-01
39	7.6424E-03	5.6478E-01	8.0368E-03	2.9359E-01	8.3219E-03	2.4599E-01	8.7529E-03	2.0838E-01
40	7.2678E-03	5.7070E-01	7.6424E-03	2.9666E-01	7.9134E-03	2.4856E-01	8.3232E-03	2.1055E-01
41	6.9200E-03	5.7647E-01	7.2763E-03	2.9965E-01	7.5342E-03	2.5107E-01	7.9241E-03	2.1267E-01
42	6.5965E-03	5.8210E-01	6.9357E-03	3.0257E-01	7.1814E-03	2.5351E-01	7.5530E-03	2.1474E-01
43	6.2950E-03	5.8760E-01	6.6184E-03	3.0542E-01	6.8528E-03	2.5589E-01	7.2072E-03	2.1676E-01
44	6.0137E-03	5.9296E-01	6.3223E-03	3.0819E-01	6.5461E-03	2.5822E-01	6.8846E-03	2.1873E-01
45	5.7508E-03	5.9820E-01	6.0456E-03	3.1091E-01	6.2595E-03	2.6049E-01	6.5831E-03	2.2066E-01
46	5.5047E-03	6.0332E-01	5.7866E-03	3.1356E-01	5.9913E-03	2.6271E-01	6.3009E-03	2.2254E-01
47	5.2740E-03	6.0833E-01	5.5439E-03	3.1615E-01	5.7399E-03	2.6488E-01	6.0364E-03	2.2438E-01
48	5.0574E-03	6.1323E-01	5.3160E-03	3.1869E-01	5.5039E-03	2.6701E-01	5.7882E-03	2.2618E-01
49	4.8540E-03	6.1802E-01	5.1019E-03	3.2117E-01	5.2822E-03	2.6909E-01	5.5549E-03	2.2794E-01
50	4.6625E-03	6.2272E-01	4.9005E-03	3.2361E-01	5.0735E-03	2.7113E-01	5.3354E-03	2.2966E-01
51	4.4821E-03	6.2731E-01	4.7107E-03	3.2599E-01	4.8770E-03	2.7312E-01	5.1286E-03	2.3135E-01
52	4.3120E-03	6.3182E-01	4.5317E-03	3.2832E-01	4.6917E-03	2.7507E-01	4.9336E-03	2.3301E-01
53	4.1513E-03	6.3623E-01	4.3627E-03	3.3061E-01	4.5166E-03	2.7699E-01	4.7494E-03	2.3463E-01
54	3.9995E-03	6.4057E-01	4.2030E-03	3.3285E-01	4.3512E-03	2.7887E-01	4.5754E-03	2.3622E-01
55	3.8558E-03	6.4482E-01	4.0518E-03	3.3505E-01	4.1947E-03	2.8071E-01	4.4107E-03	2.3779E-01
56	3.7197E-03	6.4899E-01	3.9087E-03	3.3721E-01	4.0464E-03	2.8252E-01	4.2548E-03	2.3932E-01
57	3.5907E-03	6.5308E-01	3.7730E-03	3.3933E-01	3.9059E-03	2.8430E-01	4.1069E-03	2.4082E-01
58	3.4683E-03	6.5711E-01	3.6442E-03	3.4142E-01	3.7725E-03	2.8605E-01	3.9666E-03	2.4230E-01
59	3.3520E-03	6.6105E-01	3.5219E-03	3.4347E-01	3.6459E-03	2.8776E-01	3.8334E-03	2.4375E-01
60	3.2415E-03	6.6492E-01	3.4058E-03	3.4547E-01	3.5255E-03	2.8945E-01	3.7068E-03	2.4517E-01

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Be; $Z = 4$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	3.1055E+00	5.8862E-02	3.2880E+00	3.0761E-02	3.4035E+00	2.5806E-02	3.5638E+00	2.1939E-02
1	2.5308E+00	6.9079E-02	2.6815E+00	3.6077E-02	2.7773E+00	3.0252E-02	2.9164E+00	2.5649E-02
2	1.5618E+00	9.9147E-02	1.6558E+00	5.1749E-02	1.7162E+00	4.3368E-02	1.8057E+00	3.6714E-02
3	9.0894E-01	1.4388E-01	9.6387E-01	7.5060E-02	9.9918E-01	6.2898E-02	1.0515E+00	5.3259E-02
4	5.6282E-01	1.9294E-01	5.9674E-01	1.0060E-01	6.1846E-01	8.4322E-02	6.5100E-01	7.1403E-02
5	3.8082E-01	2.3775E-01	4.0346E-01	1.2396E-01	4.1816E-01	1.0389E-01	4.4012E-01	8.7995E-02
6	2.7803E-01	2.7538E-01	2.9434E-01	1.4359E-01	3.0510E-01	1.2032E-01	3.2108E-01	1.0193E-01
7	2.1472E-01	3.0659E-01	2.2727E-01	1.5979E-01	2.3550E-01	1.3394E-01	2.4788E-01	1.1345E-01
8	1.7255E-01	3.3310E-01	1.8254E-01	1.7362E-01	1.8915E-01	1.4552E-01	1.9908E-01	1.2327E-01
9	1.4259E-01	3.5654E-01	1.5076E-01	1.8585E-01	1.5625E-01	1.5573E-01	1.6443E-01	1.3194E-01
10	1.2020E-01	3.7796E-01	1.2712E-01	1.9689E-01	1.3170E-01	1.6504E-01	1.3862E-01	1.3980E-01
11	1.0282E-01	3.9793E-01	1.0872E-01	2.0725E-01	1.1263E-01	1.7373E-01	1.1855E-01	1.4716E-01
12	8.9120E-02	4.1676E-01	9.4178E-02	2.1709E-01	9.7574E-02	1.8195E-01	1.0269E-01	1.5414E-01
13	7.8000E-02	4.3478E-01	8.2389E-02	2.2648E-01	8.5364E-02	1.8980E-01	8.9832E-02	1.6080E-01
14	6.8793E-02	4.5213E-01	7.2641E-02	2.3549E-01	7.5262E-02	1.9735E-01	7.9199E-02	1.6720E-01
15	6.1093E-02	4.6886E-01	6.4491E-02	2.4417E-01	6.6814E-02	2.0463E-01	7.0308E-02	1.7336E-01
16	5.4587E-02	4.8503E-01	5.7604E-02	2.5256E-01	5.9677E-02	2.1166E-01	6.2796E-02	1.7932E-01
17	4.9039E-02	5.0066E-01	5.1732E-02	2.6068E-01	5.3593E-02	2.1846E-01	5.6392E-02	1.8508E-01
18	4.4271E-02	5.1580E-01	4.6688E-02	2.6853E-01	4.8365E-02	2.2503E-01	5.0890E-02	1.9065E-01
19	4.0146E-02	5.3045E-01	4.2324E-02	2.7612E-01	4.3843E-02	2.3140E-01	4.6130E-02	1.9604E-01
20	3.6555E-02	5.4463E-01	3.8526E-02	2.8348E-01	3.9907E-02	2.3756E-01	4.1988E-02	2.0126E-01
21	3.3411E-02	5.5836E-01	3.5202E-02	2.9059E-01	3.6463E-02	2.4352E-01	3.8364E-02	2.0631E-01
22	3.0645E-02	5.7166E-01	3.2279E-02	2.9748E-01	3.3433E-02	2.4929E-01	3.5175E-02	2.1120E-01
23	2.8200E-02	5.8454E-01	2.9695E-02	3.0416E-01	3.0756E-02	2.5488E-01	3.2357E-02	2.1594E-01
24	2.6029E-02	5.9701E-01	2.7401E-02	3.1062E-01	2.8379E-02	2.6029E-01	2.9856E-02	2.2052E-01
25	2.4093E-02	6.0910E-01	2.5357E-02	3.1688E-01	2.6261E-02	2.6554E-01	2.7627E-02	2.2497E-01
26	2.2361E-02	6.2081E-01	2.3528E-02	3.2295E-01	2.4366E-02	2.7062E-01	2.5633E-02	2.2927E-01
27	2.0805E-02	6.3217E-01	2.1886E-02	3.2883E-01	2.2665E-02	2.7554E-01	2.3843E-02	2.3344E-01
28	1.9403E-02	6.4318E-01	2.0406E-02	3.3453E-01	2.1132E-02	2.8032E-01	2.2230E-02	2.3749E-01
29	1.8135E-02	6.5387E-01	1.9069E-02	3.4006E-01	1.9747E-02	2.8495E-01	2.0772E-02	2.4141E-01
30	1.6986E-02	6.6424E-01	1.7857E-02	3.4542E-01	1.8491E-02	2.8944E-01	1.9451E-02	2.4521E-01
31	1.5941E-02	6.7431E-01	1.6755E-02	3.5064E-01	1.7349E-02	2.9381E-01	1.8249E-02	2.4891E-01
32	1.4988E-02	6.8410E-01	1.5750E-02	3.5570E-01	1.6308E-02	2.9805E-01	1.7154E-02	2.5250E-01
33	1.4116E-02	6.9361E-01	1.4832E-02	3.6061E-01	1.5357E-02	3.0217E-01	1.6153E-02	2.5599E-01
34	1.3318E-02	7.0286E-01	1.3990E-02	3.6540E-01	1.4486E-02	3.0617E-01	1.5236E-02	2.5938E-01
35	1.2584E-02	7.1186E-01	1.3218E-02	3.7005E-01	1.3686E-02	3.1007E-01	1.4395E-02	2.6268E-01
36	1.1909E-02	7.2061E-01	1.2507E-02	3.7458E-01	1.2949E-02	3.1386E-01	1.3620E-02	2.6589E-01
37	1.1286E-02	7.2914E-01	1.1851E-02	3.7899E-01	1.2270E-02	3.1755E-01	1.2905E-02	2.6902E-01
38	1.0711E-02	7.3745E-01	1.1245E-02	3.8328E-01	1.1642E-02	3.2115E-01	1.2245E-02	2.7207E-01
39	1.0177E-02	7.4555E-01	1.0684E-02	3.8747E-01	1.1061E-02	3.2465E-01	1.1633E-02	2.7504E-01
40	9.6828E-03	7.5345E-01	1.0164E-02	3.9155E-01	1.0522E-02	3.2807E-01	1.1066E-02	2.7793E-01
41	9.2231E-03	7.6116E-01	9.6798E-03	3.9554E-01	1.0021E-02	3.3140E-01	1.0539E-02	2.8076E-01
42	8.7950E-03	7.6869E-01	9.2296E-03	3.9942E-01	9.5549E-03	3.3466E-01	1.0049E-02	2.8351E-01
43	8.3959E-03	7.7603E-01	8.8098E-03	4.0322E-01	9.1202E-03	3.3784E-01	9.5912E-03	2.8621E-01
44	8.0231E-03	7.8321E-01	8.4179E-03	4.0693E-01	8.7143E-03	3.4095E-01	9.1642E-03	2.8884E-01
45	7.6745E-03	7.9023E-01	8.0514E-03	4.1055E-01	8.3348E-03	3.4398E-01	8.7648E-03	2.9141E-01
46	7.3479E-03	7.9710E-01	7.7081E-03	4.1410E-01	7.9793E-03	3.4695E-01	8.3909E-03	2.9392E-01
47	7.0417E-03	8.0381E-01	7.3862E-03	4.1757E-01	7.6460E-03	3.4985E-01	8.0403E-03	2.9638E-01
48	6.7541E-03	8.1038E-01	7.0840E-03	4.2096E-01	7.3330E-03	3.5270E-01	7.7110E-03	2.9879E-01
49	6.4837E-03	8.1682E-01	6.7998E-03	4.2429E-01	7.0388E-03	3.5548E-01	7.4015E-03	3.0114E-01
50	6.2291E-03	8.2312E-01	6.5324E-03	4.2754E-01	6.7618E-03	3.5820E-01	7.1102E-03	3.0345E-01
51	5.9892E-03	8.2930E-01	6.2803E-03	4.3073E-01	6.5008E-03	3.6087E-01	6.8356E-03	3.0571E-01
52	5.7627E-03	8.3535E-01	6.0425E-03	4.3386E-01	6.2545E-03	3.6349E-01	6.5765E-03	3.0793E-01
53	5.5489E-03	8.4129E-01	5.8179E-03	4.3692E-01	6.0220E-03	3.6606E-01	6.3319E-03	3.1010E-01
54	5.3467E-03	8.4711E-01	5.6056E-03	4.3993E-01	5.8021E-03	3.6858E-01	6.1006E-03	3.1224E-01
55	5.1553E-03	8.5282E-01	5.4046E-03	4.4288E-01	5.5940E-03	3.7105E-01	5.8817E-03	3.1433E-01
56	4.9740E-03	8.5843E-01	5.2141E-03	4.4578E-01	5.3968E-03	3.7347E-01	5.6743E-03	3.1638E-01
57	4.8020E-03	8.6394E-01	5.0336E-03	4.4862E-01	5.2099E-03	3.7585E-01	5.4776E-03	3.1840E-01
58	4.6388E-03	8.6934E-01	4.8622E-03	4.5142E-01	5.0325E-03	3.7819E-01	5.2911E-03	3.2037E-01
59	4.4837E-03	8.7465E-01	4.6995E-03	4.5416E-01	4.8640E-03	3.8049E-01	5.1137E-03	3.2233E-01
60	4.3361E-03	8.7993E-01	4.5450E-03	4.5683E-01	4.7036E-03	3.8276E-01	4.9449E-03	3.2425E-01

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

B; Z = 5

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	2.8358E+00	8.0833E-02	3.0075E+00	4.2321E-02	3.1129E+00	3.5528E-02	3.2589E+00	3.0233E-02
1	2.4610E+00	9.0430E-02	2.6117E+00	4.7318E-02	2.7056E+00	3.9689E-02	2.8411E+00	3.3677E-02
2	1.7329E+00	1.1818E-01	1.8407E+00	6.1786E-02	1.9083E+00	5.1793E-02	2.0083E+00	4.3863E-02
3	1.1285E+00	1.6052E-01	1.1995E+00	8.3854E-02	1.2437E+00	7.0287E-02	1.3092E+00	5.9526E-02
4	7.4063E-01	2.1145E-01	7.8730E-01	1.1039E-01	8.1629E-01	9.2525E-02	8.5934E-01	7.8374E-02
5	5.0784E-01	2.6434E-01	5.3954E-01	1.3794E-01	5.5940E-01	1.1562E-01	5.8894E-01	9.7936E-02
6	3.6682E-01	3.1415E-01	3.8937E-01	1.6389E-01	4.0365E-01	1.3737E-01	4.2492E-01	1.1638E-01
7	2.7788E-01	3.5851E-01	2.9466E-01	1.8701E-01	3.0544E-01	1.5675E-01	3.2151E-01	1.3281E-01
8	2.1893E-01	3.9718E-01	2.3195E-01	2.0716E-01	2.4041E-01	1.7363E-01	2.5306E-01	1.4710E-01
9	1.7797E-01	4.3078E-01	1.8843E-01	2.2464E-01	1.9528E-01	1.8830E-01	2.0553E-01	1.5955E-01
10	1.4819E-01	4.6047E-01	1.5680E-01	2.4010E-01	1.6250E-01	2.0124E-01	1.7104E-01	1.7050E-01
11	1.2565E-01	4.8713E-01	1.3288E-01	2.5397E-01	1.3771E-01	2.1286E-01	1.4494E-01	1.8035E-01
12	1.0830E-01	5.1149E-01	1.1450E-01	2.6662E-01	1.1865E-01	2.2346E-01	1.2487E-01	1.8934E-01
13	9.4491E-02	5.3411E-01	9.9864E-02	2.7837E-01	1.0348E-01	2.3331E-01	1.0890E-01	1.9769E-01
14	8.3219E-02	5.5541E-01	8.7920E-02	2.8942E-01	9.1096E-02	2.4257E-01	9.5866E-02	2.0553E-01
15	7.3891E-02	5.7562E-01	7.8037E-02	2.9991E-01	8.0853E-02	2.5136E-01	8.5084E-02	2.1298E-01
16	6.6065E-02	5.9496E-01	6.9747E-02	3.0994E-01	7.2261E-02	2.5977E-01	7.6040E-02	2.2010E-01
17	5.9424E-02	6.1353E-01	6.2712E-02	3.1957E-01	6.4970E-02	2.6783E-01	6.8366E-02	2.2694E-01
18	5.3731E-02	6.3143E-01	5.6683E-02	3.2886E-01	5.8722E-02	2.7561E-01	6.1789E-02	2.3353E-01
19	4.8811E-02	6.4873E-01	5.1474E-02	3.3782E-01	5.3323E-02	2.8312E-01	5.6106E-02	2.3989E-01
20	4.4527E-02	6.6548E-01	4.6940E-02	3.4650E-01	4.8623E-02	2.9039E-01	5.1160E-02	2.4605E-01
21	4.0775E-02	6.8171E-01	4.2968E-02	3.5491E-01	4.4507E-02	2.9743E-01	4.6828E-02	2.5201E-01
22	3.7469E-02	6.9746E-01	3.9469E-02	3.6306E-01	4.0882E-02	3.0426E-01	4.3012E-02	2.5780E-01
23	3.4541E-02	7.1274E-01	3.6372E-02	3.7098E-01	3.7672E-02	3.1089E-01	3.9634E-02	2.6341E-01
24	3.1936E-02	7.2760E-01	3.3617E-02	3.7866E-01	3.4817E-02	3.1732E-01	3.6629E-02	2.6887E-01
25	2.9609E-02	7.4202E-01	3.1157E-02	3.8612E-01	3.2268E-02	3.2358E-01	3.3946E-02	2.7416E-01
26	2.7522E-02	7.5605E-01	2.8951E-02	3.9338E-01	2.9982E-02	3.2965E-01	3.1540E-02	2.7931E-01
27	2.5643E-02	7.6970E-01	2.6966E-02	4.0044E-01	2.7925E-02	3.3556E-01	2.9376E-02	2.8431E-01
28	2.3947E-02	7.8296E-01	2.5174E-02	4.0730E-01	2.6068E-02	3.4130E-01	2.7422E-02	2.8918E-01
29	2.2410E-02	7.9588E-01	2.3551E-02	4.1397E-01	2.4387E-02	3.4690E-01	2.5652E-02	2.9392E-01
30	2.1014E-02	8.0845E-01	2.2077E-02	4.2046E-01	2.2860E-02	3.5233E-01	2.4045E-02	2.9852E-01
31	1.9741E-02	8.2069E-01	2.0734E-02	4.2679E-01	2.1469E-02	3.5763E-01	2.2581E-02	3.0301E-01
32	1.8579E-02	8.3261E-01	1.9508E-02	4.3295E-01	2.0198E-02	3.6279E-01	2.1245E-02	3.0738E-01
33	1.7515E-02	8.4423E-01	1.8386E-02	4.3895E-01	1.9036E-02	3.6781E-01	2.0021E-02	3.1163E-01
34	1.6538E-02	8.5555E-01	1.7356E-02	4.4480E-01	1.7969E-02	3.7271E-01	1.8899E-02	3.1578E-01
35	1.5639E-02	8.6660E-01	1.6409E-02	4.5049E-01	1.6988E-02	3.7748E-01	1.7866E-02	3.1982E-01
36	1.4811E-02	8.7737E-01	1.5536E-02	4.5605E-01	1.6084E-02	3.8213E-01	1.6915E-02	3.2376E-01
37	1.4046E-02	8.8788E-01	1.4730E-02	4.6148E-01	1.5249E-02	3.8667E-01	1.6037E-02	3.2760E-01
38	1.3338E-02	8.9813E-01	1.3984E-02	4.6677E-01	1.4476E-02	3.9110E-01	1.5224E-02	3.3135E-01
39	1.2681E-02	9.0815E-01	1.3293E-02	4.7193E-01	1.3760E-02	3.9543E-01	1.4471E-02	3.3502E-01
40	1.2071E-02	9.1794E-01	1.2651E-02	4.7698E-01	1.3096E-02	3.9965E-01	1.3771E-02	3.3860E-01
41	1.1503E-02	9.2750E-01	1.2054E-02	4.8191E-01	1.2477E-02	4.0378E-01	1.3121E-02	3.4209E-01
42	1.0975E-02	9.3684E-01	1.1498E-02	4.8673E-01	1.1901E-02	4.0781E-01	1.2515E-02	3.4550E-01
43	1.0481E-02	9.4598E-01	1.0979E-02	4.9144E-01	1.1364E-02	4.1175E-01	1.1949E-02	3.4885E-01
44	1.0020E-02	9.5492E-01	1.0494E-02	4.9605E-01	1.0861E-02	4.1561E-01	1.1421E-02	3.5211E-01
45	9.5878E-03	9.6366E-01	1.0040E-02	5.0055E-01	1.0391E-02	4.1938E-01	1.0927E-02	3.5530E-01
46	9.1830E-03	9.7223E-01	9.6145E-03	5.0496E-01	9.9510E-03	4.2308E-01	1.0463E-02	3.5843E-01
47	8.8031E-03	9.8062E-01	9.2153E-03	5.0929E-01	9.5377E-03	4.2670E-01	1.0029E-02	3.6150E-01
48	8.4461E-03	9.8882E-01	8.8405E-03	5.1351E-01	9.1495E-03	4.3024E-01	9.6201E-03	3.6449E-01
49	8.1102E-03	9.9687E-01	8.4878E-03	5.1766E-01	8.7844E-03	4.3370E-01	9.2360E-03	3.6743E-01
50	7.7938E-03	1.0048E+00	8.1556E-03	5.2173E-01	8.4404E-03	4.3711E-01	8.8742E-03	3.7031E-01
51	7.4955E-03	1.0125E+00	7.8425E-03	5.2571E-01	8.1161E-03	4.4044E-01	8.5332E-03	3.7313E-01
52	7.2138E-03	1.0201E+00	7.5469E-03	5.2961E-01	7.8102E-03	4.4371E-01	8.2113E-03	3.7590E-01
53	6.9476E-03	1.0275E+00	7.2676E-03	5.3345E-01	7.5209E-03	4.4692E-01	7.9071E-03	3.7862E-01
54	6.6958E-03	1.0348E+00	7.0034E-03	5.3721E-01	7.2474E-03	4.5007E-01	7.6194E-03	3.8128E-01
55	6.4574E-03	1.0420E+00	6.7533E-03	5.4090E-01	6.9885E-03	4.5316E-01	7.3471E-03	3.8390E-01
56	6.2314E-03	1.0490E+00	6.5164E-03	5.4452E-01	6.7432E-03	4.5619E-01	7.0891E-03	3.8647E-01
57	6.0169E-03	1.0560E+00	6.2915E-03	5.4808E-01	6.5104E-03	4.5917E-01	6.8442E-03	3.8899E-01
58	5.8134E-03	1.0627E+00	6.0781E-03	5.5159E-01	6.2894E-03	4.6210E-01	6.6118E-03	3.9147E-01
59	5.6199E-03	1.0694E+00	5.8752E-03	5.5503E-01	6.0795E-03	4.6498E-01	6.3910E-03	3.9391E-01
60	5.4357E-03	1.0760E+00	5.6826E-03	5.5838E-01	5.8801E-03	4.6779E-01	6.1810E-03	3.9631E-01

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*C; $Z = 6$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	2.5385E+00	1.0201E-01	2.6187E+00	5.4129E-02	2.7926E+00	4.4969E-02	2.9237E+00	3.8293E-02
1	2.2870E+00	1.1089E-01	2.3744E+00	5.8509E-02	2.5202E+00	4.8805E-02	2.6459E+00	4.1447E-02
2	1.7503E+00	1.3649E-01	1.8390E+00	7.1297E-02	1.9324E+00	5.9971E-02	2.0345E+00	5.0798E-02
3	1.2403E+00	1.7586E-01	1.3145E+00	9.1277E-02	1.3709E+00	7.7184E-02	1.4432E+00	6.5396E-02
4	8.6647E-01	2.2496E-01	9.2238E-01	1.1646E-01	9.5829E-01	9.8626E-02	1.0093E+00	8.3540E-02
5	6.1651E-01	2.7910E-01	6.5717E-01	1.4446E-01	6.8179E-01	1.2225E-01	7.1786E-01	1.0359E-01
6	4.5256E-01	3.3405E-01	4.8230E-01	1.7300E-01	5.0003E-01	1.4625E-01	5.2662E-01	1.2390E-01
7	3.4376E-01	3.8662E-01	3.6595E-01	2.0039E-01	3.7936E-01	1.6919E-01	3.9938E-01	1.4338E-01
8	2.6960E-01	4.3505E-01	2.8663E-01	2.2565E-01	2.9704E-01	1.9037E-01	3.1277E-01	1.6129E-01
9	2.1743E-01	4.7877E-01	2.3089E-01	2.4845E-01	2.3927E-01	2.0944E-01	2.5186E-01	1.7749E-01
10	1.7954E-01	5.1788E-01	1.9042E-01	2.6886E-01	1.9728E-01	2.2656E-01	2.0769E-01	1.9197E-01
11	1.5103E-01	5.5297E-01	1.6004E-01	2.8716E-01	1.6578E-01	2.4188E-01	1.7452E-01	2.0494E-01
12	1.2931E-01	5.8472E-01	1.3692E-01	3.0367E-01	1.4183E-01	2.5569E-01	1.4929E-01	2.1667E-01
13	1.1222E-01	6.1369E-01	1.1876E-01	3.1873E-01	1.2302E-01	2.6830E-01	1.2947E-01	2.2736E-01
14	9.8441E-02	6.4040E-01	1.0412E-01	3.3262E-01	1.0784E-01	2.7992E-01	1.1350E-01	2.3721E-01
15	8.7158E-02	6.6532E-01	9.2143E-02	3.4556E-01	9.5434E-02	2.9076E-01	1.0043E-01	2.4639E-01
16	7.7780E-02	6.8876E-01	8.2192E-02	3.5772E-01	8.5123E-02	3.0094E-01	8.9579E-02	2.5502E-01
17	6.9881E-02	7.1099E-01	7.3814E-02	3.6925E-01	7.6443E-02	3.1060E-01	8.0441E-02	2.6320E-01
18	6.3155E-02	7.3218E-01	6.6680E-02	3.8025E-01	6.9052E-02	3.1980E-01	7.2661E-02	2.7099E-01
19	5.7368E-02	7.5251E-01	6.0545E-02	3.9078E-01	6.2697E-02	3.2862E-01	6.5971E-02	2.7847E-01
20	5.2350E-02	7.7206E-01	5.5226E-02	4.0091E-01	5.7186E-02	3.3710E-01	6.0171E-02	2.8565E-01
21	4.7965E-02	7.9094E-01	5.0578E-02	4.1069E-01	5.2371E-02	3.4528E-01	5.5103E-02	2.9258E-01
22	4.4109E-02	8.0920E-01	4.6492E-02	4.2014E-01	4.8138E-02	3.5319E-01	5.0647E-02	2.9929E-01
23	4.0697E-02	8.2690E-01	4.2878E-02	4.2930E-01	4.4395E-02	3.6086E-01	4.6707E-02	3.0578E-01
24	3.7664E-02	8.4408E-01	3.9665E-02	4.3819E-01	4.1066E-02	3.6830E-01	4.3204E-02	3.1208E-01
25	3.4954E-02	8.6077E-01	3.6795E-02	4.4683E-01	3.8094E-02	3.7553E-01	4.0076E-02	3.1820E-01
26	3.2523E-02	8.7701E-01	3.4222E-02	4.5522E-01	3.5429E-02	3.8255E-01	3.7270E-02	3.2415E-01
27	3.0334E-02	8.9280E-01	3.1905E-02	4.6339E-01	3.3029E-02	3.8939E-01	3.4744E-02	3.2994E-01
28	2.8355E-02	9.0820E-01	2.9812E-02	4.7134E-01	3.0861E-02	3.9604E-01	3.2462E-02	3.3558E-01
29	2.6561E-02	9.2319E-01	2.7915E-02	4.7909E-01	2.8895E-02	4.0253E-01	3.0394E-02	3.4107E-01
30	2.4929E-02	9.3782E-01	2.6190E-02	4.8664E-01	2.7109E-02	4.0884E-01	2.8514E-02	3.4642E-01
31	2.3441E-02	9.5207E-01	2.4617E-02	4.9400E-01	2.5480E-02	4.1501E-01	2.6800E-02	3.5164E-01
32	2.2080E-02	9.6599E-01	2.3179E-02	5.0118E-01	2.3991E-02	4.2101E-01	2.5233E-02	3.5673E-01
33	2.0832E-02	9.7957E-01	2.1861E-02	5.0819E-01	2.2626E-02	4.2688E-01	2.3797E-02	3.6170E-01
34	1.9686E-02	9.9283E-01	2.0651E-02	5.1503E-02	2.1373E-02	4.3260E-01	2.2478E-02	3.6654E-01
35	1.8630E-02	1.0058E+00	1.9537E-02	5.2171E-01	2.0219E-02	4.3819E-01	2.1263E-02	3.7128E-01
36	1.7656E-02	1.0184E+00	1.8509E-02	5.2823E-01	1.9154E-02	4.4365E-01	2.0143E-02	3.7590E-01
37	1.6754E-02	1.0308E+00	1.7558E-02	5.3461E-01	1.8170E-02	4.4898E-01	1.9108E-02	3.8042E-01
38	1.5920E-02	1.0429E+00	1.6678E-02	5.4083E-01	1.7259E-02	4.5420E-01	1.8149E-02	3.8483E-01
39	1.5145E-02	1.0547E+00	1.5862E-02	5.4693E-01	1.6413E-02	4.5929E-01	1.7260E-02	3.8914E-01
40	1.4424E-02	1.0663E+00	1.5103E-02	5.5288E-01	1.5628E-02	4.6428E-01	1.6433E-02	3.9337E-01
41	1.3754E-02	1.0776E+00	1.4397E-02	5.5871E-01	1.4896E-02	4.6915E-01	1.5663E-02	3.9750E-01
42	1.3128E-02	1.0887E+00	1.3738E-02	5.6441E-01	1.4214E-02	4.7393E-01	1.4946E-02	4.0153E-01
43	1.2543E-02	1.0995E+00	1.3123E-02	5.6999E-01	1.3578E-02	4.7860E-01	1.4276E-02	4.0549E-01
44	1.1997E-02	1.1102E+00	1.2548E-02	5.7546E-01	1.2982E-02	4.8317E-01	1.3649E-02	4.0936E-01
45	1.1484E-02	1.1206E+00	1.2009E-02	5.8081E-01	1.2424E-02	4.8765E-01	1.3063E-02	4.1315E-01
46	1.1004E-02	1.1308E+00	1.1504E-02	5.8606E-01	1.1901E-02	4.9204E-01	1.2513E-02	4.1687E-01
47	1.0553E-02	1.1408E+00	1.1030E-02	5.9120E-01	1.1411E-02	4.9634E-01	1.1996E-02	4.2051E-01
48	1.0128E-02	1.1506E+00	1.0584E-02	5.9624E-01	1.0949E-02	5.0055E-01	1.1511E-02	4.2408E-01
49	9.7287E-03	1.1602E+00	1.0164E-02	6.0118E-01	1.0515E-02	5.0469E-01	1.1054E-02	4.2758E-01
50	9.3522E-03	1.1696E+00	9.7690E-03	6.0602E-01	1.0106E-02	5.0875E-01	1.0624E-02	4.3102E-01
51	8.9969E-03	1.1789E+00	9.3961E-03	6.1078E-01	9.7196E-03	5.1272E-01	1.0218E-02	4.3438E-01
52	8.6613E-03	1.1880E+00	9.0439E-03	6.1545E-01	9.3550E-03	5.1662E-01	9.8344E-03	4.3768E-01
53	8.3439E-03	1.1969E+00	8.7110E-03	6.2003E-01	9.0104E-03	5.2046E-01	9.4719E-03	4.4093E-01
54	8.0435E-03	1.2056E+00	8.3959E-03	6.2453E-01	8.6843E-03	5.2422E-01	9.1289E-03	4.4412E-01
55	7.7589E-03	1.2142E+00	8.0975E-03	6.2894E-01	8.3757E-03	5.2791E-01	8.8042E-03	4.4724E-01
56	7.4891E-03	1.2227E+00	7.8147E-03	6.3328E-01	8.0829E-03	5.3154E-01	8.4964E-03	4.5031E-01
57	7.2329E-03	1.2310E+00	7.5463E-03	6.3755E-01	7.8051E-03	5.3511E-01	8.2042E-03	4.5334E-01
58	6.9897E-03	1.2392E+00	7.2914E-03	6.4174E-01	7.5413E-03	5.3862E-01	7.9268E-03	4.5631E-01
59	6.7584E-03	1.2472E+00	7.0491E-03	6.4586E-01	7.2908E-03	5.4205E-01	7.6632E-03	4.5922E-01
60	6.5381E-03	1.2551E+00	6.8186E-03	6.4992E-01	7.0517E-03	5.4549E-01	7.4122E-03	4.6210E-01

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
N; Z = 7

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	2.2348E+00	1.2336E-01	2.3809E+00	6.4945E-02	2.4654E+00	5.4566E-02	2.5816E+00	4.6486E-02
1	2.0680E+00	1.3129E-01	2.2051E+00	6.9067E-02	2.2852E+00	5.7987E-02	2.3986E+00	4.9287E-02
2	1.6835E+00	1.5435E-01	1.7974E+00	8.1099E-02	1.8645E+00	6.8024E-02	1.9632E+00	5.7642E-02
3	1.2750E+00	1.9031E-01	1.3628E+00	9.9882E-02	1.4138E+00	8.3773E-02	1.4889E+00	7.0988E-02
4	9.4122E-01	2.3626E-01	1.0071E+00	1.2383E-01	1.0450E+00	1.0384E-01	1.1006E+00	8.8003E-02
5	6.9683E-01	2.8880E-01	7.4580E-01	1.5122E-01	7.7392E-01	1.2679E-01	8.1539E-01	1.0742E-01
6	5.2467E-01	3.4462E-01	5.6149E-01	1.8025E-01	5.8258E-01	1.5114E-01	6.1355E-01	1.2810E-01
7	4.0419E-01	4.0074E-01	4.3205E-01	2.0952E-01	4.4829E-01	1.7565E-01	4.7225E-01	1.4883E-01
8	3.1894E-01	4.5502E-01	3.4051E-01	2.3775E-01	3.5321E-01	1.9933E-01	3.7199E-01	1.6893E-01
9	2.5750E-01	5.0604E-01	2.7443E-01	2.6438E-01	2.8464E-01	2.2164E-01	2.9972E-01	1.8784E-01
10	2.1220E-01	5.5319E-01	2.2579E-01	2.8896E-01	2.3414E-01	2.4224E-01	2.4658E-01	2.0528E-01
11	1.7790E-01	5.9639E-01	1.8903E-01	3.1144E-01	1.9598E-01	2.6110E-01	2.0636E-01	2.2125E-01
12	1.5171E-01	6.3586E-01	1.6098E-01	3.3201E-01	1.6687E-01	2.7834E-01	1.7568E-01	2.3587E-01
13	1.3114E-01	6.7197E-01	1.3899E-01	3.5081E-01	1.4406E-01	2.9409E-01	1.5164E-01	2.4924E-01
14	1.1461E-01	7.0515E-01	1.2136E-01	3.6806E-01	1.2577E-01	3.0855E-01	1.3238E-01	2.6149E-01
15	1.0116E-01	7.3584E-01	1.0702E-01	3.8401E-01	1.1091E-01	3.2191E-01	1.1673E-01	2.7281E-01
16	9.0036E-02	7.6443E-01	9.5191E-02	3.9884E-01	9.8637E-02	3.3434E-01	1.0381E-01	2.8335E-01
17	8.0725E-02	7.9124E-01	8.5294E-02	4.1274E-01	8.8376E-02	3.4598E-01	9.3003E-02	2.9321E-01
18	7.2838E-02	8.1654E-01	7.6917E-02	4.2586E-01	7.9692E-02	3.5697E-01	8.3861E-02	3.0252E-01
19	6.6089E-02	8.4056E-01	6.9753E-02	4.3830E-01	7.2265E-02	3.6739E-01	7.6042E-02	3.1135E-01
20	6.0261E-02	8.6348E-01	6.3570E-02	4.5016E-01	6.5856E-02	3.7732E-01	6.9295E-02	3.1976E-01
21	5.5188E-02	8.8544E-01	5.8191E-02	4.6152E-01	6.0279E-02	3.8684E-01	6.3425E-02	3.2782E-01
22	5.0741E-02	9.0656E-01	5.3476E-02	4.7244E-01	5.5392E-02	3.9598E-01	5.8280E-02	3.3557E-01
23	4.6817E-02	9.2693E-01	4.9317E-02	4.8297E-01	5.1082E-02	4.0480E-01	5.3743E-02	3.4304E-01
24	4.3335E-02	9.4663E-01	4.5628E-02	4.9315E-01	4.7258E-02	4.1333E-01	4.9718E-02	3.5026E-01
25	4.0230E-02	9.6572E-01	4.2339E-02	5.0301E-01	4.3849E-02	4.2158E-01	4.6130E-02	3.5725E-01
26	3.7447E-02	9.8425E-01	3.9392E-02	5.1257E-01	4.0795E-02	4.2959E-01	4.2916E-02	3.6404E-01
27	3.4944E-02	1.0022E+00	3.6741E-02	5.2187E-01	3.8048E-02	4.3737E-01	4.0024E-02	3.7063E-01
28	3.2682E-02	1.0198E+00	3.4348E-02	5.3091E-01	3.5567E-02	4.4494E-01	3.7413E-02	3.7704E-01
29	3.0632E-02	1.0368E+00	3.2179E-02	5.3972E-01	3.3319E-02	4.5231E-01	3.5048E-02	3.8328E-01
30	2.8768E-02	1.0535E+00	3.0206E-02	5.4830E-01	3.1276E-02	4.5950E-01	3.2896E-02	3.8937E-01
31	2.7067E-02	1.0697E+00	2.8408E-02	5.5666E-01	2.9412E-02	4.6650E-01	3.0936E-02	3.9529E-01
32	2.5512E-02	1.0856E+00	2.6764E-02	5.6483E-01	2.7709E-02	4.7333E-01	2.9142E-02	4.0108E-01
33	2.4085E-02	1.1011E+00	2.5256E-02	5.7280E-01	2.6147E-02	4.8001E-01	2.7498E-02	4.0674E-01
34	2.2774E-02	1.1162E+00	2.3871E-02	5.8059E-01	2.4711E-02	4.8653E-01	2.5988E-02	4.1225E-01
35	2.1565E-02	1.1310E+00	2.2595E-02	5.8820E-01	2.3389E-02	4.9290E-01	2.4597E-02	4.1765E-01
36	2.0450E-02	1.1454E+00	2.1417E-02	5.9564E-01	2.2169E-02	4.9912E-01	2.3312E-02	4.2292E-01
37	1.9417E-02	1.1596E+00	2.0327E-02	6.0292E-01	2.1040E-02	5.0521E-01	2.2125E-02	4.2808E-01
38	1.8460E-02	1.1734E+00	1.9318E-02	6.1003E-01	1.9994E-02	5.1117E-01	2.1024E-02	4.3313E-01
39	1.7571E-02	1.1870E+00	1.8380E-02	6.1700E-01	1.9023E-02	5.1701E-01	2.0003E-02	4.3806E-01
40	1.6744E-02	1.2003E+00	1.7509E-02	6.2382E-01	1.8120E-02	5.2271E-01	1.9052E-02	4.4289E-01
41	1.5973E-02	1.2132E+00	1.6697E-02	6.3050E-01	1.7279E-02	5.2830E-01	1.8167E-02	4.4763E-01
42	1.5254E-02	1.2260E+00	1.5939E-02	6.3705E-01	1.6494E-02	5.3378E-01	1.7342E-02	4.5236E-01
43	1.4581E-02	1.2385E+00	1.5231E-02	6.4346E-01	1.5761E-02	5.3914E-01	1.6570E-02	4.5681E-01
44	1.3952E-02	1.2507E+00	1.4569E-02	6.4974E-01	1.5075E-02	5.4440E-01	1.5849E-02	4.6125E-01
45	1.3362E-02	1.2627E+00	1.3948E-02	6.5590E-01	1.4432E-02	5.4956E-01	1.5173E-02	4.6562E-01
46	1.2808E-02	1.2745E+00	1.3366E-02	6.6195E-01	1.3829E-02	5.5461E-01	1.4538E-02	4.6990E-01
47	1.2288E-02	1.2860E+00	1.2819E-02	6.6786E-01	1.3263E-02	5.5957E-01	1.3942E-02	4.7409E-01
48	1.1798E-02	1.2974E+00	1.2304E-02	6.7368E-01	1.2730E-02	5.6443E-01	1.3382E-02	4.7821E-01
49	1.1336E-02	1.3085E+00	1.1819E-02	6.7939E-01	1.2228E-02	5.6921E-01	1.2854E-02	4.8226E-01
50	1.0901E-02	1.3194E+00	1.1363E-02	6.8499E-01	1.1755E-02	5.7389E-01	1.2357E-02	4.8622E-01
51	1.0491E-02	1.3302E+00	1.0932E-02	6.9048E-01	1.1309E-02	5.7849E-01	1.1887E-02	4.9011E-01
52	1.0102E-02	1.3407E+00	1.0524E-02	6.9588E-01	1.0887E-02	5.8301E-01	1.1444E-02	4.9394E-01
53	9.7352E-03	1.3511E+00	1.0139E-02	7.0119E-01	1.0488E-02	5.8745E-01	1.1024E-02	4.9769E-01
54	9.3874E-03	1.3612E+00	9.7746E-03	7.0640E-01	1.0111E-02	5.9180E-01	1.0627E-02	5.0138E-01
55	9.0578E-03	1.3712E+00	9.4292E-03	7.1152E-01	9.7534E-03	5.9608E-01	1.0251E-02	5.0500E-01
56	8.7450E-03	1.3811E+00	9.1015E-03	7.1655E-01	9.4142E-03	6.0030E-01	9.8944E-03	5.0857E-01
57	8.4481E-03	1.3908E+00	8.7904E-03	7.2151E-01	9.0922E-03	6.0444E-01	9.5557E-03	5.1208E-01
58	8.1659E-03	1.4003E+00	8.4949E-03	7.2638E-01	8.7864E-03	6.0851E-01	9.2342E-03	5.1552E-01
59	7.8974E-03	1.4096E+00	8.2141E-03	7.3115E-01	8.4957E-03	6.1251E-01	8.9284E-03	5.1891E-01
60	7.6418E-03	1.4189E+00	7.9471E-03	7.3582E-01	8.2189E-03	6.1645E-01	8.6373E-03	5.2226E-01

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*O; $Z = 8$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.9959E+00	1.4403E-01	2.1119E+00	7.6444E-02	2.2088E+00	6.3972E-02	2.3140E+00	5.4509E-02
1	1.8787E+00	1.5125E-01	1.9924E+00	8.0108E-02	2.0827E+00	6.7068E-02	2.1859E+00	5.7045E-02
2	1.5943E+00	1.7229E-01	1.6986E+00	9.0879E-02	1.7721E+00	7.6214E-02	1.8657E+00	6.4628E-02
3	1.2675E+00	2.0544E-01	1.3557E+00	1.0800E-01	1.4107E+00	9.0760E-02	1.4866E+00	7.6903E-02
4	9.7811E-01	2.4839E-01	1.0491E+00	1.3025E-01	1.0904E+00	1.0954E-01	1.1484E+00	9.2878E-02
5	7.5031E-01	2.9858E-01	8.0606E-01	1.5631E-01	8.3734E-01	1.3145E-01	8.8238E-01	1.1141E-01
6	5.8005E-01	3.5335E-01	6.2353E-01	1.8477E-01	6.4731E-01	1.5539E-01	6.8227E-01	1.3167E-01
7	4.5495E-01	4.1030E-01	4.8897E-01	2.1435E-01	5.0759E-01	1.8018E-01	5.3468E-01	1.5276E-01
8	3.6316E-01	4.6723E-01	3.8989E-01	2.4398E-01	4.0460E-01	2.0505E-01	4.2634E-01	1.7377E-01
9	2.9510E-01	5.2266E-01	3.1636E-01	2.7283E-01	3.2814E-01	2.2928E-01	3.4578E-01	1.9428E-01
10	2.4394E-01	5.7543E-01	2.6102E-01	3.0035E-01	2.7077E-01	2.5227E-01	2.8511E-01	2.1389E-01
11	2.0472E-01	6.2496E-01	2.1862E-01	3.2620E-01	2.2675E-01	2.7392E-01	2.3871E-01	2.3224E-01
12	1.7445E-01	6.7117E-01	1.8593E-01	3.5031E-01	1.9278E-01	2.9414E-01	2.0299E-01	2.4933E-01
13	1.5055E-01	7.1403E-01	1.6018E-01	3.7266E-01	1.6604E-01	3.1287E-01	1.7482E-01	2.6520E-01
14	1.3133E-01	7.5371E-01	1.3951E-01	3.9335E-01	1.4459E-01	3.3021E-01	1.5222E-01	2.7986E-01
15	1.1567E-01	7.9052E-01	1.2272E-01	4.1252E-01	1.2716E-01	3.4626E-01	1.3387E-01	2.9347E-01
16	1.0276E-01	8.2479E-01	1.0888E-01	4.3033E-01	1.1282E-01	3.6117E-01	1.1874E-01	3.0614E-01
17	9.1961E-02	8.5681E-01	9.7346E-02	4.4697E-01	1.0085E-01	3.7512E-01	1.0614E-01	3.1792E-01
18	8.2843E-02	8.8688E-01	8.7616E-02	4.6256E-01	9.0759E-02	3.8817E-01	9.5520E-02	3.2899E-01
19	7.5063E-02	9.1524E-01	7.9326E-02	4.7726E-01	8.2168E-02	4.0047E-01	8.6462E-02	3.3945E-01
20	6.8366E-02	9.4213E-01	7.2198E-02	4.9119E-01	7.4773E-02	4.1216E-01	7.8684E-02	3.4931E-01
21	6.2554E-02	9.6773E-01	6.6017E-02	5.0443E-01	6.8368E-02	4.2323E-01	7.1941E-02	3.5869E-01
22	5.7473E-02	9.9219E-01	6.0618E-02	5.1708E-01	6.2775E-02	4.3381E-01	6.6045E-02	3.6769E-01
23	5.3002E-02	1.0157E+00	5.5870E-02	5.2921E-01	5.7849E-02	4.4400E-01	6.0866E-02	3.7627E-01
24	4.9044E-02	1.0382E+00	5.1668E-02	5.4087E-01	5.3498E-02	4.5373E-01	5.6286E-02	3.8452E-01
25	4.5521E-02	1.0600E+00	4.7931E-02	5.5211E-01	4.9627E-02	4.6314E-01	5.2206E-02	3.9252E-01
26	4.2370E-02	1.0811E+00	4.4589E-02	5.6298E-01	4.6161E-02	4.7227E-01	4.8561E-02	4.0022E-01
27	3.9539E-02	1.1015E+00	4.1588E-02	5.7351E-01	4.3054E-02	4.8104E-01	4.5292E-02	4.0765E-01
28	3.6986E-02	1.1213E+00	3.8881E-02	5.8372E-01	4.0250E-02	4.8959E-01	4.2337E-02	4.1492E-01
29	3.4673E-02	1.1405E+00	3.6431E-02	5.9365E-01	3.7709E-02	4.9793E-01	3.9665E-02	4.2196E-01
30	3.2572E-02	1.1593E+00	3.4205E-02	6.0331E-01	3.5406E-02	5.0597E-01	3.7241E-02	4.2877E-01
31	3.0656E-02	1.1775E+00	3.2177E-02	6.1271E-01	3.3305E-02	5.1385E-01	3.5028E-02	4.3546E-01
32	2.8905E-02	1.1954E+00	3.0323E-02	6.2189E-01	3.1382E-02	5.2156E-01	3.3006E-02	4.4197E-01
33	2.7299E-02	1.2127E+00	2.8624E-02	6.3084E-01	2.9625E-02	5.2900E-01	3.1156E-02	4.4827E-01
34	2.5823E-02	1.2298E+00	2.7063E-02	6.3958E-01	2.8007E-02	5.3633E-01	2.9453E-02	4.5448E-01
35	2.4463E-02	1.2464E+00	2.5625E-02	6.4812E-01	2.6516E-02	5.4350E-01	2.7884E-02	4.6055E-01
36	2.3207E-02	1.2626E+00	2.4297E-02	6.5647E-01	2.5143E-02	5.5044E-01	2.6439E-02	4.6643E-01
37	2.2045E-02	1.2785E+00	2.3070E-02	6.6464E-01	2.3871E-02	5.5730E-01	2.5101E-02	4.7222E-01
38	2.0967E-02	1.2941E+00	2.1931E-02	6.7263E-01	2.2691E-02	5.6400E-01	2.3859E-02	4.7792E-01
39	1.9966E-02	1.3093E+00	2.0875E-02	6.8046E-01	2.1598E-02	5.7050E-01	2.2709E-02	4.8342E-01
40	1.9035E-02	1.3242E+00	1.9891E-02	6.8813E-01	2.0579E-02	5.7695E-01	2.1638E-02	4.8885E-01
41	1.8166E-02	1.3389E+00	1.8975E-02	6.9564E-01	1.9630E-02	5.8324E-01	2.0638E-02	4.9421E-01
42	1.7355E-02	1.3532E+00	1.8120E-02	7.0300E-01	1.8746E-02	5.8935E-01	1.9707E-02	4.9939E-01
43	1.6597E-02	1.3673E+00	1.7321E-02	7.1021E-01	1.7917E-02	5.9544E-01	1.8837E-02	5.0448E-01
44	1.5887E-02	1.3811E+00	1.6573E-02	7.1729E-01	1.7142E-02	6.0135E-01	1.8021E-02	5.0954E-01
45	1.5221E-02	1.3947E+00	1.5871E-02	7.2424E-01	1.6417E-02	6.0711E-01	1.7257E-02	5.1443E-01
46	1.4596E-02	1.4080E+00	1.5213E-02	7.3105E-01	1.5735E-02	6.1287E-01	1.6541E-02	5.1923E-01
47	1.4008E-02	1.4210E+00	1.4595E-02	7.3774E-01	1.5095E-02	6.1844E-01	1.5866E-02	5.2401E-01
48	1.3454E-02	1.4339E+00	1.4013E-02	7.4430E-01	1.4493E-02	6.2389E-01	1.5233E-02	5.2864E-01
49	1.2933E-02	1.4465E+00	1.3464E-02	7.5075E-01	1.3924E-02	6.2935E-01	1.4636E-02	5.3317E-01
50	1.2441E-02	1.4588E+00	1.2947E-02	7.5708E-01	1.3389E-02	6.3460E-01	1.4073E-02	5.3769E-01
51	1.1976E-02	1.4710E+00	1.2459E-02	7.6330E-01	1.2884E-02	6.3978E-01	1.3541E-02	5.4209E-01
52	1.1536E-02	1.4830E+00	1.1997E-02	7.6942E-01	1.2406E-02	6.4496E-01	1.3039E-02	5.4638E-01
53	1.1120E-02	1.4947E+00	1.1561E-02	7.7543E-01	1.1954E-02	6.4993E-01	1.2563E-02	5.5067E-01
54	1.0726E-02	1.5063E+00	1.1147E-02	7.8133E-01	1.1527E-02	6.5486E-01	1.2113E-02	5.5486E-01
55	1.0352E-02	1.5177E+00	1.0755E-02	7.8714E-01	1.1120E-02	6.5978E-01	1.1688E-02	5.5892E-01
56	9.9977E-03	1.5288E+00	1.0384E-02	7.9286E-01	1.0736E-02	6.6450E-01	1.1282E-02	5.6299E-01
57	9.6607E-03	1.5398E+00	1.0031E-02	7.9847E-01	1.0371E-02	6.6921E-01	1.0898E-02	5.6700E-01
58	9.3404E-03	1.5507E+00	9.6952E-03	8.0400E-01	1.0023E-02	6.7387E-01	1.0534E-02	5.7085E-01
59	9.0356E-03	1.5613E+00	9.3762E-03	8.0944E-01	9.6947E-03	6.7829E-01	1.0187E-02	5.7468E-01
60	8.7453E-03	1.5719E+00	9.0724E-03	8.1480E-01	9.3803E-03	6.8278E-01	9.8539E-03	5.7861E-01

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

F; Z = 9

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	1.8023E+00	1.6411E-01	1.9323E+00	8.7053E-02	2.0022E+00	7.3216E-02	2.0984E+00	6.2406E-02
1	1.7164E+00	1.7076E-01	1.8420E+00	9.0491E-02	1.9098E+00	7.6062E-02	2.0047E+00	6.4733E-02
2	1.5003E+00	1.9016E-01	1.6125E+00	1.0064E-01	1.6740E+00	8.4489E-02	1.7623E+00	7.1697E-02
3	1.2370E+00	2.2094E-01	1.3316E+00	1.1676E-01	1.3827E+00	9.8003E-02	1.4577E+00	8.3057E-02
4	9.8895E-01	2.6122E-01	1.0663E+00	1.3781E-01	1.1072E+00	1.1567E-01	1.1668E+00	9.8079E-02
5	7.8208E-01	3.0892E-01	8.4435E-01	1.6269E-01	8.7712E-01	1.3649E-01	9.2429E-01	1.1575E-01
6	6.1949E-01	3.6194E-01	6.6931E-01	1.9031E-01	6.9525E-01	1.5966E-01	7.3312E-01	1.3531E-01
7	4.9500E-01	4.1823E-01	5.3482E-01	2.1960E-01	5.5551E-01	1.8422E-01	5.8563E-01	1.5616E-01
8	4.0042E-01	4.7594E-01	4.3234E-01	2.4963E-01	4.4912E-01	2.0935E-01	4.7327E-01	1.7752E-01
9	3.2842E-01	5.3352E-01	3.5412E-01	2.7960E-01	3.6776E-01	2.3449E-01	3.8768E-01	1.9874E-01
10	2.7314E-01	5.8974E-01	2.9397E-01	3.0888E-01	3.0520E-01	2.5907E-01	3.2172E-01	2.1954E-01
11	2.3010E-01	6.4374E-01	2.4713E-01	3.3703E-01	2.5652E-01	2.8266E-01	2.7032E-01	2.3956E-01
12	1.9645E-01	6.9511E-01	2.1051E-01	3.6382E-01	2.1846E-01	3.0510E-01	2.3017E-01	2.5859E-01
13	1.6965E-01	7.4354E-01	1.8139E-01	3.8908E-01	1.8820E-01	3.2627E-01	1.9825E-01	2.7654E-01
14	1.4799E-01	7.8898E-01	1.5790E-01	4.1278E-01	1.6379E-01	3.4611E-01	1.7249E-01	2.9341E-01
15	1.3029E-01	8.3153E-01	1.3873E-01	4.3496E-01	1.4388E-01	3.6472E-01	1.5149E-01	3.0917E-01
16	1.1564E-01	8.7138E-01	1.2292E-01	4.5571E-01	1.2744E-01	3.8213E-01	1.3419E-01	3.2388E-01
17	1.0340E-01	9.0873E-01	1.0973E-01	4.7514E-01	1.1376E-01	3.9838E-01	1.1975E-01	3.3769E-01
18	9.3051E-02	9.4383E-01	9.8614E-02	4.9337E-01	1.0222E-01	4.1366E-01	1.0758E-01	3.5067E-01
19	8.4230E-02	9.7690E-01	8.9156E-02	5.1054E-01	9.2392E-02	4.2808E-01	9.7247E-02	3.6283E-01
20	7.6644E-02	1.0082E+00	8.1038E-02	5.2675E-01	8.3973E-02	4.4162E-01	8.8378E-02	3.7432E-01
21	7.0069E-02	1.0378E+00	7.4014E-02	5.4210E-01	7.6690E-02	4.5447E-01	8.0697E-02	3.8525E-01
22	6.4330E-02	1.0661E+00	6.7893E-02	5.5671E-01	7.0335E-02	4.6675E-01	7.4009E-02	3.9561E-01
23	5.9289E-02	1.0930E+00	6.2522E-02	5.7064E-01	6.4766E-02	4.7840E-01	6.8149E-02	4.0546E-01
24	5.4833E-02	1.1189E+00	5.7780E-02	5.8398E-01	5.9853E-02	4.8953E-01	6.2970E-02	4.1494E-01
25	5.0874E-02	1.1437E+00	5.3571E-02	5.9679E-01	5.5484E-02	5.0030E-01	5.8371E-02	4.2404E-01
26	4.7338E-02	1.1676E+00	4.9814E-02	6.0911E-01	5.1589E-02	5.1062E-01	5.4275E-02	4.3275E-01
27	4.4166E-02	1.1907E+00	4.6447E-02	6.2101E-01	4.8103E-02	5.2053E-01	5.0601E-02	4.4118E-01
28	4.1308E-02	1.2130E+00	4.3414E-02	6.3251E-01	4.4957E-02	5.3020E-01	4.7289E-02	4.4936E-01
29	3.8723E-02	1.2347E+00	4.0673E-02	6.4366E-01	4.2113E-02	5.3955E-01	4.4298E-02	4.5726E-01
30	3.6377E-02	1.2557E+00	3.8186E-02	6.5447E-01	3.9539E-02	5.4854E-01	4.1587E-02	4.6489E-01
31	3.4240E-02	1.2761E+00	3.5922E-02	6.6499E-01	3.7192E-02	5.5737E-01	3.9116E-02	4.7236E-01
32	3.2288E-02	1.2960E+00	3.3854E-02	6.7522E-01	3.5046E-02	5.6597E-01	3.6859E-02	4.7964E-01
33	3.0499E-02	1.3154E+00	3.1961E-02	6.8519E-01	3.3087E-02	5.7426E-01	3.4795E-02	4.8667E-01
34	2.8856E-02	1.3344E+00	3.0222E-02	6.9491E-01	3.1285E-02	5.8240E-01	3.2899E-02	4.9355E-01
35	2.7343E-02	1.3529E+00	2.8621E-02	7.0441E-01	2.9623E-02	5.9040E-01	3.1151E-02	5.0031E-01
36	2.5946E-02	1.3709E+00	2.7144E-02	7.1368E-01	2.8094E-02	5.9811E-01	2.9541E-02	5.0687E-01
37	2.4653E-02	1.3886E+00	2.5777E-02	7.2275E-01	2.6679E-02	6.0567E-01	2.8052E-02	5.1327E-01
38	2.3455E-02	1.4059E+00	2.4511E-02	7.3162E-01	2.5365E-02	6.1317E-01	2.6671E-02	5.1957E-01
39	2.2342E-02	1.4229E+00	2.3336E-02	7.4030E-01	2.4148E-02	6.2040E-01	2.5388E-02	5.2573E-01
40	2.1307E-02	1.4395E+00	2.2242E-02	7.4880E-01	2.3017E-02	6.2746E-01	2.4197E-02	5.3173E-01
41	2.0341E-02	1.4557E+00	2.1223E-02	7.5714E-01	2.1959E-02	6.3451E-01	2.3087E-02	5.3763E-01
42	1.9439E-02	1.4717E+00	2.0272E-02	7.6530E-01	2.0973E-02	6.4133E-01	2.2048E-02	5.4344E-01
43	1.8596E-02	1.4873E+00	1.9382E-02	7.7331E-01	2.0054E-02	6.4796E-01	2.1080E-02	5.4910E-01
44	1.7806E-02	1.5027E+00	1.8550E-02	7.8117E-01	1.9190E-02	6.5459E-01	2.0173E-02	5.5463E-01
45	1.7066E-02	1.5178E+00	1.7769E-02	7.8888E-01	1.8381E-02	6.6106E-01	1.9322E-02	5.6011E-01
46	1.6370E-02	1.5326E+00	1.7036E-02	7.9644E-01	1.7624E-02	6.6731E-01	1.8523E-02	5.6548E-01
47	1.5716E-02	1.5471E+00	1.6348E-02	8.0387E-01	1.6910E-02	6.7357E-01	1.7773E-02	5.7071E-01
48	1.5100E-02	1.5614E+00	1.5699E-02	8.1117E-01	1.6237E-02	6.7972E-01	1.7067E-02	5.7588E-01
49	1.4519E-02	1.5755E+00	1.5089E-02	8.1834E-01	1.5606E-02	6.8563E-01	1.6401E-02	5.8098E-01
50	1.3971E-02	1.5893E+00	1.4512E-02	8.2538E-01	1.5009E-02	6.9154E-01	1.5774E-02	5.8595E-01
51	1.3453E-02	1.6028E+00	1.3968E-02	8.3231E-01	1.4445E-02	6.9740E-01	1.5181E-02	5.9083E-01
52	1.2963E-02	1.6162E+00	1.3454E-02	8.3912E-01	1.3913E-02	7.0301E-01	1.4620E-02	5.9567E-01
53	1.2499E-02	1.6293E+00	1.2967E-02	8.4580E-01	1.3409E-02	7.0860E-01	1.4090E-02	6.0041E-01
54	1.2059E-02	1.6422E+00	1.2506E-02	8.5238E-01	1.2931E-02	7.1419E-01	1.3589E-02	6.0504E-01
55	1.1643E-02	1.6549E+00	1.2068E-02	8.5886E-01	1.2479E-02	7.1954E-01	1.3112E-02	6.0963E-01
56	1.1247E-02	1.6675E+00	1.1653E-02	8.6524E-01	1.2050E-02	7.2483E-01	1.2660E-02	6.1416E-01
57	1.0870E-02	1.6798E+00	1.1259E-02	8.7150E-01	1.1640E-02	7.3017E-01	1.2231E-02	6.1858E-01
58	1.0513E-02	1.6919E+00	1.0885E-02	8.7767E-01	1.1253E-02	7.3528E-01	1.1824E-02	6.2292E-01
59	1.0172E-02	1.7038E+00	1.0528E-02	8.8375E-01	1.0886E-02	7.4020E-01	1.1435E-02	6.2726E-01
60	9.8480E-03	1.7156E+00	1.0189E-02	8.8974E-01	1.0532E-02	7.4543E-01	1.1066E-02	6.3151E-01

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Ne; $Z = 10$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.6416E+00	1.8367E-01	1.7500E+00	9.8299E-02	1.8315E+00	8.2346E-02	1.9202E+00	7.0210E-02
1	1.5766E+00	1.8982E-01	1.6841E+00	1.0140E-01	1.7616E+00	8.4983E-02	1.8494E+00	7.2364E-02
2	1.4086E+00	2.0785E-01	1.5114E+00	1.1057E-01	1.5783E+00	9.2804E-02	1.6616E+00	7.8813E-02
3	1.1946E+00	2.3660E-01	1.2873E+00	1.2537E-01	1.3414E+00	1.0543E-01	1.4147E+00	8.9387E-02
4	9.8264E-01	2.7450E-01	1.0625E+00	1.4501E-01	1.1054E+00	1.2210E-01	1.1656E+00	1.0354E-01
5	7.9732E-01	3.1983E-01	8.6405E-01	1.6857E-01	8.9880E-01	1.4193E-01	9.4736E-01	1.2041E-01
6	6.4543E-01	3.7084E-01	7.0032E-01	1.9512E-01	7.2862E-01	1.6420E-01	7.6840E-01	1.3924E-01
7	5.2482E-01	4.2582E-01	5.6975E-01	2.2373E-01	5.9271E-01	1.8823E-01	6.2533E-01	1.5954E-01
8	4.3037E-01	4.8318E-01	4.6714E-01	2.5354E-01	4.8598E-01	2.1322E-01	5.1245E-01	1.8081E-01
9	3.5663E-01	5.4148E-01	3.8675E-01	2.8383E-01	4.0238E-01	2.3859E-01	4.2418E-01	2.0235E-01
10	2.9884E-01	5.9953E-01	3.2361E-01	3.1400E-01	3.3655E-01	2.6394E-01	3.5494E-01	2.2373E-01
11	2.5314E-01	6.5635E-01	2.7359E-01	3.4355E-01	2.8444E-01	2.8874E-01	2.9994E-01	2.4477E-01
12	2.1690E-01	7.1135E-01	2.3388E-01	3.7219E-01	2.4311E-01	3.1274E-01	2.5622E-01	2.6520E-01
13	1.8777E-01	7.6404E-01	2.0195E-01	3.9964E-01	2.0985E-01	3.3580E-01	2.2113E-01	2.8470E-01
14	1.6404E-01	8.1416E-01	1.7597E-01	4.2578E-01	1.8279E-01	3.5776E-01	1.9263E-01	3.0323E-01
15	1.4453E-01	8.6164E-01	1.5466E-01	4.5054E-01	1.6061E-01	3.7850E-01	1.6922E-01	3.2086E-01
16	1.2833E-01	9.0650E-01	1.3700E-01	4.7393E-01	1.4225E-01	3.9808E-01	1.4980E-01	3.3755E-01
17	1.1475E-01	9.4884E-01	1.2222E-01	4.9600E-01	1.2687E-01	4.1663E-01	1.3360E-01	3.5319E-01
18	1.0325E-01	9.8881E-01	1.0975E-01	5.1680E-01	1.1390E-01	4.3409E-01	1.1995E-01	3.6791E-01
19	9.3428E-02	1.0266E+00	9.9136E-02	5.3644E-01	1.0287E-01	4.5049E-01	1.0830E-01	3.8191E-01
20	8.4979E-02	1.0623E+00	9.0026E-02	5.5499E-01	9.3402E-02	4.6606E-01	9.8298E-02	3.9517E-01
21	7.7655E-02	1.0963E+00	8.2148E-02	5.7257E-01	8.5204E-02	4.8086E-01	8.9682E-02	4.0760E-01
22	7.1262E-02	1.1285E+00	7.5289E-02	5.8926E-01	7.8080E-02	4.9482E-01	8.2187E-02	4.1939E-01
23	6.5648E-02	1.1593E+00	6.9278E-02	6.0515E-01	7.1844E-02	5.0809E-01	7.5597E-02	4.3074E-01
24	6.0690E-02	1.1887E+00	6.3979E-02	6.2032E-01	6.6334E-02	5.2087E-01	6.9788E-02	4.4159E-01
25	5.6287E-02	1.2168E+00	5.9281E-02	6.3484E-01	6.1451E-02	5.3308E-01	6.4659E-02	4.5182E-01
26	5.2358E-02	1.2439E+00	5.5095E-02	6.4877E-01	5.7112E-02	5.4468E-01	6.0092E-02	4.6164E-01
27	4.8837E-02	1.2699E+00	5.1347E-02	6.6218E-01	5.3223E-02	5.5590E-01	5.5986E-02	4.7124E-01
28	4.5667E-02	1.2951E+00	4.7977E-02	6.7509E-01	4.9718E-02	5.6682E-01	5.2295E-02	4.8048E-01
29	4.2802E-02	1.3193E+00	4.4934E-02	6.8758E-01	4.6561E-02	5.7725E-01	4.8979E-02	4.8924E-01
30	4.0205E-02	1.3429E+00	4.2176E-02	6.9966E-01	4.3706E-02	5.8729E-01	4.5974E-02	4.9774E-01
31	3.7840E-02	1.3657E+00	3.9669E-02	7.1137E-01	4.1101E-02	5.9717E-01	4.3227E-02	5.0615E-01
32	3.5682E-02	1.3879E+00	3.7381E-02	7.2275E-01	3.8724E-02	6.0675E-01	4.0723E-02	5.1428E-01
33	3.3706E-02	1.4094E+00	3.5288E-02	7.3381E-01	3.6557E-02	6.1592E-01	3.8445E-02	5.2202E-01
34	3.1892E-02	1.4304E+00	3.3367E-02	7.4458E-01	3.4567E-02	6.2492E-01	3.6353E-02	5.2958E-01
35	3.0222E-02	1.4509E+00	3.1600E-02	7.5508E-01	3.2729E-02	6.3381E-01	3.4417E-02	5.3714E-01
36	2.8682E-02	1.4709E+00	2.9970E-02	7.6532E-01	3.1039E-02	6.4237E-01	3.2634E-02	5.4447E-01
37	2.7257E-02	1.4905E+00	2.8464E-02	7.7532E-01	2.9481E-02	6.5064E-01	3.0996E-02	5.5143E-01
38	2.5937E-02	1.5096E+00	2.7068E-02	7.8510E-01	2.8032E-02	6.5888E-01	2.9477E-02	5.5829E-01
39	2.4711E-02	1.5283E+00	2.5773E-02	7.9466E-01	2.6686E-02	6.6697E-01	2.8057E-02	5.6520E-01
40	2.3570E-02	1.5466E+00	2.4568E-02	8.0402E-01	2.5440E-02	6.7471E-01	2.6740E-02	5.7189E-01
41	2.2507E-02	1.5645E+00	2.3446E-02	8.1319E-01	2.4278E-02	6.8233E-01	2.5521E-02	5.7824E-01
42	2.1514E-02	1.5821E+00	2.2399E-02	8.2217E-01	2.3189E-02	6.8997E-01	2.4381E-02	5.8455E-01
43	2.0586E-02	1.5994E+00	2.1419E-02	8.3097E-01	2.2174E-02	6.9733E-01	2.3308E-02	5.9092E-01
44	1.9717E-02	1.6163E+00	2.0503E-02	8.3961E-01	2.1227E-02	7.0443E-01	2.2306E-02	5.9710E-01
45	1.8902E-02	1.6329E+00	1.9644E-02	8.4808E-01	2.0335E-02	7.1158E-01	2.1374E-02	6.0295E-01
46	1.8136E-02	1.6492E+00	1.8837E-02	8.5639E-01	1.9496E-02	7.1864E-01	2.0496E-02	6.0878E-01
47	1.7415E-02	1.6652E+00	1.8079E-02	8.6456E-01	1.8712E-02	7.2537E-01	1.9664E-02	6.1472E-01
48	1.6737E-02	1.6810E+00	1.7365E-02	8.7258E-01	1.7974E-02	7.3202E-01	1.8885E-02	6.2045E-01
49	1.6098E-02	1.6965E+00	1.6692E-02	8.8046E-01	1.7274E-02	7.3874E-01	1.8156E-02	6.2586E-01
50	1.5494E-02	1.7117E+00	1.6058E-02	8.8820E-01	1.6616E-02	7.4523E-01	1.7465E-02	6.3130E-01
51	1.4924E-02	1.7266E+00	1.5458E-02	8.9582E-01	1.5998E-02	7.5146E-01	1.6808E-02	6.3686E-01
52	1.4384E-02	1.7414E+00	1.4891E-02	9.0330E-01	1.5410E-02	7.5778E-01	1.6189E-02	6.4220E-01
53	1.3873E-02	1.7558E+00	1.4355E-02	9.1067E-01	1.4852E-02	7.6406E-01	1.5608E-02	6.4723E-01
54	1.3389E-02	1.7701E+00	1.3847E-02	9.1791E-01	1.4327E-02	7.7001E-01	1.5055E-02	6.5232E-01
55	1.2929E-02	1.7841E+00	1.3365E-02	9.2504E-01	1.3829E-02	7.7589E-01	1.4526E-02	6.5756E-01
56	1.2493E-02	1.7980E+00	1.2908E-02	9.3206E-01	1.3353E-02	7.8191E-01	1.4028E-02	6.6254E-01
57	1.2078E-02	1.8116E+00	1.2473E-02	9.3897E-01	1.2903E-02	7.8770E-01	1.3557E-02	6.6723E-01
58	1.1683E-02	1.8250E+00	1.2060E-02	9.4577E-01	1.2477E-02	7.9322E-01	1.3108E-02	6.7203E-01
59	1.1308E-02	1.8382E+00	1.1667E-02	9.5247E-01	1.2069E-02	7.9882E-01	1.2676E-02	6.7700E-01
60	1.0950E-02	1.8512E+00	1.1292E-02	9.5906E-01	1.1678E-02	8.0465E-01	1.2267E-02	6.8173E-01

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Na; $Z = 11$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	4.7823E+00	9.9384E-02	5.1198E+00	5.3502E-02	5.3083E+00	4.5039E-02	5.5741E+00	3.8348E-02
1	3.4260E+00	1.3450E-01	3.6809E+00	7.2184E-02	3.8196E+00	6.0722E-02	4.0180E+00	5.1618E-02
2	1.9625E+00	2.1863E-01	2.1215E+00	1.1663E-01	2.2038E+00	9.8007E-02	2.3226E+00	8.3181E-02
3	1.3298E+00	2.9721E-01	1.4427E+00	1.5792E-01	1.4994E+00	1.3265E-01	1.5810E+00	1.1255E-01
4	1.0167E+00	3.5796E-01	1.1057E+00	1.8976E-01	1.1495E+00	1.5935E-01	1.2123E+00	1.3519E-01
5	8.1364E-01	4.1211E-01	8.8654E-01	2.1809E-01	9.2185E-01	1.8310E-01	9.7242E-01	1.5532E-01
6	6.6281E-01	4.6596E-01	7.2329E-01	2.4619E-01	7.5222E-01	2.0666E-01	7.9358E-01	1.7529E-01
7	5.4547E-01	5.2136E-01	5.9581E-01	2.7505E-01	6.1971E-01	2.3085E-01	6.5384E-01	1.9579E-01
8	4.5282E-01	5.7840E-01	4.9477E-01	3.0474E-01	5.1463E-01	2.5573E-01	5.4299E-01	2.1687E-01
9	3.7923E-01	6.3655E-01	4.1421E-01	3.3498E-01	4.3082E-01	2.8108E-01	4.5455E-01	2.3835E-01
10	3.2049E-01	6.9509E-01	3.4969E-01	3.6543E-01	3.6367E-01	3.0659E-01	3.8366E-01	2.5998E-01
11	2.7332E-01	7.5314E-01	2.9774E-01	3.9564E-01	3.0958E-01	3.3191E-01	3.2656E-01	2.8143E-01
12	2.3532E-01	8.1020E-01	2.5580E-01	4.2535E-01	2.6591E-01	3.5681E-01	2.8045E-01	3.0254E-01
13	2.0442E-01	8.6564E-01	2.2166E-01	4.5425E-01	2.3036E-01	3.8104E-01	2.4290E-01	3.2307E-01
14	1.7904E-01	9.1910E-01	1.9362E-01	4.8214E-01	2.0116E-01	4.0442E-01	2.1207E-01	3.4289E-01
15	1.5803E-01	9.7036E-01	1.7043E-01	5.0890E-01	1.7701E-01	4.2685E-01	1.8657E-01	3.6191E-01
16	1.4049E-01	1.0193E+00	1.5109E-01	5.3445E-01	1.5688E-01	4.4828E-01	1.6532E-01	3.8007E-01
17	1.2572E-01	1.0659E+00	1.3484E-01	5.5879E-01	1.3996E-01	4.6868E-01	1.4746E-01	3.9737E-01
18	1.1317E-01	1.1102E+00	1.2108E-01	5.8191E-01	1.2564E-01	4.8806E-01	1.3235E-01	4.1380E-01
19	1.0244E-01	1.1523E+00	1.0934E-01	6.0386E-01	1.1342E-01	5.0646E-01	1.1945E-01	4.2940E-01
20	9.3180E-02	1.1924E+00	9.9242E-02	6.2470E-01	1.0293E-01	5.2393E-01	1.0838E-01	4.4420E-01
21	8.5147E-02	1.2304E+00	9.0507E-02	6.4449E-01	9.3844E-02	5.4052E-01	9.8803E-02	4.5826E-01
22	7.8130E-02	1.2667E+00	8.2899E-02	6.6332E-01	8.5938E-02	5.5629E-01	9.0466E-02	4.7163E-01
23	7.1965E-02	1.3012E+00	7.6232E-02	6.8125E-01	7.9012E-02	5.7131E-01	8.3164E-02	4.8436E-01
24	6.6517E-02	1.3343E+00	7.0357E-02	6.9836E-01	7.2911E-02	5.8565E-01	7.6733E-02	4.9650E-01
25	6.1680E-02	1.3659E+00	6.5153E-02	7.1472E-01	6.7507E-02	5.9935E-01	7.1039E-02	5.0811E-01
26	5.7364E-02	1.3962E+00	6.0519E-02	7.3038E-01	6.2698E-02	6.1247E-01	6.5971E-02	5.1922E-01
27	5.3496E-02	1.4254E+00	5.6375E-02	7.4543E-01	5.8396E-02	6.2506E-01	6.1440E-02	5.2989E-01
28	5.0015E-02	1.4535E+00	5.2652E-02	7.5990E-01	5.4534E-02	6.3717E-01	5.7371E-02	5.4015E-01
29	4.6871E-02	1.4806E+00	4.9294E-02	7.7384E-01	5.1050E-02	6.4885E-01	5.3702E-02	5.5003E-01
30	4.4021E-02	1.5067E+00	4.6254E-02	7.8731E-01	4.7897E-02	6.6012E-01	5.0382E-02	5.5958E-01
31	4.1428E-02	1.5321E+00	4.3492E-02	8.0033E-01	4.5033E-02	6.7102E-01	4.7366E-02	5.6880E-01
32	3.9063E-02	1.5567E+00	4.0975E-02	8.1295E-01	4.2423E-02	6.8158E-01	4.4618E-02	5.7774E-01
33	3.6898E-02	1.5806E+00	3.8674E-02	8.2520E-01	4.0037E-02	6.9182E-01	4.2106E-02	5.8642E-01
34	3.4912E-02	1.6038E+00	3.6564E-02	8.3710E-01	3.7850E-02	7.0178E-01	3.9803E-02	5.9485E-01
35	3.3084E-02	1.6264E+00	3.4624E-02	8.4867E-01	3.5839E-02	7.1146E-01	3.7687E-02	6.0304E-01
36	3.1399E-02	1.6484E+00	3.2837E-02	8.5995E-01	3.3986E-02	7.2090E-01	3.5736E-02	6.1103E-01
37	2.9841E-02	1.6699E+00	3.1185E-02	8.7095E-01	3.2274E-02	7.3010E-01	3.3935E-02	6.1882E-01
38	2.8398E-02	1.6909E+00	2.9657E-02	8.8168E-01	3.0690E-02	7.3907E-01	3.2267E-02	6.2642E-01
39	2.7059E-02	1.7114E+00	2.8238E-02	8.9217E-01	2.9220E-02	7.4785E-01	3.0720E-02	6.3384E-01
40	2.5813E-02	1.7315E+00	2.6920E-02	9.0242E-01	2.7853E-02	7.5642E-01	2.9282E-02	6.4110E-01
41	2.4652E-02	1.7511E+00	2.5691E-02	9.1245E-01	2.6581E-02	7.6481E-01	2.7943E-02	6.4820E-01
42	2.3568E-02	1.7703E+00	2.4546E-02	9.2248E-01	2.5394E-02	7.7303E-01	2.6693E-02	6.5515E-01
43	2.2555E-02	1.7892E+00	2.3475E-02	9.3190E-01	2.4285E-02	7.8108E-01	2.5526E-02	6.6196E-01
44	2.1607E-02	1.8077E+00	2.2473E-02	9.4134E-01	2.3246E-02	7.8896E-01	2.4434E-02	6.6864E-01
45	2.0717E-02	1.8259E+00	2.1534E-02	9.5059E-01	2.2273E-02	7.9670E-01	2.3410E-02	6.7518E-01
46	1.9882E-02	1.8437E+00	2.0652E-02	9.5967E-01	2.1360E-02	8.0429E-01	2.2449E-02	6.8160E-01
47	1.9096E-02	1.8612E+00	1.9823E-02	9.6858E-01	2.0501E-02	8.1174E-01	2.1546E-02	6.8791E-01
48	1.8356E-02	1.8784E+00	1.9043E-02	9.7734E-01	1.9693E-02	8.1906E-01	2.0696E-02	6.9410E-01
49	1.7659E-02	1.8953E+00	1.8308E-02	9.8594E-01	1.8932E-02	8.2625E-01	1.9895E-02	7.0019E-01
50	1.7000E-02	1.9119E+00	1.7615E-02	9.9439E-01	1.8214E-02	8.3332E-01	1.9139E-02	7.0616E-01
51	1.6378E-02	1.9283E+00	1.6960E-02	1.0027E+00	1.7536E-02	8.4026E-01	1.8425E-02	7.1204E-01
52	1.5790E-02	1.9444E+00	1.6340E-02	1.0109E+00	1.6894E-02	8.4709E-01	1.7751E-02	7.1781E-01
53	1.5232E-02	1.9602E+00	1.5754E-02	1.0189E+00	1.6287E-02	8.5380E-01	1.7112E-02	7.2350E-01
54	1.4704E-02	1.9757E+00	1.5199E-02	1.0268E+00	1.5712E-02	8.6041E-01	1.6507E-02	7.2909E-01
55	1.4202E-02	1.9911E+00	1.4672E-02	1.0346E+00	1.5166E-02	8.6692E-01	1.5933E-02	7.3459E-01
56	1.3726E-02	2.0062E+00	1.4172E-02	1.0423E+00	1.4649E-02	8.7332E-01	1.5389E-02	7.4000E-01
57	1.3274E-02	2.0211E+00	1.3697E-02	1.0498E+00	1.4157E-02	8.7962E-01	1.4872E-02	7.4533E-01
58	1.2843E-02	2.0357E+00	1.3245E-02	1.0572E+00	1.3689E-02	8.8583E-01	1.4380E-02	7.5059E-01
59	1.2433E-02	2.0502E+00	1.2815E-02	1.0646E+00	1.3244E-02	8.9194E-01	1.3912E-02	7.5576E-01
60	1.2042E-02	2.0644E+00	1.2406E-02	1.0718E+00	1.2820E-02	8.9796E-01	1.3466E-02	7.6084E-01

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Mg; $Z = 12$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	5.1990E+00	1.1836E-01	5.5799E+00	6.3908E-02	5.7880E+00	5.3816E-02	6.0792E+00	4.5838E-02
1	4.0878E+00	1.4577E-01	4.4006E+00	7.8538E-02	4.5679E+00	6.6096E-02	4.8079E+00	5.6191E-02
2	2.4698E+00	2.2243E-01	2.6760E+00	1.1921E-01	2.7807E+00	1.0024E-01	2.9317E+00	8.5105E-02
3	1.5529E+00	3.1959E-01	1.6913E+00	1.7043E-01	1.7586E+00	1.4322E-01	1.8547E+00	1.2157E-01
4	1.1017E+00	4.0638E-01	1.2033E+00	2.1601E-01	1.2516E+00	1.8145E-01	1.3205E+00	1.5398E-01
5	8.4946E-01	4.7758E-01	9.2971E-01	2.5331E-01	9.6728E-01	2.1274E-01	1.0209E+00	1.8047E-01
6	6.8426E-01	5.3991E-01	7.5017E-01	2.8589E-01	7.8060E-01	2.4007E-01	8.2385E-01	2.0367E-01
7	5.6388E-01	5.9897E-01	6.1899E-01	3.1671E-01	6.4419E-01	2.6590E-01	6.7986E-01	2.2559E-01
8	4.7110E-01	6.5741E-01	5.1751E-01	3.4716E-01	5.3866E-01	2.9140E-01	5.6862E-01	2.4716E-01
9	3.9760E-01	7.1608E-01	4.3683E-01	3.7768E-01	4.5469E-01	3.1697E-01	4.7999E-01	2.6883E-01
10	3.3855E-01	7.7492E-01	3.7178E-01	4.0826E-01	3.8691E-01	3.4264E-01	4.0833E-01	2.9065E-01
11	2.9058E-01	8.3370E-01	3.1874E-01	4.3882E-01	3.3166E-01	3.6825E-01	3.4996E-01	3.1237E-01
12	2.5152E-01	8.9187E-01	2.7540E-01	4.6911E-01	2.8653E-01	3.9362E-01	3.0236E-01	3.3382E-01
13	2.1941E-01	9.4903E-01	2.3971E-01	4.9889E-01	2.4934E-01	4.1857E-01	2.6309E-01	3.5495E-01
14	1.9279E-01	1.0048E+00	2.1009E-01	5.2795E-01	2.1847E-01	4.4293E-01	2.3047E-01	3.7560E-01
15	1.7060E-01	1.0588E+00	1.8538E-01	5.5615E-01	1.9271E-01	4.6657E-01	2.0325E-01	3.9564E-01
16	1.5194E-01	1.1110E+00	1.6463E-01	5.8337E-01	1.7108E-01	4.8939E-01	1.8040E-01	4.1499E-01
17	1.3616E-01	1.1611E+00	1.4709E-01	6.0953E-01	1.5280E-01	5.1133E-01	1.6108E-01	4.3359E-01
18	1.2270E-01	1.2091E+00	1.3217E-01	6.3461E-01	1.3725E-01	5.3235E-01	1.4466E-01	4.5141E-01
19	1.1115E-01	1.2550E+00	1.1938E-01	6.5858E-01	1.2394E-01	5.5246E-01	1.3059E-01	4.6845E-01
20	1.0116E-01	1.2988E+00	1.0837E-01	6.8148E-01	1.1247E-01	5.7165E-01	1.1848E-01	4.8473E-01
21	9.2480E-02	1.3407E+00	9.8818E-02	7.0333E-01	1.0253E-01	5.8997E-01	1.0799E-01	5.0025E-01
22	8.4883E-02	1.3808E+00	9.0489E-02	7.2418E-01	9.3860E-02	6.0745E-01	9.8842E-02	5.1507E-01
23	7.8199E-02	1.4190E+00	8.3184E-02	7.4409E-01	8.6262E-02	6.2413E-01	9.0826E-02	5.2921E-01
24	7.2288E-02	1.4557E+00	7.6745E-02	7.6312E-01	7.9566E-02	6.4008E-01	8.3762E-02	5.4272E-01
25	6.7035E-02	1.4908E+00	7.1039E-02	7.8132E-01	7.3635E-02	6.5533E-01	7.7508E-02	5.5564E-01
26	6.2345E-02	1.5245E+00	6.5960E-02	7.9876E-01	6.8358E-02	6.6993E-01	7.1943E-02	5.6802E-01
27	5.8141E-02	1.5568E+00	6.1419E-02	8.1549E-01	6.3640E-02	6.8395E-01	6.6970E-02	5.7989E-01
28	5.4357E-02	1.5880E+00	5.7341E-02	8.3157E-01	5.9406E-02	6.9741E-01	6.2507E-02	5.9130E-01
29	5.0938E-02	1.6180E+00	5.3665E-02	8.4705E-01	5.5590E-02	7.1037E-01	5.8486E-02	6.0227E-01
30	4.7838E-02	1.6470E+00	5.0340E-02	8.6197E-01	5.2138E-02	7.2286E-01	5.4849E-02	6.1285E-01
31	4.5019E-02	1.6750E+00	4.7320E-02	8.7638E-01	4.9005E-02	7.3492E-01	5.1549E-02	6.2306E-01
32	4.2447E-02	1.7021E+00	4.4570E-02	8.9031E-01	4.6151E-02	7.4658E-01	4.8544E-02	6.3294E-01
33	4.0094E-02	1.7284E+00	4.2058E-02	9.0382E-01	4.3545E-02	7.5788E-01	4.5799E-02	6.4250E-01
34	3.7935E-02	1.7540E+00	3.9756E-02	9.1691E-01	4.1157E-02	7.6884E-01	4.3284E-02	6.5178E-01
35	3.5950E-02	1.7788E+00	3.7641E-02	9.2963E-01	3.8964E-02	7.7948E-01	4.0975E-02	6.6079E-01
36	3.4119E-02	1.8030E+00	3.5693E-02	9.4200E-01	3.6945E-02	7.8983E-01	3.8849E-02	6.6955E-01
37	3.2427E-02	1.8265E+00	3.3895E-02	9.5405E-01	3.5080E-02	7.9991E-01	3.6886E-02	6.7808E-01
38	3.0860E-02	1.8495E+00	3.2231E-02	9.6579E-01	3.3355E-02	8.0972E-01	3.5070E-02	6.8638E-01
39	2.9406E-02	1.8719E+00	3.0688E-02	9.7724E-01	3.1756E-02	8.1931E-01	3.3386E-02	6.9449E-01
40	2.8054E-02	1.8938E+00	2.9254E-02	9.8843E-01	3.0270E-02	8.2866E-01	3.1822E-02	7.0241E-01
41	2.6795E-02	1.9153E+00	2.7920E-02	9.9937E-01	2.8886E-02	8.3780E-01	3.0366E-02	7.1015E-01
42	2.5619E-02	1.9363E+00	2.6675E-02	1.0101E+00	2.7596E-02	8.4675E-01	2.9009E-02	7.1771E-01
43	2.4521E-02	1.9568E+00	2.5512E-02	1.0205E+00	2.6392E-02	8.5550E-01	2.7741E-02	7.2512E-01
44	2.3492E-02	1.9770E+00	2.4424E-02	1.0308E+00	2.5264E-02	8.6407E-01	2.6554E-02	7.3238E-01
45	2.2528E-02	1.9967E+00	2.3405E-02	1.0408E+00	2.4208E-02	8.7248E-01	2.5443E-02	7.3949E-01
46	2.1623E-02	2.0161E+00	2.2448E-02	1.0507E+00	2.3217E-02	8.8072E-01	2.4400E-02	7.4646E-01
47	2.0771E-02	2.0351E+00	2.1549E-02	1.0604E+00	2.2285E-02	8.8880E-01	2.3419E-02	7.5330E-01
48	1.9970E-02	2.0538E+00	2.0703E-02	1.0699E+00	2.1409E-02	8.9674E-01	2.2497E-02	7.6001E-01
49	1.9214E-02	2.0721E+00	1.9906E-02	1.0792E+00	2.0583E-02	9.0453E-01	2.1628E-02	7.6660E-01
50	1.8501E-02	2.0902E+00	1.9153E-02	1.0884E+00	1.9804E-02	9.1219E-01	2.0808E-02	7.7308E-01
51	1.7827E-02	2.1079E+00	1.8443E-02	1.0974E+00	1.9068E-02	9.1971E-01	2.0034E-02	7.7945E-01
52	1.7190E-02	2.1253E+00	1.7771E-02	1.1062E+00	1.8372E-02	9.2711E-01	1.9303E-02	7.8570E-01
53	1.6586E-02	2.1425E+00	1.7136E-02	1.1149E+00	1.7714E-02	9.3439E-01	1.8610E-02	7.9186E-01
54	1.6014E-02	2.1594E+00	1.6533E-02	1.1235E+00	1.7090E-02	9.4155E-01	1.7954E-02	7.9791E-01
55	1.5471E-02	2.1761E+00	1.5962E-02	1.1319E+00	1.6499E-02	9.4859E-01	1.7332E-02	8.0387E-01
56	1.4955E-02	2.1925E+00	1.5420E-02	1.1402E+00	1.5937E-02	9.5552E-01	1.6741E-02	8.0974E-01
57	1.4465E-02	2.2086E+00	1.4905E-02	1.1484E+00	1.5404E-02	9.6235E-01	1.6180E-02	8.1551E-01
58	1.3999E-02	2.2245E+00	1.4415E-02	1.1564E+00	1.4897E-02	9.6907E-01	1.5647E-02	8.2119E-01
59	1.3554E-02	2.2402E+00	1.3949E-02	1.1644E+00	1.4414E-02	9.7569E-01	1.5139E-02	8.2679E-01
60	1.3131E-02	2.2557E+00	1.3505E-02	1.1722E+00	1.3954E-02	9.8222E-01	1.4655E-02	8.3235E-01

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Al; $Z = 13$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	5.8588E+00	1.3210E-01	6.3025E+00	7.1601E-02	6.5403E+00	6.0318E-02	6.8747E+00	5.1372E-02
1	4.6839E+00	1.5975E-01	5.0545E+00	8.6406E-02	5.2486E+00	7.2754E-02	5.5260E+00	6.1871E-02
2	2.8993E+00	2.3638E-01	3.1505E+00	1.2722E-01	3.2750E+00	1.0703E-01	3.4536E+00	9.0908E-02
3	1.7944E+00	3.4084E-01	1.9621E+00	1.8246E-01	2.0413E+00	1.5340E-01	2.1539E+00	1.3024E-01
4	1.2198E+00	4.4565E-01	1.3385E+00	2.3762E-01	1.3932E+00	1.9968E-01	1.4705E+00	1.6949E-01
5	9.0675E-01	5.3577E-01	9.9701E-01	2.8493E-01	1.0379E+00	2.3937E-01	1.0957E+00	2.0316E-01
6	7.1549E-01	6.1144E-01	7.8795E-01	3.2457E-01	8.2038E-01	2.7264E-01	8.6618E-01	2.3136E-01
7	5.8495E-01	6.7819E-01	6.4509E-01	3.5947E-01	6.7174E-01	3.0191E-01	7.0934E-01	2.5616E-01
8	4.8851E-01	7.4063E-01	5.3930E-01	3.9204E-01	5.6169E-01	3.2918E-01	5.9317E-01	2.7929E-01
9	4.1370E-01	8.0125E-01	4.5698E-01	4.2360E-01	4.7600E-01	3.5562E-01	5.0268E-01	3.0170E-01
10	3.5399E-01	8.6110E-01	3.9104E-01	4.5470E-01	4.0727E-01	3.8173E-01	4.3007E-01	3.2384E-01
11	3.0538E-01	9.2064E-01	3.3713E-01	4.8566E-01	3.5110E-01	4.0766E-01	3.7073E-01	3.4583E-01
12	2.6561E-01	9.7964E-01	2.9285E-01	5.1638E-01	3.0494E-01	4.3339E-01	3.2198E-01	3.6761E-01
13	2.3268E-01	1.0380E+00	2.5607E-01	5.4673E-01	2.6659E-01	4.5882E-01	2.8146E-01	3.8916E-01
14	2.0517E-01	1.0953E+00	2.2528E-01	5.7658E-01	2.3448E-01	4.8384E-01	2.4751E-01	4.1037E-01
15	1.8206E-01	1.1513E+00	1.9939E-01	6.0579E-01	2.0747E-01	5.0833E-01	2.1895E-01	4.3112E-01
16	1.6253E-01	1.2058E+00	1.7749E-01	6.3423E-01	1.8462E-01	5.3217E-01	1.9479E-01	4.5133E-01
17	1.4592E-01	1.2586E+00	1.5886E-01	6.6180E-01	1.6518E-01	5.5528E-01	1.7424E-01	4.7093E-01
18	1.3169E-01	1.3096E+00	1.4292E-01	6.8843E-01	1.4856E-01	5.7762E-01	1.5667E-01	4.8986E-01
19	1.1943E-01	1.3586E+00	1.2922E-01	7.1409E-01	1.3426E-01	5.9913E-01	1.4156E-01	5.0810E-01
20	1.0881E-01	1.4058E+00	1.1736E-01	7.3875E-01	1.2190E-01	6.1981E-01	1.2849E-01	5.2563E-01
21	9.9546E-02	1.4511E+00	1.0705E-01	7.6242E-01	1.1116E-01	6.3965E-01	1.1714E-01	5.4246E-01
22	9.1426E-02	1.4946E+00	9.8045E-02	7.8511E-01	1.0177E-01	6.5868E-01	1.0723E-01	5.5859E-01
23	8.4269E-02	1.5363E+00	9.0132E-02	8.0686E-01	9.3529E-02	6.7692E-01	9.8521E-02	5.7405E-01
24	7.7931E-02	1.5763E+00	8.3147E-02	8.2772E-01	8.6256E-02	6.9440E-01	9.0842E-02	5.8886E-01
25	7.2292E-02	1.6148E+00	7.6953E-02	8.4771E-01	7.9809E-02	7.1115E-01	8.4037E-02	6.0307E-01
26	6.7252E-02	1.6517E+00	7.1436E-02	8.6689E-01	7.4069E-02	7.2723E-01	7.7980E-02	6.1669E-01
27	6.2730E-02	1.6873E+00	6.6501E-02	8.8531E-01	6.8937E-02	7.4266E-01	7.2565E-02	6.2977E-01
28	5.8656E-02	1.7215E+00	6.2070E-02	9.0302E-01	6.4330E-02	7.5750E-01	6.7706E-02	6.4234E-01
29	5.4974E-02	1.7544E+00	5.8076E-02	9.2007E-01	6.0179E-02	7.7178E-01	6.3329E-02	6.5443E-01
30	5.1634E-02	1.7863E+00	5.4463E-02	9.3650E-01	5.6425E-02	7.8553E-01	5.9371E-02	6.6608E-01
31	4.8595E-02	1.8170E+00	5.1183E-02	9.5235E-01	5.3019E-02	7.9880E-01	5.5781E-02	6.7732E-01
32	4.5822E-02	1.8468E+00	4.8198E-02	9.6767E-01	4.9918E-02	8.1163E-01	5.2514E-02	6.8818E-01
33	4.3284E-02	1.8757E+00	4.5471E-02	9.8249E-01	4.7088E-02	8.2403E-01	4.9531E-02	6.9869E-01
34	4.0955E-02	1.9037E+00	4.2973E-02	9.9685E-01	4.4496E-02	8.3605E-01	4.6800E-02	7.0886E-01
35	3.8813E-02	1.9308E+00	4.0680E-02	1.0108E+00	4.2116E-02	8.4770E-01	4.4294E-02	7.1873E-01
36	3.6838E-02	1.9573E+00	3.8569E-02	1.0243E+00	3.9926E-02	8.5902E-01	4.1987E-02	7.2831E-01
37	3.5013E-02	1.9830E+00	3.6621E-02	1.0375E+00	3.7906E-02	8.7003E-01	3.9859E-02	7.3762E-01
38	3.3322E-02	2.0080E+00	3.4819E-02	1.0503E+00	3.6037E-02	8.8074E-01	3.7891E-02	7.4669E-01
39	3.1754E-02	2.0325E+00	3.3149E-02	1.0628E+00	3.4305E-02	8.9118E-01	3.6068E-02	7.5552E-01
40	3.0296E-02	2.0563E+00	3.1599E-02	1.0749E+00	3.2697E-02	9.0135E-01	3.4375E-02	7.6414E-01
41	2.8937E-02	2.0796E+00	3.0155E-02	1.0868E+00	3.1201E-02	9.1129E-01	3.2800E-02	7.7255E-01
42	2.7670E-02	2.1024E+00	2.8810E-02	1.0984E+00	2.9806E-02	9.2100E-01	3.1332E-02	7.8076E-01
43	2.6486E-02	2.1247E+00	2.7554E-02	1.1098E+00	2.8504E-02	9.3050E-01	2.9961E-02	7.8879E-01
44	2.5377E-02	2.1466E+00	2.6378E-02	1.1209E+00	2.7286E-02	9.3979E-01	2.8679E-02	7.9666E-01
45	2.4338E-02	2.1680E+00	2.5278E-02	1.1318E+00	2.6145E-02	9.4888E-01	2.7478E-02	8.0435E-01
46	2.3362E-02	2.1890E+00	2.4244E-02	1.1424E+00	2.5074E-02	9.5780E-01	2.6352E-02	8.1189E-01
47	2.2445E-02	2.2096E+00	2.3274E-02	1.1529E+00	2.4069E-02	9.6654E-01	2.5293E-02	8.1929E-01
48	2.1582E-02	2.2298E+00	2.2361E-02	1.1632E+00	2.3123E-02	9.7511E-01	2.4298E-02	8.2654E-01
49	2.0768E-02	2.2496E+00	2.1501E-02	1.1732E+00	2.2232E-02	9.8353E-01	2.3360E-02	8.3366E-01
50	2.0000E-02	2.2691E+00	2.0690E-02	1.1831E+00	2.1391E-02	9.9179E-01	2.2476E-02	8.4065E-01
51	1.9274E-02	2.2883E+00	1.9924E-02	1.1928E+00	2.0598E-02	9.9991E-01	2.1641E-02	8.4751E-01
52	1.8587E-02	2.3071E+00	1.9200E-02	1.2024E+00	1.9848E-02	1.0079E+00	2.0852E-02	8.5426E-01
53	1.7937E-02	2.3257E+00	1.8514E-02	1.2118E+00	1.9138E-02	1.0157E+00	2.0105E-02	8.6090E-01
54	1.7321E-02	2.3439E+00	1.7865E-02	1.2210E+00	1.8465E-02	1.0235E+00	1.9398E-02	8.6742E-01
55	1.6737E-02	2.3619E+00	1.7249E-02	1.2301E+00	1.7828E-02	1.0310E+00	1.8727E-02	8.7384E-01
56	1.6182E-02	2.3796E+00	1.6665E-02	1.2390E+00	1.7222E-02	1.0385E+00	1.8090E-02	8.8016E-01
57	1.5654E-02	2.3970E+00	1.6109E-02	1.2478E+00	1.6647E-02	1.0459E+00	1.7485E-02	8.8638E-01
58	1.5152E-02	2.4142E+00	1.5581E-02	1.2565E+00	1.6100E-02	1.0531E+00	1.6910E-02	8.9250E-01
59	1.4673E-02	2.4311E+00	1.5079E-02	1.2651E+00	1.5580E-02	1.0602E+00	1.6363E-02	8.9853E-01
60	1.4218E-02	2.4478E+00	1.4600E-02	1.2734E+00	1.5085E-02	1.0673E+00	1.5842E-02	9.0448E-01

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Si; $Z = 14$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	5.7670E+00	1.5342E-01	6.2279E+00	8.3536E-02	6.4654E+00	7.0425E-02	6.7983E+00	6.0010E-02
1	4.8204E+00	1.7816E-01	5.2205E+00	9.6834E-02	5.4236E+00	8.1585E-02	5.7124E+00	6.9415E-02
2	3.1875E+00	2.4867E-01	3.4760E+00	1.3453E-01	3.6152E+00	1.1325E-01	3.8137E+00	9.6236E-02
3	2.0207E+00	3.5156E-01	2.2195E+00	1.8911E-01	2.3103E+00	1.5910E-01	2.4388E+00	1.3513E-01
4	1.3552E+00	4.6543E-01	1.4952E+00	2.4918E-01	1.5573E+00	2.0952E-01	1.6445E+00	1.7791E-01
5	9.8182E-01	5.7164E-01	1.0853E+00	3.0509E-01	1.1307E+00	2.5643E-01	1.1942E+00	2.1770E-01
6	7.5804E-01	6.6307E-01	8.3889E-01	3.5311E-01	8.7403E-01	2.9671E-01	9.2322E-01	2.5186E-01
7	6.1157E-01	7.4140E-01	6.7753E-01	3.9414E-01	7.0598E-01	3.3113E-01	7.4578E-01	2.8105E-01
8	5.0775E-01	8.1102E-01	5.6308E-01	4.3055E-01	5.8679E-01	3.6166E-01	6.1992E-01	3.0693E-01
9	4.2953E-01	8.7578E-01	4.7675E-01	4.6432E-01	4.9689E-01	3.8996E-01	5.2497E-01	3.3092E-01
10	3.6811E-01	9.3811E-01	4.0879E-01	4.9671E-01	4.2608E-01	4.1710E-01	4.5017E-01	3.5392E-01
11	3.1849E-01	9.9907E-01	3.5366E-01	5.2841E-01	3.6861E-01	4.4366E-01	3.8945E-01	3.7643E-01
12	2.7802E-01	1.0590E+00	3.0848E-01	5.5962E-01	3.2149E-01	4.6983E-01	3.3964E-01	3.9860E-01
13	2.4442E-01	1.1183E+00	2.7084E-01	5.9046E-01	2.8221E-01	4.9567E-01	2.9812E-01	4.2050E-01
14	2.1623E-01	1.1768E+00	2.3915E-01	6.2089E-01	2.4915E-01	5.2117E-01	2.6315E-01	4.4212E-01
15	1.9242E-01	1.2343E+00	2.1234E-01	6.5082E-01	2.2115E-01	5.4626E-01	2.3354E-01	4.6338E-01
16	1.7220E-01	1.2905E+00	1.8952E-01	6.8015E-01	1.9733E-01	5.7084E-01	2.0834E-01	4.8421E-01
17	1.5492E-01	1.3454E+00	1.7000E-01	7.0877E-01	1.7694E-01	5.9484E-01	1.8677E-01	5.0456E-01
18	1.4006E-01	1.3987E+00	1.5321E-01	7.3662E-01	1.5941E-01	6.1819E-01	1.6822E-01	5.2435E-01
19	1.2721E-01	1.4504E+00	1.3870E-01	7.6363E-01	1.4426E-01	6.4083E-01	1.5220E-01	5.4355E-01
20	1.1604E-01	1.5003E+00	1.2610E-01	7.8975E-01	1.3111E-01	6.6274E-01	1.3828E-01	5.6213E-01
21	1.0627E-01	1.5485E+00	1.1511E-01	8.1497E-01	1.1964E-01	6.8389E-01	1.2615E-01	5.8006E-01
22	9.7686E-02	1.5950E+00	1.0548E-01	8.3928E-01	1.0959E-01	7.0428E-01	1.1553E-01	5.9734E-01
23	9.0108E-02	1.6398E+00	9.7002E-02	8.6268E-01	1.0074E-01	7.2390E-01	1.0617E-01	6.1398E-01
24	8.3384E-02	1.6830E+00	8.9502E-02	8.8521E-01	9.2919E-02	7.4278E-01	9.7910E-02	6.2999E-01
25	7.7393E-02	1.7245E+00	8.2842E-02	9.0687E-01	8.5977E-02	7.6095E-01	9.0575E-02	6.4539E-01
26	7.2032E-02	1.7645E+00	7.6904E-02	9.2771E-01	7.9790E-02	7.7842E-01	8.4039E-02	6.6020E-01
27	6.7216E-02	1.8031E+00	7.1587E-02	9.4777E-01	7.4253E-02	7.9523E-01	7.8192E-02	6.7444E-01
28	6.2873E-02	1.8403E+00	6.6811E-02	9.6707E-01	6.9280E-02	8.1141E-01	7.2942E-02	6.8815E-01
29	5.8944E-02	1.8762E+00	6.2503E-02	9.8568E-01	6.4797E-02	8.2699E-01	6.8211E-02	7.0136E-01
30	5.5377E-02	1.9108E+00	5.8606E-02	1.0036E+00	6.0743E-02	8.4202E-01	6.3933E-02	7.1409E-01
31	5.2130E-02	1.9444E+00	5.5068E-02	1.0209E+00	5.7064E-02	8.5652E-01	6.0052E-02	7.2638E-01
32	4.9165E-02	1.9768E+00	5.1847E-02	1.0377E+00	5.3716E-02	8.7053E-01	5.6521E-02	7.3824E-01
33	4.6449E-02	2.0082E+00	4.8906E-02	1.0538E+00	5.0660E-02	8.8408E-01	5.3299E-02	7.4972E-01
34	4.3957E-02	2.0387E+00	4.6212E-02	1.0695E+00	4.7862E-02	8.9719E-01	5.0349E-02	7.6082E-01
35	4.1663E-02	2.0683E+00	4.3740E-02	1.0847E+00	4.5294E-02	9.0990E-01	4.7642E-02	7.7159E-01
36	3.9547E-02	2.0970E+00	4.1464E-02	1.0994E+00	4.2931E-02	9.2224E-01	4.5153E-02	7.8203E-01
37	3.7592E-02	2.1250E+00	3.9364E-02	1.1138E+00	4.0752E-02	9.3422E-01	4.2856E-02	7.9217E-01
38	3.5780E-02	2.1522E+00	3.7423E-02	1.1277E+00	3.8737E-02	9.4587E-01	4.0734E-02	8.0203E-01
39	3.4099E-02	2.1788E+00	3.5624E-02	1.1412E+00	3.6871E-02	9.5720E-01	3.8768E-02	8.1163E-01
40	3.2536E-02	2.2046E+00	3.3955E-02	1.1545E+00	3.5138E-02	9.6825E-01	3.6944E-02	8.2097E-01
41	3.1080E-02	2.2299E+00	3.2401E-02	1.1673E+00	3.3527E-02	9.7902E-01	3.5247E-02	8.3009E-01
42	2.9722E-02	2.2546E+00	3.0954E-02	1.1799E+00	3.2026E-02	9.8954E-01	3.3666E-02	8.3899E-01
43	2.8452E-02	2.2788E+00	2.9602E-02	1.1922E+00	3.0625E-02	9.9980E-01	3.2191E-02	8.4768E-01
44	2.7263E-02	2.3024E+00	2.8339E-02	1.2042E+00	2.9314E-02	1.0099E+00	3.0812E-02	8.5617E-01
45	2.6149E-02	2.3255E+00	2.7155E-02	1.2160E+00	2.8088E-02	1.0197E+00	2.9520E-02	8.6448E-01
46	2.5103E-02	2.3482E+00	2.6045E-02	1.2275E+00	2.6937E-02	1.0293E+00	2.8309E-02	8.7262E-01
47	2.4120E-02	2.3704E+00	2.5002E-02	1.2387E+00	2.5856E-02	1.0387E+00	2.7172E-02	8.8059E-01
48	2.3194E-02	2.3922E+00	2.4022E-02	1.2498E+00	2.4840E-02	1.0480E+00	2.6102E-02	8.8841E-01
49	2.2322E-02	2.4136E+00	2.3098E-02	1.2606E+00	2.3883E-02	1.0570E+00	2.5095E-02	8.9607E-01
50	2.1499E-02	2.4346E+00	2.2227E-02	1.2713E+00	2.2980E-02	1.0659E+00	2.4145E-02	9.0359E-01
51	2.0721E-02	2.4553E+00	2.1405E-02	1.2817E+00	2.2128E-02	1.0746E+00	2.3248E-02	9.1097E-01
52	1.9986E-02	2.4755E+00	2.0627E-02	1.2920E+00	2.1323E-02	1.0832E+00	2.2401E-02	9.1822E-01
53	1.9289E-02	2.4955E+00	1.9892E-02	1.3021E+00	2.0561E-02	1.0916E+00	2.1600E-02	9.2535E-01
54	1.8629E-02	2.5151E+00	1.9195E-02	1.3120E+00	1.9839E-02	1.0999E+00	2.0840E-02	9.3236E-01
55	1.8003E-02	2.5345E+00	1.8535E-02	1.3218E+00	1.9155E-02	1.1081E+00	2.0120E-02	9.3925E-01
56	1.7408E-02	2.5535E+00	1.7908E-02	1.3314E+00	1.8506E-02	1.1161E+00	1.9437E-02	9.4603E-01
57	1.6843E-02	2.5722E+00	1.7312E-02	1.3408E+00	1.7889E-02	1.1240E+00	1.8788E-02	9.5270E-01
58	1.6305E-02	2.5907E+00	1.6746E-02	1.3501E+00	1.7303E-02	1.1317E+00	1.8172E-02	9.5926E-01
59	1.5793E-02	2.6088E+00	1.6207E-02	1.3593E+00	1.6744E-02	1.1394E+00	1.7585E-02	9.6573E-01
60	1.5305E-02	2.6268E+00	1.5693E-02	1.3683E+00	1.6213E-02	1.1470E+00	1.7025E-02	9.7211E-01

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

P; Z = 15

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	5.4043E+00	1.7700E-01	5.8630E+00	9.6904E-02	6.0901E+00	8.1757E-02	6.4054E+00	6.9716E-02
1	4.6991E+00	1.9853E-01	5.1119E+00	1.0850E-01	5.3138E+00	9.1488E-02	5.5987E+00	7.7888E-02
2	3.3312E+00	2.6134E-01	3.6481E+00	1.4221E-01	3.7964E+00	1.1981E-01	4.0063E+00	1.0187E-01
3	2.2044E+00	3.5783E-01	2.4327E+00	1.9360E-01	2.5340E+00	1.6299E-01	2.6761E+00	1.3851E-01
4	1.4906E+00	4.7310E-01	1.6542E+00	2.5457E-01	1.7242E+00	2.1419E-01	1.8217E+00	1.8196E-01
5	1.0670E+00	5.8970E-01	1.1870E+00	3.1606E-01	1.2376E+00	2.6579E-01	1.3080E+00	2.2573E-01
6	8.1013E-01	6.9558E-01	9.0182E-01	3.7181E-01	9.4031E-01	3.1258E-01	9.9378E-01	2.6542E-01
7	6.4462E-01	7.8740E-01	7.1774E-01	4.2010E-01	7.4839E-01	3.5310E-01	7.9094E-01	2.9979E-01
8	5.3036E-01	8.6737E-01	5.9083E-01	4.6203E-01	6.1611E-01	3.8827E-01	6.5119E-01	3.2960E-01
9	4.4664E-01	9.3899E-01	4.9795E-01	4.9945E-01	5.1930E-01	4.1964E-01	5.4887E-01	3.5621E-01
10	3.8226E-01	1.0056E+00	4.2643E-01	5.3419E-01	4.4475E-01	4.4875E-01	4.7010E-01	3.8088E-01
11	3.3092E-01	1.0692E+00	3.6927E-01	5.6730E-01	3.8514E-01	4.7650E-01	4.0710E-01	4.0440E-01
12	2.8940E-01	1.1310E+00	3.2289E-01	5.9937E-01	3.3675E-01	5.0338E-01	3.5595E-01	4.2717E-01
13	2.5504E-01	1.1915E+00	2.8435E-01	6.3082E-01	2.9653E-01	5.2974E-01	3.1342E-01	4.4951E-01
14	2.2620E-01	1.2511E+00	2.5185E-01	6.6181E-01	2.6260E-01	5.5570E-01	2.7752E-01	4.7151E-01
15	2.0180E-01	1.3097E+00	2.2427E-01	6.9233E-01	2.3379E-01	5.8128E-01	2.4704E-01	4.9319E-01
16	1.8100E-01	1.3673E+00	2.0070E-01	7.2233E-01	2.0916E-01	6.0642E-01	2.2098E-01	5.1450E-01
17	1.6317E-01	1.4238E+00	1.8044E-01	7.5176E-01	1.8799E-01	6.3109E-01	1.9857E-01	5.3541E-01
18	1.4779E-01	1.4790E+00	1.6294E-01	7.8054E-01	1.6970E-01	6.5522E-01	1.7921E-01	5.5587E-01
19	1.3444E-01	1.5327E+00	1.4775E-01	8.0861E-01	1.5382E-01	6.7875E-01	1.6240E-01	5.7582E-01
20	1.2280E-01	1.5849E+00	1.3451E-01	8.3592E-01	1.3999E-01	7.0165E-01	1.4775E-01	5.9523E-01
21	1.1260E-01	1.6356E+00	1.2292E-01	8.6242E-01	1.2787E-01	7.2388E-01	1.3493E-01	6.1408E-01
22	1.0361E-01	1.6847E+00	1.1272E-01	8.8810E-01	1.1722E-01	7.4541E-01	1.2366E-01	6.3234E-01
23	9.5662E-02	1.7322E+00	1.0373E-01	9.1294E-01	1.0782E-01	7.6625E-01	1.1371E-01	6.5000E-01
24	8.8597E-02	1.7781E+00	9.5753E-02	9.3695E-01	9.9495E-02	7.8638E-01	1.0490E-01	6.6707E-01
25	8.2290E-02	1.8225E+00	8.8657E-02	9.6012E-01	9.2088E-02	8.0581E-01	9.7067E-02	6.8355E-01
26	7.6640E-02	1.8653E+00	8.2320E-02	9.8249E-01	8.5476E-02	8.2457E-01	9.0075E-02	6.9945E-01
27	7.1557E-02	1.9067E+00	7.6641E-02	1.0041E+00	7.9552E-02	8.4267E-01	8.3812E-02	7.1479E-01
28	6.6968E-02	1.9467E+00	7.1532E-02	1.0249E+00	7.4225E-02	8.6013E-01	7.8184E-02	7.2959E-01
29	6.2812E-02	1.9854E+00	6.6921E-02	1.0450E+00	6.9420E-02	8.7698E-01	7.3108E-02	7.4387E-01
30	5.9036E-02	2.0228E+00	6.2747E-02	1.0644E+00	6.5072E-02	8.9324E-01	6.8515E-02	7.5766E-01
31	5.5594E-02	2.0590E+00	5.8956E-02	1.0832E+00	6.1125E-02	9.0896E-01	6.4348E-02	7.7097E-01
32	5.2449E-02	2.0940E+00	5.5504E-02	1.1013E+00	5.7532E-02	9.2415E-01	6.0554E-02	7.8384E-01
33	4.9567E-02	2.1280E+00	5.2350E-02	1.1188E+00	5.4251E-02	9.3884E-01	5.7092E-02	7.9629E-01
34	4.6920E-02	2.1610E+00	4.9463E-02	1.1358E+00	5.1247E-02	9.5307E-01	5.3924E-02	8.0834E-01
35	4.4482E-02	2.1930E+00	4.6811E-02	1.1523E+00	4.8491E-02	9.6686E-01	5.1016E-02	8.2002E-01
36	4.2232E-02	2.2241E+00	4.4371E-02	1.1683E+00	4.5954E-02	9.8023E-01	4.8342E-02	8.3134E-01
37	4.0151E-02	2.2543E+00	4.2120E-02	1.1838E+00	4.3616E-02	9.9322E-01	4.5876E-02	8.4234E-01
38	3.8223E-02	2.2838E+00	4.0039E-02	1.1989E+00	4.1454E-02	1.0058E+00	4.3598E-02	8.5302E-01
39	3.6433E-02	2.3125E+00	3.8111E-02	1.2136E+00	3.9452E-02	1.0181E+00	4.1488E-02	8.6341E-01
40	3.4768E-02	2.3405E+00	3.6322E-02	1.2278E+00	3.7595E-02	1.0301E+00	3.9530E-02	8.7353E-01
41	3.3217E-02	2.3678E+00	3.4657E-02	1.2418E+00	3.5867E-02	1.0417E+00	3.7710E-02	8.8338E-01
42	3.1769E-02	2.3944E+00	3.3107E-02	1.2553E+00	3.4258E-02	1.0531E+00	3.6015E-02	8.9299E-01
43	3.0415E-02	2.4205E+00	3.1659E-02	1.2686E+00	3.2756E-02	1.0641E+00	3.4434E-02	9.0237E-01
44	2.9148E-02	2.4459E+00	3.0306E-02	1.2816E+00	3.1353E-02	1.0750E+00	3.2956E-02	9.1152E-01
45	2.7960E-02	2.4709E+00	2.9040E-02	1.2942E+00	3.0039E-02	1.0855E+00	3.1572E-02	9.2048E-01
46	2.6844E-02	2.4953E+00	2.7852E-02	1.3066E+00	2.8807E-02	1.0959E+00	3.0275E-02	9.2924E-01
47	2.5795E-02	2.5192E+00	2.6736E-02	1.3187E+00	2.7650E-02	1.1060E+00	2.9057E-02	9.3781E-01
48	2.4808E-02	2.5426E+00	2.5687E-02	1.3306E+00	2.6562E-02	1.1160E+00	2.7912E-02	9.4621E-01
49	2.3878E-02	2.5656E+00	2.4699E-02	1.3423E+00	2.5538E-02	1.1257E+00	2.6834E-02	9.5444E-01
50	2.3000E-02	2.5882E+00	2.3767E-02	1.3537E+00	2.4573E-02	1.1352E+00	2.5818E-02	9.6251E-01
51	2.2170E-02	2.6104E+00	2.2888E-02	1.3649E+00	2.3662E-02	1.1446E+00	2.4859E-02	9.7043E-01
52	2.1385E-02	2.6322E+00	2.2057E-02	1.3759E+00	2.2801E-02	1.1538E+00	2.3953E-02	9.7821E-01
53	2.0643E-02	2.6536E+00	2.1271E-02	1.3867E+00	2.1986E-02	1.1628E+00	2.3096E-02	9.8584E-01
54	1.9939E-02	2.6746E+00	2.0527E-02	1.3973E+00	2.1215E-02	1.1717E+00	2.2285E-02	9.9334E-01
55	1.9271E-02	2.6954E+00	1.9821E-02	1.4078E+00	2.0484E-02	1.1804E+00	2.1515E-02	1.0007E+00
56	1.8636E-02	2.7157E+00	1.9151E-02	1.4181E+00	1.9790E-02	1.1890E+00	2.0785E-02	1.0080E+00
57	1.8033E-02	2.7358E+00	1.8515E-02	1.4282E+00	1.9131E-02	1.1974E+00	2.0092E-02	1.0151E+00
58	1.7460E-02	2.7556E+00	1.7910E-02	1.4381E+00	1.8504E-02	1.2057E+00	1.9433E-02	1.0221E+00
59	1.6914E-02	2.7750E+00	1.7334E-02	1.4479E+00	1.7908E-02	1.2139E+00	1.8806E-02	1.0290E+00
60	1.6394E-02	2.7943E+00	1.6786E-02	1.4575E+00	1.7340E-02	1.2220E+00	1.8208E-02	1.0359E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
S; Z = 16

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	5.0445E+00	1.9983E-01	5.5003E+00	1.1006E-01	5.7166E+00	9.2940E-02	6.0148E+00	7.9309E-02
1	4.5062E+00	2.1901E-01	4.9261E+00	1.2043E-01	5.1240E+00	1.0162E-01	5.4007E+00	8.6578E-02
2	3.3751E+00	2.7550E-01	3.7136E+00	1.5086E-01	3.8669E+00	1.2720E-01	4.0828E+00	1.0821E-01
3	2.3354E+00	3.6478E-01	2.5903E+00	1.9859E-01	2.6999E+00	1.6733E-01	2.8526E+00	1.4229E-01
4	1.6115E+00	4.7690E-01	1.7993E+00	2.5809E-01	1.8770E+00	2.1731E-01	1.9843E+00	1.8470E-01
5	1.1541E+00	5.9775E-01	1.2931E+00	3.2194E-01	1.3494E+00	2.7091E-01	1.4270E+00	2.3017E-01
6	8.6808E-01	7.1423E-01	9.7316E-01	3.8340E-01	1.0157E+00	3.2250E-01	1.0741E+00	2.7395E-01
7	6.8299E-01	8.1899E-01	7.6521E-01	4.3867E-01	7.9856E-01	3.6889E-01	8.4450E-01	3.1330E-01
8	5.5679E-01	9.1077E-01	6.2350E-01	4.8699E-01	6.5066E-01	4.0943E-01	6.8801E-01	3.4771E-01
9	4.6595E-01	9.9171E-01	5.2180E-01	5.2946E-01	5.4451E-01	4.4508E-01	5.7581E-01	3.7790E-01
10	3.9738E-01	1.0649E+00	4.4520E-01	5.6770E-01	4.6461E-01	4.7711E-01	4.9129E-01	4.0510E-01
11	3.4348E-01	1.1330E+00	3.8498E-01	6.0318E-01	4.0179E-01	5.0685E-01	4.2485E-01	4.3031E-01
12	3.0042E-01	1.1976E+00	3.3678E-01	6.3679E-01	3.5148E-01	5.3503E-01	3.7169E-01	4.5417E-01
13	2.6504E-01	1.2601E+00	2.9705E-01	6.6926E-01	3.1001E-01	5.6223E-01	3.2783E-01	4.7722E-01
14	2.3542E-01	1.3212E+00	2.6366E-01	7.0098E-01	2.7513E-01	5.8881E-01	2.9093E-01	4.9973E-01
15	2.1040E-01	1.3811E+00	2.3533E-01	7.3211E-01	2.4553E-01	6.1489E-01	2.5960E-01	5.2184E-01
16	1.8907E-01	1.4399E+00	2.1108E-01	7.6271E-01	2.2019E-01	6.4054E-01	2.3277E-01	5.4358E-01
17	1.7075E-01	1.4977E+00	1.9019E-01	7.9279E-01	1.9834E-01	6.6575E-01	2.0963E-01	5.6494E-01
18	1.5490E-01	1.5543E+00	1.7208E-01	8.2231E-01	1.7940E-01	6.9049E-01	1.8958E-01	5.8591E-01
19	1.4113E-01	1.6097E+00	1.5631E-01	8.5122E-01	1.6290E-01	7.1473E-01	1.7210E-01	6.0646E-01
20	1.2909E-01	1.6638E+00	1.4252E-01	8.7947E-01	1.4847E-01	7.3842E-01	1.5682E-01	6.2654E-01
21	1.1851E-01	1.7165E+00	1.3040E-01	9.0702E-01	1.3579E-01	7.6152E-01	1.4339E-01	6.4613E-01
22	1.0918E-01	1.7678E+00	1.1971E-01	9.3384E-01	1.2461E-01	7.8401E-01	1.3154E-01	6.6520E-01
23	1.0090E-01	1.8176E+00	1.1025E-01	9.5990E-01	1.1472E-01	8.0587E-01	1.2106E-01	6.8373E-01
24	9.3536E-02	1.8660E+00	1.0185E-01	9.8519E-01	1.0593E-01	8.2708E-01	1.1176E-01	7.0171E-01
25	8.6951E-02	1.9128E+00	9.4349E-02	1.0097E+00	9.8093E-02	8.4763E-01	1.0346E-01	7.1915E-01
26	8.1041E-02	1.9582E+00	8.7643E-02	1.0334E+00	9.1084E-02	8.6754E-01	9.6043E-02	7.3603E-01
27	7.5719E-02	2.0022E+00	8.1623E-02	1.0564E+00	8.4795E-02	8.8681E-01	8.9388E-02	7.5237E-01
28	7.0908E-02	2.0448E+00	7.6200E-02	1.0786E+00	7.9133E-02	9.0546E-01	8.3398E-02	7.6817E-01
29	6.6546E-02	2.0861E+00	7.1301E-02	1.1001E+00	7.4019E-02	9.2349E-01	7.7990E-02	7.8346E-01
30	6.2579E-02	2.1261E+00	6.6862E-02	1.1210E+00	6.9388E-02	9.4093E-01	7.3093E-02	7.9825E-01
31	5.8960E-02	2.1648E+00	6.2827E-02	1.1411E+00	6.5180E-02	9.5782E-01	6.8646E-02	8.1256E-01
32	5.5649E-02	2.2024E+00	5.9150E-02	1.1606E+00	6.1347E-02	9.7415E-01	6.4596E-02	8.2640E-01
33	5.2613E-02	2.2389E+00	5.5790E-02	1.1795E+00	5.7846E-02	9.8998E-01	6.0898E-02	8.3981E-01
34	4.9821E-02	2.2743E+00	5.2712E-02	1.1978E+00	5.4640E-02	1.0053E+00	5.7513E-02	8.5280E-01
35	4.7249E-02	2.3087E+00	4.9885E-02	1.2155E+00	5.1697E-02	1.0202E+00	5.4406E-02	8.6539E-01
36	4.4873E-02	2.3422E+00	4.7282E-02	1.2328E+00	4.8989E-02	1.0346E+00	5.1548E-02	8.7761E-01
37	4.2675E-02	2.3747E+00	4.4882E-02	1.2495E+00	4.6492E-02	1.0486E+00	4.8913E-02	8.8946E-01
38	4.0636E-02	2.4064E+00	4.2662E-02	1.2657E+00	4.4184E-02	1.0622E+00	4.6478E-02	9.0098E-01
39	3.8743E-02	2.4372E+00	4.0605E-02	1.2816E+00	4.2046E-02	1.0754E+00	4.4224E-02	9.1219E-01
40	3.6980E-02	2.4673E+00	3.8696E-02	1.2969E+00	4.0062E-02	1.0883E+00	4.2133E-02	9.2308E-01
41	3.5337E-02	2.4967E+00	3.6921E-02	1.3119E+00	3.8218E-02	1.1008E+00	4.0188E-02	9.3370E-01
42	3.3803E-02	2.5253E+00	3.5267E-02	1.3266E+00	3.6500E-02	1.1131E+00	3.8378E-02	9.4404E-01
43	3.2368E-02	2.5533E+00	3.3724E-02	1.3408E+00	3.4898E-02	1.1250E+00	3.6689E-02	9.5414E-01
44	3.1025E-02	2.5807E+00	3.2281E-02	1.3547E+00	3.3400E-02	1.1366E+00	3.5111E-02	9.6398E-01
45	2.9765E-02	2.6075E+00	3.0930E-02	1.3683E+00	3.1999E-02	1.1480E+00	3.3634E-02	9.7361E-01
46	2.8581E-02	2.6337E+00	2.9664E-02	1.3816E+00	3.0684E-02	1.1591E+00	3.2250E-02	9.8301E-01
47	2.7468E-02	2.6594E+00	2.8475E-02	1.3946E+00	2.9451E-02	1.1700E+00	3.0951E-02	9.9221E-01
48	2.6421E-02	2.6845E+00	2.7357E-02	1.4074E+00	2.8291E-02	1.1806E+00	2.9730E-02	1.0012E+00
49	2.5433E-02	2.7092E+00	2.6304E-02	1.4199E+00	2.7199E-02	1.1911E+00	2.8580E-02	1.0100E+00
50	2.4501E-02	2.7334E+00	2.5312E-02	1.4321E+00	2.6171E-02	1.2013E+00	2.7497E-02	1.0187E+00
51	2.3620E-02	2.7571E+00	2.4375E-02	1.4441E+00	2.5200E-02	1.2113E+00	2.6475E-02	1.0272E+00
52	2.2787E-02	2.7805E+00	2.3491E-02	1.4559E+00	2.4282E-02	1.2211E+00	2.5510E-02	1.0355E+00
53	2.1998E-02	2.8034E+00	2.2653E-02	1.4674E+00	2.3415E-02	1.2308E+00	2.4597E-02	1.0436E+00
54	2.1250E-02	2.8259E+00	2.1861E-02	1.4788E+00	2.2593E-02	1.2403E+00	2.3732E-02	1.0516E+00
55	2.0541E-02	2.8481E+00	2.1109E-02	1.4899E+00	2.1815E-02	1.2496E+00	2.2912E-02	1.0595E+00
56	1.9867E-02	2.8698E+00	2.0396E-02	1.5009E+00	2.1076E-02	1.2587E+00	2.2135E-02	1.0673E+00
57	1.9227E-02	2.8913E+00	1.9719E-02	1.5117E+00	2.0374E-02	1.2678E+00	2.1397E-02	1.0749E+00
58	1.8617E-02	2.9124E+00	1.9076E-02	1.5223E+00	1.9707E-02	1.2766E+00	2.0695E-02	1.0824E+00
59	1.8038E-02	2.9332E+00	1.8463E-02	1.5328E+00	1.9073E-02	1.2853E+00	2.0028E-02	1.0898E+00
60	1.7485E-02	2.9537E+00	1.7880E-02	1.5430E+00	1.8469E-02	1.2939E+00	1.9393E-02	1.0970E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Cl; Z = 17

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	4.7069E+00	2.2194E-01	5.1598E+00	1.2301E-01	5.3666E+00	1.0397E-01	5.6495E+00	8.8780E-02
1	4.2877E+00	2.3926E-01	4.7120E+00	1.3241E-01	4.9046E+00	1.1184E-01	5.1712E+00	9.5354E-02
2	3.3531E+00	2.9056E-01	3.7081E+00	1.6015E-01	3.8640E+00	1.3516E-01	4.0819E+00	1.1505E-01
3	2.4173E+00	3.7298E-01	2.6954E+00	2.0440E-01	2.8115E+00	1.7238E-01	2.9718E+00	1.4669E-01
4	1.7110E+00	4.7986E-01	1.9222E+00	2.6133E-01	2.0068E+00	2.2022E-01	2.1230E+00	1.8727E-01
5	1.2362E+00	6.0057E-01	1.3953E+00	3.2524E-01	1.4575E+00	2.7389E-01	1.5423E+00	2.3284E-01
6	9.2764E-01	7.2310E-01	1.0483E+00	3.9001E-01	1.0952E+00	3.2826E-01	1.1591E+00	2.7895E-01
7	7.2468E-01	8.3821E-01	8.1807E-01	4.5087E-01	8.5463E-01	3.7935E-01	9.0437E-01	3.2233E-01
8	5.8626E-01	9.4156E-01	6.6076E-01	5.0550E-01	6.9014E-01	4.2523E-01	7.3026E-01	3.6123E-01
9	4.8753E-01	1.0330E+00	5.4885E-01	5.5374E-01	5.7320E-01	4.6570E-01	6.0644E-01	3.9558E-01
10	4.1394E-01	1.1146E+00	4.6582E-01	5.9658E-01	4.8643E-01	5.0167E-01	5.1462E-01	4.2608E-01
11	3.5679E-01	1.1890E+00	4.0153E-01	6.3545E-01	4.1929E-01	5.3427E-01	4.4359E-01	4.5371E-01
12	3.1166E-01	1.2581E+00	3.5082E-01	6.7145E-01	3.6636E-01	5.6442E-01	3.8759E-01	4.7927E-01
13	2.7490E-01	1.3237E+00	3.0947E-01	7.0556E-01	3.2318E-01	5.9299E-01	3.4191E-01	5.0349E-01
14	2.4430E-01	1.3870E+00	2.7494E-01	7.3840E-01	2.8711E-01	6.2051E-01	3.0374E-01	5.2680E-01
15	2.1853E-01	1.4486E+00	2.4576E-01	7.7036E-01	2.5661E-01	6.4729E-01	2.7146E-01	5.4949E-01
16	1.9661E-01	1.5088E+00	2.2082E-01	8.0164E-01	2.3054E-01	6.7350E-01	2.4385E-01	5.7170E-01
17	1.7779E-01	1.5679E+00	1.9933E-01	8.3235E-01	2.0806E-01	6.9923E-01	2.2004E-01	5.9350E-01
18	1.6151E-01	1.6258E+00	1.8067E-01	8.6250E-01	1.8853E-01	7.2450E-01	1.9936E-01	6.1492E-01
19	1.4734E-01	1.6827E+00	1.6439E-01	8.9210E-01	1.7149E-01	7.4931E-01	1.8130E-01	6.3595E-01
20	1.3494E-01	1.7383E+00	1.5011E-01	9.2112E-01	1.5654E-01	7.7364E-01	1.6545E-01	6.5657E-01
21	1.2403E-01	1.7927E+00	1.3753E-01	9.4953E-01	1.4337E-01	7.9746E-01	1.5149E-01	6.7676E-01
22	1.1438E-01	1.8458E+00	1.2640E-01	9.7728E-01	1.3172E-01	8.2073E-01	1.3914E-01	6.9649E-01
23	1.0582E-01	1.8976E+00	1.1653E-01	1.0044E+00	1.2138E-01	8.4344E-01	1.2819E-01	7.1575E-01
24	9.8189E-02	1.9481E+00	1.0774E-01	1.0307E+00	1.1217E-01	8.6556E-01	1.1843E-01	7.3451E-01
25	9.1356E-02	1.9971E+00	9.9880E-02	1.0564E+00	1.0395E-01	8.8709E-01	1.0971E-01	7.5276E-01
26	8.5216E-02	2.0448E+00	9.2835E-02	1.0813E+00	9.6575E-02	9.0801E-01	1.0190E-01	7.7050E-01
27	7.9680E-02	2.0911E+00	8.6500E-02	1.1056E+00	8.9947E-02	9.2833E-01	9.4880E-02	7.8773E-01
28	7.4671E-02	2.1361E+00	8.0785E-02	1.1291E+00	8.3970E-02	9.4804E-01	8.8551E-02	8.0444E-01
29	7.0124E-02	2.1797E+00	7.5615E-02	1.1519E+00	7.8565E-02	9.6716E-01	8.2829E-02	8.2066E-01
30	6.5984E-02	2.2221E+00	7.0925E-02	1.1740E+00	7.3664E-02	9.8570E-01	7.7641E-02	8.3638E-01
31	6.2204E-02	2.2633E+00	6.6658E-02	1.1954E+00	6.9207E-02	1.0037E+00	7.2926E-02	8.5162E-01
32	5.8742E-02	2.3033E+00	6.2766E-02	1.2162E+00	6.5144E-02	1.0211E+00	6.8628E-02	8.6640E-01
33	5.5565E-02	2.3421E+00	5.9207E-02	1.2364E+00	6.1430E-02	1.0380E+00	6.4700E-02	8.8073E-01
34	5.2642E-02	2.3799E+00	5.5944E-02	1.2560E+00	5.8027E-02	1.0544E+00	6.1103E-02	8.9463E-01
35	4.9945E-02	2.4166E+00	5.2946E-02	1.2750E+00	5.4902E-02	1.0703E+00	5.7801E-02	9.0811E-01
36	4.7453E-02	2.4523E+00	5.0186E-02	1.2934E+00	5.2025E-02	1.0858E+00	5.4762E-02	9.2120E-01
37	4.5146E-02	2.4871E+00	4.7638E-02	1.3113E+00	4.9371E-02	1.1008E+00	5.1959E-02	9.3392E-01
38	4.3004E-02	2.5210E+00	4.5282E-02	1.3288E+00	4.6918E-02	1.1154E+00	4.9369E-02	9.4628E-01
39	4.1013E-02	2.5540E+00	4.3099E-02	1.3457E+00	4.4646E-02	1.1296E+00	4.6971E-02	9.5830E-01
40	3.9159E-02	2.5862E+00	4.1072E-02	1.3622E+00	4.2537E-02	1.1434E+00	4.4746E-02	9.6999E-01
41	3.7430E-02	2.6176E+00	3.9187E-02	1.3783E+00	4.0577E-02	1.1568E+00	4.2677E-02	9.8138E-01
42	3.5814E-02	2.6483E+00	3.7431E-02	1.3940E+00	3.8751E-02	1.1700E+00	4.0752E-02	9.9248E-01
43	3.4302E-02	2.6783E+00	3.5792E-02	1.4093E+00	3.7047E-02	1.1827E+00	3.8955E-02	1.0033E+00
44	3.2886E-02	2.7076E+00	3.4260E-02	1.4242E+00	3.5455E-02	1.1952E+00	3.7277E-02	1.0138E+00
45	3.1557E-02	2.7362E+00	3.2826E-02	1.4387E+00	3.3966E-02	1.2074E+00	3.5707E-02	1.0242E+00
46	3.0308E-02	2.7642E+00	3.1481E-02	1.4530E+00	3.2569E-02	1.2193E+00	3.4235E-02	1.0342E+00
47	2.9134E-02	2.7917E+00	3.0218E-02	1.4669E+00	3.1258E-02	1.2309E+00	3.2854E-02	1.0441E+00
48	2.8027E-02	2.8186E+00	2.9031E-02	1.4805E+00	3.0026E-02	1.2423E+00	3.1556E-02	1.0537E+00
49	2.6984E-02	2.8450E+00	2.7914E-02	1.4939E+00	2.8867E-02	1.2535E+00	3.0334E-02	1.0631E+00
50	2.5999E-02	2.8708E+00	2.6860E-02	1.5069E+00	2.7774E-02	1.2644E+00	2.9183E-02	1.0724E+00
51	2.5068E-02	2.8962E+00	2.5866E-02	1.5197E+00	2.6742E-02	1.2751E+00	2.8097E-02	1.0814E+00
52	2.4187E-02	2.9211E+00	2.4927E-02	1.5323E+00	2.5768E-02	1.2856E+00	2.7071E-02	1.0903E+00
53	2.3353E-02	2.9456E+00	2.4039E-02	1.5446E+00	2.4847E-02	1.2959E+00	2.6102E-02	1.0990E+00
54	2.2562E-02	2.9696E+00	2.3198E-02	1.5568E+00	2.3975E-02	1.3060E+00	2.5184E-02	1.1076E+00
55	2.1812E-02	2.9933E+00	2.2401E-02	1.5687E+00	2.3149E-02	1.3159E+00	2.4314E-02	1.1160E+00
56	2.1099E-02	3.0165E+00	2.1644E-02	1.5803E+00	2.2365E-02	1.3257E+00	2.3489E-02	1.1242E+00
57	2.0422E-02	3.0394E+00	2.0926E-02	1.5918E+00	2.1621E-02	1.3353E+00	2.2705E-02	1.1323E+00
58	1.9777E-02	3.0619E+00	2.0243E-02	1.6031E+00	2.0913E-02	1.3447E+00	2.1961E-02	1.1403E+00
59	1.9164E-02	3.0840E+00	1.9593E-02	1.6142E+00	2.0240E-02	1.3540E+00	2.1252E-02	1.1481E+00
60	1.8579E-02	3.1059E+00	1.8975E-02	1.6251E+00	1.9599E-02	1.3631E+00	2.0578E-02	1.1558E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Ar; $Z = 18$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	4.3973E+00	2.4333E-01	4.8477E+00	1.3577E-01	5.0459E+00	1.1486E-01	5.3150E+00	9.8141E-02
1	4.0647E+00	2.5913E-01	4.4918E+00	1.4437E-01	4.6788E+00	1.2206E-01	4.9352E+00	1.0416E-01
2	3.2894E+00	3.0611E-01	3.6573E+00	1.6988E-01	3.8140E+00	1.4350E-01	4.0312E+00	1.2223E-01
3	2.4585E+00	3.8233E-01	2.7563E+00	2.1099E-01	2.8772E+00	1.7811E-01	3.0431E+00	1.5165E-01
4	1.7868E+00	4.8330E-01	2.0198E+00	2.6497E-01	2.1106E+00	2.2348E-01	2.2340E+00	1.9017E-01
5	1.3088E+00	6.0117E-01	1.4882E+00	3.2755E-01	1.5561E+00	2.7606E-01	1.6479E+00	2.3480E-01
6	9.8520E-01	7.2591E-01	1.1228E+00	3.9359E-01	1.1744E+00	3.3150E-01	1.2438E+00	2.8188E-01
7	7.6737E-01	8.4801E-01	8.7381E-01	4.5824E-01	9.1391E-01	3.8581E-01	9.6800E-01	3.2791E-01
8	6.1755E-01	9.6119E-01	7.0153E-01	5.1825E-01	7.3356E-01	4.3619E-01	7.7672E-01	3.7073E-01
9	5.1086E-01	1.0631E+00	5.7893E-01	5.7223E-01	6.0516E-01	4.8154E-01	6.4071E-01	4.0917E-01
10	4.3187E-01	1.1540E+00	4.8858E-01	6.2030E-01	5.1062E-01	5.2188E-01	5.4053E-01	4.4341E-01
11	3.7106E-01	1.2361E+00	4.1940E-01	6.6343E-01	4.3828E-01	5.5806E-01	4.6390E-01	4.7411E-01
12	3.2346E-01	1.3112E+00	3.6552E-01	7.0271E-01	3.8196E-01	5.9101E-01	4.0427E-01	5.0203E-01
13	2.8499E-01	1.3813E+00	3.2206E-01	7.3920E-01	3.3653E-01	6.2160E-01	3.5619E-01	5.2796E-01
14	2.5315E-01	1.4478E+00	2.8607E-01	7.7376E-01	2.9892E-01	6.5055E-01	3.1638E-01	5.5248E-01
15	2.2648E-01	1.5118E+00	2.5584E-01	8.0694E-01	2.6733E-01	6.7834E-01	2.8294E-01	5.7604E-01
16	2.0386E-01	1.5739E+00	2.3012E-01	8.3913E-01	2.4043E-01	7.0531E-01	2.5445E-01	5.9889E-01
17	1.8448E-01	1.6345E+00	2.0799E-01	8.7058E-01	2.1727E-01	7.3165E-01	2.2992E-01	6.2120E-01
18	1.6773E-01	1.6939E+00	1.8879E-01	9.0139E-01	1.9718E-01	7.5747E-01	2.0862E-01	6.4308E-01
19	1.5317E-01	1.7521E+00	1.7202E-01	9.3163E-01	1.7962E-01	7.8281E-01	1.9001E-01	6.6455E-01
20	1.4042E-01	1.8091E+00	1.5729E-01	9.6132E-01	1.6419E-01	8.0769E-01	1.7366E-01	6.8564E-01
21	1.2919E-01	1.8650E+00	1.4430E-01	9.9044E-01	1.5058E-01	8.3210E-01	1.5922E-01	7.0633E-01
22	1.1926E-01	1.9197E+00	1.3279E-01	1.0190E+00	1.3851E-01	8.5603E-01	1.4642E-01	7.2661E-01
23	1.1044E-01	1.9732E+00	1.2254E-01	1.0469E+00	1.2778E-01	8.7945E-01	1.3504E-01	7.4647E-01
24	1.0256E-01	2.0254E+00	1.1341E-01	1.0742E+00	1.1820E-01	9.0234E-01	1.2488E-01	7.6588E-01
25	9.5506E-02	2.0764E+00	1.0522E-01	1.1008E+00	1.0962E-01	9.2469E-01	1.1578E-01	7.8483E-01
26	8.9160E-02	2.1260E+00	9.7868E-02	1.1268E+00	1.0192E-01	9.4649E-01	1.0761E-01	8.0331E-01
27	8.3432E-02	2.1744E+00	9.1245E-02	1.1522E+00	9.4977E-02	9.6772E-01	1.0026E-01	8.2132E-01
28	7.8244E-02	2.2215E+00	8.5260E-02	1.1768E+00	8.8709E-02	9.8839E-01	9.3612E-02	8.3885E-01
29	7.3530E-02	2.2674E+00	7.9839E-02	1.2007E+00	8.3033E-02	1.0085E+00	8.7596E-02	8.5589E-01
30	6.9235E-02	2.3120E+00	7.4913E-02	1.2241E+00	7.7878E-02	1.0280E+00	8.2134E-02	8.7246E-01
31	6.5309E-02	2.3554E+00	7.0428E-02	1.2467E+00	7.3185E-02	1.0470E+00	7.7164E-02	8.8856E-01
32	6.1712E-02	2.3976E+00	6.6332E-02	1.2687E+00	6.8903E-02	1.0655E+00	7.2629E-02	9.0421E-01
33	5.8407E-02	2.4387E+00	6.2583E-02	1.2901E+00	6.4985E-02	1.0834E+00	6.8481E-02	9.1941E-01
34	5.5364E-02	2.4787E+00	5.9145E-02	1.3109E+00	6.1392E-02	1.1008E+00	6.4679E-02	9.3417E-01
35	5.2555E-02	2.5176E+00	5.5983E-02	1.3311E+00	5.8090E-02	1.1178E+00	6.1186E-02	9.4852E-01
36	4.9956E-02	2.5555E+00	5.3070E-02	1.3507E+00	5.5050E-02	1.1342E+00	5.7971E-02	9.6246E-01
37	4.7548E-02	2.5925E+00	5.0380E-02	1.3698E+00	5.2244E-02	1.1502E+00	5.5004E-02	9.7602E-01
38	4.5312E-02	2.6285E+00	4.7891E-02	1.3884E+00	4.9649E-02	1.1658E+00	5.2262E-02	9.8920E-01
39	4.3231E-02	2.6636E+00	4.5585E-02	1.4064E+00	4.7244E-02	1.1809E+00	4.9721E-02	1.0020E+00
40	4.1293E-02	2.6979E+00	4.3442E-02	1.4240E+00	4.5013E-02	1.1956E+00	4.7364E-02	1.0145E+00
41	3.9483E-02	2.7313E+00	4.1450E-02	1.4412E+00	4.2937E-02	1.2100E+00	4.5173E-02	1.0267E+00
42	3.7791E-02	2.7640E+00	3.9593E-02	1.4579E+00	4.1004E-02	1.2240E+00	4.3132E-02	1.0385E+00
43	3.6207E-02	2.7959E+00	3.7859E-02	1.4742E+00	3.9200E-02	1.2377E+00	4.1229E-02	1.0501E+00
44	3.4722E-02	2.8272E+00	3.6239E-02	1.4902E+00	3.7515E-02	1.2510E+00	3.9450E-02	1.0614E+00
45	3.3328E-02	2.8577E+00	3.4722E-02	1.5057E+00	3.5937E-02	1.2640E+00	3.7786E-02	1.0724E+00
46	3.2017E-02	2.8876E+00	3.3299E-02	1.5209E+00	3.4459E-02	1.2767E+00	3.6227E-02	1.0831E+00
47	3.0784E-02	2.9169E+00	3.1964E-02	1.5358E+00	3.3071E-02	1.2891E+00	3.4763E-02	1.0936E+00
48	2.9621E-02	2.9455E+00	3.0708E-02	1.5503E+00	3.1766E-02	1.3012E+00	3.3388E-02	1.1039E+00
49	2.8524E-02	2.9736E+00	2.9526E-02	1.5645E+00	3.0538E-02	1.3131E+00	3.2094E-02	1.1140E+00
50	2.7489E-02	3.0012E+00	2.8411E-02	1.5785E+00	2.9382E-02	1.3248E+00	3.0875E-02	1.1238E+00
51	2.6510E-02	3.0282E+00	2.7360E-02	1.5921E+00	2.8290E-02	1.3362E+00	2.9725E-02	1.1335E+00
52	2.5583E-02	3.0547E+00	2.6367E-02	1.6055E+00	2.7259E-02	1.3474E+00	2.8639E-02	1.1429E+00
53	2.4705E-02	3.0808E+00	2.5427E-02	1.6186E+00	2.6284E-02	1.3583E+00	2.7612E-02	1.1522E+00
54	2.3872E-02	3.1064E+00	2.4537E-02	1.6315E+00	2.5361E-02	1.3691E+00	2.6640E-02	1.1613E+00
55	2.3082E-02	3.1316E+00	2.3694E-02	1.6442E+00	2.4487E-02	1.3796E+00	2.5720E-02	1.1702E+00
56	2.2331E-02	3.1563E+00	2.2894E-02	1.6566E+00	2.3657E-02	1.3900E+00	2.4846E-02	1.1790E+00
57	2.1618E-02	3.1806E+00	2.2135E-02	1.6688E+00	2.2870E-02	1.4002E+00	2.4017E-02	1.1876E+00
58	2.0939E-02	3.2046E+00	2.1413E-02	1.6808E+00	2.2121E-02	1.4102E+00	2.3229E-02	1.1960E+00
59	2.0292E-02	3.2281E+00	2.0726E-02	1.6926E+00	2.1409E-02	1.4201E+00	2.2480E-02	1.2044E+00
60	1.9675E-02	3.2513E+00	2.0072E-02	1.7042E+00	2.0731E-02	1.4297E+00	2.1767E-02	1.2125E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

K; Z = 19

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	8.7237E+00	1.6059E-01	9.5161E+00	9.0866E-02	9.8965E+00	7.6992E-02	1.0427E+01	6.5797E-02
1	6.0203E+00	2.2522E-01	6.6280E+00	1.2640E-01	6.9024E+00	1.0697E-01	7.2836E+00	9.1288E-02
2	3.5970E+00	3.4923E-01	4.0137E+00	1.9370E-01	4.1878E+00	1.6365E-01	4.4276E+00	1.3942E-01
3	2.5066E+00	4.5491E-01	2.8249E+00	2.5068E-01	2.9511E+00	2.1160E-01	3.1230E+00	1.8017E-01
4	1.8328E+00	5.5955E-01	2.0834E+00	3.0678E-01	2.1789E+00	2.5879E-01	2.3076E+00	2.2025E-01
5	1.3635E+00	6.7457E-01	1.5603E+00	3.6805E-01	1.6331E+00	3.1028E-01	1.7305E+00	2.6397E-01
6	1.0361E+00	7.9761E-01	1.1898E+00	4.3333E-01	1.2458E+00	3.6511E-01	1.3205E+00	3.1051E-01
7	8.0891E-01	9.2197E-01	9.2903E-01	4.9927E-01	9.7286E-01	4.2049E-01	1.0312E+00	3.5752E-01
8	6.4976E-01	1.0412E+00	7.4457E-01	5.6262E-01	7.7950E-01	4.7371E-01	8.2613E-01	4.0268E-01
9	5.3560E-01	1.1516E+00	6.1180E-01	6.2129E-01	6.4027E-01	5.2299E-01	6.7839E-01	4.4452E-01
10	4.5112E-01	1.2518E+00	5.1374E-01	6.7455E-01	5.3745E-01	5.6774E-01	5.6931E-01	4.8250E-01
11	3.8644E-01	1.3421E+00	4.3916E-01	7.2231E-01	4.5931E-01	6.0784E-01	4.8644E-01	5.1654E-01
12	3.3605E-01	1.4245E+00	3.8140E-01	7.6572E-01	3.9883E-01	6.4427E-01	4.2234E-01	5.4744E-01
13	2.9559E-01	1.5004E+00	3.3528E-01	8.0543E-01	3.5057E-01	6.7758E-01	3.7122E-01	5.7568E-01
14	2.6230E-01	1.5713E+00	2.9746E-01	8.4239E-01	3.1102E-01	7.0855E-01	3.2933E-01	6.0192E-01
15	2.3454E-01	1.6387E+00	2.6593E-01	8.7735E-01	2.7805E-01	7.3784E-01	2.9441E-01	6.2674E-01
16	2.1108E-01	1.7034E+00	2.3924E-01	9.1087E-01	2.5013E-01	7.6592E-01	2.6484E-01	6.5053E-01
17	1.9104E-01	1.7660E+00	2.1637E-01	9.4332E-01	2.2620E-01	7.9309E-01	2.3949E-01	6.7355E-01
18	1.7377E-01	1.8271E+00	1.9658E-01	9.7493E-01	2.0548E-01	8.1958E-01	2.1753E-01	6.9599E-01
19	1.5876E-01	1.8868E+00	1.7931E-01	1.0059E+00	1.8739E-01	8.4549E-01	1.9835E-01	7.1794E-01
20	1.4563E-01	1.9452E+00	1.6415E-01	1.0362E+00	1.7150E-01	8.7090E-01	1.8150E-01	7.3947E-01
21	1.3408E-01	2.0025E+00	1.5076E-01	1.0660E+00	1.5747E-01	8.9585E-01	1.6662E-01	7.6062E-01
22	1.2387E-01	2.0586E+00	1.3888E-01	1.0952E+00	1.4501E-01	9.2034E-01	1.5340E-01	7.8137E-01
23	1.1479E-01	2.1136E+00	1.2830E-01	1.1238E+00	1.3392E-01	9.4437E-01	1.4163E-01	8.0174E-01
24	1.0668E-01	2.1674E+00	1.1884E-01	1.1519E+00	1.2400E-01	9.6791E-01	1.3110E-01	8.2170E-01
25	9.9416E-02	2.2200E+00	1.1036E-01	1.1794E+00	1.1510E-01	9.9096E-01	1.2166E-01	8.4125E-01
26	9.2877E-02	2.2714E+00	1.0273E-01	1.2063E+00	1.0709E-01	1.0135E+00	1.1316E-01	8.6036E-01
27	8.6971E-02	2.3216E+00	9.5839E-02	1.2326E+00	9.9866E-02	1.0355E+00	1.0549E-01	8.7904E-01
28	8.1619E-02	2.3706E+00	8.9606E-02	1.2582E+00	9.3329E-02	1.0570E+00	9.8559E-02	8.9727E-01
29	7.6754E-02	2.4184E+00	8.3951E-02	1.2832E+00	8.7400E-02	1.0780E+00	9.2270E-02	9.1506E-01
30	7.2317E-02	2.4650E+00	7.8807E-02	1.3076E+00	8.2009E-02	1.0984E+00	8.6551E-02	9.3239E-01
31	6.8259E-02	2.5104E+00	7.4117E-02	1.3313E+00	7.7094E-02	1.1184E+00	8.1340E-02	9.4928E-01
32	6.4538E-02	2.5547E+00	6.9830E-02	1.3544E+00	7.2604E-02	1.1377E+00	7.6580E-02	9.6572E-01
33	6.1117E-02	2.5979E+00	6.5902E-02	1.3769E+00	6.8492E-02	1.1566E+00	7.2223E-02	9.8172E-01
34	5.7965E-02	2.6399E+00	6.2296E-02	1.3988E+00	6.4719E-02	1.1750E+00	6.8225E-02	9.9730E-01
35	5.5053E-02	2.6810E+00	5.8978E-02	1.4202E+00	6.1248E-02	1.1929E+00	6.4549E-02	1.0125E+00
36	5.2359E-02	2.7210E+00	5.5918E-02	1.4409E+00	5.8049E-02	1.2103E+00	6.1162E-02	1.0272E+00
37	4.9859E-02	2.7600E+00	5.3092E-02	1.4611E+00	5.5096E-02	1.2272E+00	5.8036E-02	1.0416E+00
38	4.7536E-02	2.7980E+00	5.0475E-02	1.4808E+00	5.2363E-02	1.2437E+00	5.5145E-02	1.0556E+00
39	4.5374E-02	2.8352E+00	4.8049E-02	1.5000E+00	4.9830E-02	1.2598E+00	5.2466E-02	1.0692E+00
40	4.3357E-02	2.8714E+00	4.5795E-02	1.5187E+00	4.7478E-02	1.2754E+00	4.9979E-02	1.0824E+00
41	4.1474E-02	2.9069E+00	4.3697E-02	1.5369E+00	4.5290E-02	1.2907E+00	4.7666E-02	1.0954E+00
42	3.9712E-02	2.9415E+00	4.1742E-02	1.5547E+00	4.3252E-02	1.3056E+00	4.5512E-02	1.1080E+00
43	3.8061E-02	2.9753E+00	3.9916E-02	1.5720E+00	4.1350E-02	1.3201E+00	4.3503E-02	1.1202E+00
44	3.6513E-02	3.0085E+00	3.8209E-02	1.5889E+00	3.9572E-02	1.3343E+00	4.1625E-02	1.1322E+00
45	3.5058E-02	3.0408E+00	3.6611E-02	1.6055E+00	3.7907E-02	1.3481E+00	3.9868E-02	1.1439E+00
46	3.3689E-02	3.0726E+00	3.5112E-02	1.6216E+00	3.6347E-02	1.3616E+00	3.8222E-02	1.1554E+00
47	3.2401E-02	3.1036E+00	3.3704E-02	1.6374E+00	3.4883E-02	1.3748E+00	3.6676E-02	1.1666E+00
48	3.1186E-02	3.1340E+00	3.2380E-02	1.6529E+00	3.3506E-02	1.3877E+00	3.5224E-02	1.1775E+00
49	3.0039E-02	3.1639E+00	3.1134E-02	1.6680E+00	3.2211E-02	1.4003E+00	3.3858E-02	1.1882E+00
50	2.8955E-02	3.1931E+00	2.9960E-02	1.6828E+00	3.0990E-02	1.4127E+00	3.2571E-02	1.1987E+00
51	2.7930E-02	3.2218E+00	2.8851E-02	1.6973E+00	2.9838E-02	1.4248E+00	3.1356E-02	1.2089E+00
52	2.6959E-02	3.2500E+00	2.7804E-02	1.7115E+00	2.8751E-02	1.4367E+00	3.0210E-02	1.2189E+00
53	2.6040E-02	3.2776E+00	2.6813E-02	1.7254E+00	2.7722E-02	1.4483E+00	2.9126E-02	1.2288E+00
54	2.5167E-02	3.3048E+00	2.5876E-02	1.7391E+00	2.6748E-02	1.4598E+00	2.8100E-02	1.2384E+00
55	2.4339E-02	3.3315E+00	2.4987E-02	1.7525E+00	2.5826E-02	1.4710E+00	2.7128E-02	1.2479E+00
56	2.3551E-02	3.3577E+00	2.4144E-02	1.7657E+00	2.4951E-02	1.4820E+00	2.6206E-02	1.2572E+00
57	2.2803E-02	3.3835E+00	2.3343E-02	1.7786E+00	2.4120E-02	1.4928E+00	2.5332E-02	1.2663E+00
58	2.2090E-02	3.4089E+00	2.2582E-02	1.7914E+00	2.3330E-02	1.5034E+00	2.4500E-02	1.2753E+00
59	2.1411E-02	3.4339E+00	2.1858E-02	1.8039E+00	2.2580E-02	1.5138E+00	2.3709E-02	1.2841E+00
60	2.0763E-02	3.4585E+00	2.1168E-02	1.8161E+00	2.1865E-02	1.5240E+00	2.2957E-02	1.2928E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Ca; $Z = 20$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	9.6204E+00	1.7308E-01	1.0517E+01	9.8165E-02	1.0941E+01	8.3216E-02	1.1532E+01	7.1133E-02
1	7.0378E+00	2.2767E-01	7.7570E+00	1.2836E-01	8.0803E+00	1.0870E-01	8.5292E+00	9.2808E-02
2	4.0325E+00	3.6260E-01	4.5139E+00	2.0193E-01	4.7122E+00	1.7071E-01	4.9839E+00	1.4551E-01
3	2.6145E+00	5.0011E-01	2.9605E+00	2.7615E-01	3.0951E+00	2.3319E-01	3.2771E+00	1.9861E-01
4	1.8783E+00	6.1900E-01	2.1461E+00	3.4001E-01	2.2462E+00	2.8692E-01	2.3802E+00	2.4426E-01
5	1.4068E+00	7.3535E-01	1.6192E+00	4.0218E-01	1.6963E+00	3.3919E-01	1.7987E+00	2.8865E-01
6	1.0791E+00	8.5643E-01	1.2478E+00	4.6659E-01	1.3080E+00	3.9331E-01	1.3874E+00	3.3460E-01
7	8.4690E-01	9.8059E-01	9.8064E-01	5.3253E-01	1.0281E+00	4.4871E-01	1.0907E+00	3.8162E-01
8	6.8091E-01	1.1031E+00	7.8721E-01	5.9768E-01	8.2520E-01	5.0344E-01	8.7535E-01	4.2808E-01
9	5.6044E-01	1.2196E+00	6.4574E-01	6.5975E-01	6.7664E-01	5.5560E-01	7.1756E-01	4.7238E-01
10	4.7093E-01	1.3274E+00	5.4049E-01	7.1731E-01	5.6609E-01	6.0398E-01	6.0013E-01	5.1345E-01
11	4.0241E-01	1.4258E+00	4.6030E-01	7.6970E-01	4.8189E-01	6.4800E-01	5.1073E-01	5.5083E-01
12	3.4924E-01	1.5157E+00	3.9845E-01	8.1739E-01	4.1701E-01	6.8805E-01	4.4186E-01	5.8483E-01
13	3.0669E-01	1.5982E+00	3.4934E-01	8.6084E-01	3.6554E-01	7.2453E-01	3.8727E-01	6.1577E-01
14	2.7182E-01	1.6745E+00	3.0936E-01	9.0086E-01	3.2367E-01	7.5809E-01	3.4288E-01	6.4423E-01
15	2.4285E-01	1.7462E+00	2.7626E-01	9.3822E-01	2.8902E-01	7.8940E-01	3.0616E-01	6.7076E-01
16	2.1844E-01	1.8144E+00	2.4842E-01	9.7357E-01	2.5988E-01	8.1902E-01	2.7528E-01	6.9586E-01
17	1.9765E-01	1.8798E+00	2.2467E-01	1.0074E+00	2.3503E-01	8.4736E-01	2.4894E-01	7.1987E-01
18	1.7977E-01	1.9430E+00	2.0419E-01	1.0401E+00	2.1359E-01	8.7475E-01	2.2622E-01	7.4306E-01
19	1.6426E-01	2.0045E+00	1.8638E-01	1.0719E+00	1.9492E-01	9.0139E-01	2.0643E-01	7.6563E-01
20	1.5072E-01	2.0645E+00	1.7075E-01	1.1030E+00	1.7855E-01	9.2742E-01	1.8907E-01	7.8768E-01
21	1.3881E-01	2.1233E+00	1.5696E-01	1.1335E+00	1.6409E-01	9.5292E-01	1.7373E-01	8.0929E-01
22	1.2830E-01	2.1808E+00	1.4472E-01	1.1633E+00	1.5126E-01	9.7795E-01	1.6011E-01	8.3050E-01
23	1.1895E-01	2.2372E+00	1.3382E-01	1.1926E+00	1.3982E-01	1.0025E+00	1.4797E-01	8.5132E-01
24	1.1061E-01	2.2925E+00	1.2406E-01	1.2214E+00	1.2958E-01	1.0266E+00	1.3710E-01	8.7176E-01
25	1.0314E-01	2.3466E+00	1.1530E-01	1.2496E+00	1.2038E-01	1.0503E+00	1.2733E-01	8.9182E-01
26	9.6410E-02	2.3996E+00	1.0741E-01	1.2773E+00	1.1209E-01	1.0735E+00	1.1853E-01	9.1148E-01
27	9.0334E-02	2.4514E+00	1.0028E-01	1.3044E+00	1.0460E-01	1.0962E+00	1.1058E-01	9.3074E-01
28	8.4827E-02	2.5021E+00	9.3815E-02	1.3309E+00	9.7819E-02	1.1184E+00	1.0338E-01	9.4959E-01
29	7.9818E-02	2.5517E+00	8.7945E-02	1.3568E+00	9.1656E-02	1.1402E+00	9.6834E-02	9.6802E-01
30	7.5249E-02	2.6001E+00	8.2598E-02	1.3821E+00	8.6045E-02	1.1614E+00	9.0877E-02	9.8603E-01
31	7.1069E-02	2.6474E+00	7.7717E-02	1.4068E+00	8.0923E-02	1.1821E+00	8.5441E-02	1.0036E+00
32	6.7234E-02	2.6936E+00	7.3250E-02	1.4309E+00	7.6238E-02	1.2024E+00	8.0469E-02	1.0208E+00
33	6.3707E-02	2.7386E+00	6.9154E-02	1.4545E+00	7.1943E-02	1.2221E+00	7.5912E-02	1.0375E+00
34	6.0455E-02	2.7826E+00	6.5390E-02	1.4774E+00	6.7997E-02	1.2414E+00	7.1728E-02	1.0539E+00
35	5.7460E-02	2.8256E+00	6.1923E-02	1.4998E+00	6.4366E-02	1.2601E+00	6.7877E-02	1.0698E+00
36	5.4666E-02	2.8676E+00	5.8725E-02	1.5216E+00	6.1016E-02	1.2785E+00	6.4327E-02	1.0853E+00
37	5.2083E-02	2.9085E+00	5.5768E-02	1.5429E+00	5.7921E-02	1.2963E+00	6.1047E-02	1.1004E+00
38	4.9682E-02	2.9485E+00	5.3029E-02	1.5637E+00	5.5055E-02	1.3137E+00	5.8011E-02	1.1152E+00
39	4.7444E-02	2.9876E+00	5.0487E-02	1.5839E+00	5.2398E-02	1.3306E+00	5.5198E-02	1.1295E+00
40	4.5357E-02	3.0258E+00	4.8125E-02	1.6036E+00	4.9929E-02	1.3472E+00	5.2584E-02	1.1435E+00
41	4.3405E-02	3.0632E+00	4.5926E-02	1.6229E+00	4.7632E-02	1.3633E+00	5.0153E-02	1.1572E+00
42	4.1579E-02	3.0997E+00	4.3875E-02	1.6417E+00	4.5491E-02	1.3791E+00	4.7888E-02	1.1705E+00
43	3.9867E-02	3.1354E+00	4.1960E-02	1.6600E+00	4.3492E-02	1.3944E+00	4.5775E-02	1.1836E+00
44	3.8260E-02	3.1703E+00	4.0169E-02	1.6779E+00	4.1623E-02	1.4094E+00	4.3799E-02	1.1963E+00
45	3.6749E-02	3.2046E+00	3.8491E-02	1.6954E+00	3.9874E-02	1.4241E+00	4.1950E-02	1.2087E+00
46	3.5327E-02	3.2381E+00	3.6917E-02	1.7125E+00	3.8233E-02	1.4384E+00	4.0217E-02	1.2208E+00
47	3.3987E-02	3.2709E+00	3.5439E-02	1.7293E+00	3.6693E-02	1.4524E+00	3.8591E-02	1.2326E+00
48	3.2723E-02	3.3031E+00	3.4048E-02	1.7456E+00	3.5246E-02	1.4661E+00	3.7062E-02	1.2442E+00
49	3.1529E-02	3.3346E+00	3.2739E-02	1.7616E+00	3.3883E-02	1.4794E+00	3.5624E-02	1.2556E+00
50	3.0400E-02	3.3656E+00	3.1505E-02	1.7773E+00	3.2599E-02	1.4926E+00	3.4269E-02	1.2666E+00
51	2.9332E-02	3.3959E+00	3.0341E-02	1.7927E+00	3.1388E-02	1.5054E+00	3.2991E-02	1.2775E+00
52	2.8320E-02	3.4257E+00	2.9240E-02	1.8077E+00	3.0243E-02	1.5180E+00	3.1784E-02	1.2881E+00
53	2.7361E-02	3.4550E+00	2.8199E-02	1.8225E+00	2.9161E-02	1.5303E+00	3.0643E-02	1.2986E+00
54	2.6451E-02	3.4837E+00	2.7213E-02	1.8370E+00	2.8137E-02	1.5424E+00	2.9563E-02	1.3088E+00
55	2.5586E-02	3.5120E+00	2.6279E-02	1.8512E+00	2.7166E-02	1.5542E+00	2.8540E-02	1.3188E+00
56	2.4763E-02	3.5397E+00	2.5393E-02	1.8651E+00	2.6246E-02	1.5659E+00	2.7570E-02	1.3287E+00
57	2.3981E-02	3.5670E+00	2.4551E-02	1.8788E+00	2.5372E-02	1.5773E+00	2.6649E-02	1.3383E+00
58	2.3236E-02	3.5938E+00	2.3751E-02	1.8922E+00	2.4541E-02	1.5885E+00	2.5774E-02	1.3478E+00
59	2.2526E-02	3.6203E+00	2.2990E-02	1.9055E+00	2.3752E-02	1.5996E+00	2.4942E-02	1.3572E+00
60	2.1849E-02	3.6463E+00	2.2265E-02	1.9185E+00	2.3000E-02	1.6104E+00	2.4150E-02	1.3663E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Sc; $Z = 21$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	8.9757E+00	1.8778E-01	9.8570E+00	1.0735E-01	1.0261E+01	9.1119E-02	1.0820E+01	7.7965E-02
1	6.8266E+00	2.3883E-01	7.5574E+00	1.3573E-01	7.8775E+00	1.1508E-01	8.3189E+00	9.8340E-02
2	4.0920E+00	3.6725E-01	4.6023E+00	2.0609E-01	4.8079E+00	1.7442E-01	5.0878E+00	1.4879E-01
3	2.6762E+00	5.0666E-01	3.0475E+00	2.8159E-01	3.1889E+00	2.3802E-01	3.3785E+00	2.0286E-01
4	1.9252E+00	6.3055E-01	2.2134E+00	3.4834E-01	2.3189E+00	2.9419E-01	2.4589E+00	2.5060E-01
5	1.4489E+00	7.4933E-01	1.6789E+00	4.1199E-01	1.7607E+00	3.4773E-01	1.8683E+00	2.9609E-01
6	1.1179E+00	8.7097E-01	1.3025E+00	4.7687E-01	1.3669E+00	4.0227E-01	1.4511E+00	3.4240E-01
7	8.8117E-01	9.9590E-01	1.0290E+00	5.4336E-01	1.0802E+00	4.5814E-01	1.1470E+00	3.8983E-01
8	7.0984E-01	1.1208E+00	8.2826E-01	6.0988E-01	8.6941E-01	5.1404E-01	9.2312E-01	4.3729E-01
9	5.8427E-01	1.2418E+00	6.7955E-01	6.7445E-01	7.1306E-01	5.6831E-01	7.5692E-01	4.8338E-01
10	4.9047E-01	1.3558E+00	5.6796E-01	7.3544E-01	5.9566E-01	6.1958E-01	6.3208E-01	5.2692E-01
11	4.1856E-01	1.4611E+00	4.8258E-01	7.9180E-01	5.0584E-01	6.6697E-01	5.3657E-01	5.6717E-01
12	3.6276E-01	1.5581E+00	4.1665E-01	8.4357E-01	4.3652E-01	7.1049E-01	4.6288E-01	6.0413E-01
13	3.1817E-01	1.6472E+00	3.6442E-01	8.9089E-01	3.8166E-01	7.5024E-01	4.0460E-01	6.3787E-01
14	2.8172E-01	1.7295E+00	3.2207E-01	9.3432E-01	3.3723E-01	7.8670E-01	3.5744E-01	6.6881E-01
15	2.5150E-01	1.8063E+00	2.8719E-01	9.7457E-01	3.0066E-01	8.2046E-01	3.1865E-01	6.9743E-01
16	2.2608E-01	1.8787E+00	2.5799E-01	1.0123E+00	2.7007E-01	8.5208E-01	2.8621E-01	7.2423E-01
17	2.0447E-01	1.9476E+00	2.3321E-01	1.0481E+00	2.4411E-01	8.8203E-01	2.5868E-01	7.4961E-01
18	1.8592E-01	2.0137E+00	2.1192E-01	1.0823E+00	2.2181E-01	9.1070E-01	2.3504E-01	7.7389E-01
19	1.6986E-01	2.0777E+00	1.9345E-01	1.1153E+00	2.0246E-01	9.3837E-01	2.1452E-01	7.9733E-01
20	1.5585E-01	2.1398E+00	1.7730E-01	1.1474E+00	1.8553E-01	9.6525E-01	1.9656E-01	8.2009E-01
21	1.4355E-01	2.2004E+00	1.6306E-01	1.1788E+00	1.7060E-01	9.9149E-01	1.8072E-01	8.4232E-01
22	1.3269E-01	2.2597E+00	1.5044E-01	1.2094E+00	1.5736E-01	1.0172E+00	1.6668E-01	8.6407E-01
23	1.2306E-01	2.3177E+00	1.3920E-01	1.2395E+00	1.4557E-01	1.0423E+00	1.5415E-01	8.8540E-01
24	1.1447E-01	2.3745E+00	1.2914E-01	1.2689E+00	1.3500E-01	1.0670E+00	1.4293E-01	9.0633E-01
25	1.0677E-01	2.4301E+00	1.2010E-01	1.2979E+00	1.2551E-01	1.0913E+00	1.3285E-01	9.2689E-01
26	9.9847E-02	2.4846E+00	1.1196E-01	1.3263E+00	1.1695E-01	1.1151E+00	1.2376E-01	9.4706E-01
27	9.3595E-02	2.5381E+00	1.0459E-01	1.3541E+00	1.0921E-01	1.1384E+00	1.1554E-01	9.6686E-01
28	8.7930E-02	2.5904E+00	9.7907E-02	1.3814E+00	1.0219E-01	1.1613E+00	1.0808E-01	9.8626E-01
29	8.2779E-02	2.6416E+00	9.1831E-02	1.4082E+00	9.5807E-02	1.1838E+00	1.0129E-01	1.0053E+00
30	7.8080E-02	2.6917E+00	8.6293E-02	1.4343E+00	8.9987E-02	1.2057E+00	9.5109E-02	1.0239E+00
31	7.3780E-02	2.7407E+00	8.1231E-02	1.4599E+00	8.4669E-02	1.2272E+00	8.9460E-02	1.0421E+00
32	6.9836E-02	2.7886E+00	7.6595E-02	1.4850E+00	7.9800E-02	1.2482E+00	8.4289E-02	1.0599E+00
33	6.6206E-02	2.8355E+00	7.2340E-02	1.5095E+00	7.5332E-02	1.2687E+00	7.9543E-02	1.0774E+00
34	6.2859E-02	2.8813E+00	6.8426E-02	1.5334E+00	7.1223E-02	1.2888E+00	7.5181E-02	1.0944E+00
35	5.9766E-02	2.9261E+00	6.4818E-02	1.5567E+00	6.7438E-02	1.3084E+00	7.1164E-02	1.1110E+00
36	5.6899E-02	2.9699E+00	6.1487E-02	1.5796E+00	6.3944E-02	1.3275E+00	6.7456E-02	1.1272E+00
37	5.4238E-02	3.0127E+00	5.8406E-02	1.6018E+00	6.0714E-02	1.3462E+00	6.4029E-02	1.1430E+00
38	5.1762E-02	3.0546E+00	5.5549E-02	1.6236E+00	5.7720E-02	1.3644E+00	6.0855E-02	1.1585E+00
39	4.9455E-02	3.0955E+00	5.2898E-02	1.6448E+00	5.4943E-02	1.3822E+00	5.7911E-02	1.1736E+00
40	4.7302E-02	3.1356E+00	5.0432E-02	1.6655E+00	5.2362E-02	1.3996E+00	5.5175E-02	1.1883E+00
41	4.5287E-02	3.1748E+00	4.8135E-02	1.6858E+00	4.9958E-02	1.4166E+00	5.2629E-02	1.2027E+00
42	4.3401E-02	3.2131E+00	4.5992E-02	1.7055E+00	4.7717E-02	1.4332E+00	5.0256E-02	1.2168E+00
43	4.1632E-02	3.2506E+00	4.3990E-02	1.7249E+00	4.5624E-02	1.4493E+00	4.8040E-02	1.2305E+00
44	3.9970E-02	3.2874E+00	4.2116E-02	1.7437E+00	4.3667E-02	1.4652E+00	4.5969E-02	1.2439E+00
45	3.8407E-02	3.3234E+00	4.0361E-02	1.7622E+00	4.1834E-02	1.4806E+00	4.4030E-02	1.2570E+00
46	3.6935E-02	3.3587E+00	3.8714E-02	1.7802E+00	4.0115E-02	1.4957E+00	4.2212E-02	1.2697E+00
47	3.5547E-02	3.3932E+00	3.7167E-02	1.7979E+00	3.8501E-02	1.5105E+00	4.0505E-02	1.2823E+00
48	3.4237E-02	3.4271E+00	3.5711E-02	1.8152E+00	3.6983E-02	1.5249E+00	3.8901E-02	1.2945E+00
49	3.3000E-02	3.4604E+00	3.4340E-02	1.8321E+00	3.5554E-02	1.5391E+00	3.7392E-02	1.3065E+00
50	3.1829E-02	3.4930E+00	3.3048E-02	1.8486E+00	3.4208E-02	1.5529E+00	3.5969E-02	1.3182E+00
51	3.0720E-02	3.5250E+00	3.1828E-02	1.8648E+00	3.2937E-02	1.5665E+00	3.4628E-02	1.3297E+00
52	2.9669E-02	3.5564E+00	3.0675E-02	1.8807E+00	3.1737E-02	1.5798E+00	3.3361E-02	1.3409E+00
53	2.8672E-02	3.5873E+00	2.9584E-02	1.8963E+00	3.0602E-02	1.5928E+00	3.2163E-02	1.3519E+00
54	2.7726E-02	3.6176E+00	2.8551E-02	1.9116E+00	2.9527E-02	1.6056E+00	3.1029E-02	1.3627E+00
55	2.6826E-02	3.6474E+00	2.7572E-02	1.9266E+00	2.8509E-02	1.6181E+00	2.9955E-02	1.3733E+00
56	2.5971E-02	3.6767E+00	2.6643E-02	1.9413E+00	2.7543E-02	1.6304E+00	2.8936E-02	1.3837E+00
57	2.5156E-02	3.7055E+00	2.5761E-02	1.9558E+00	2.6626E-02	1.6424E+00	2.7970E-02	1.3939E+00
58	2.4381E-02	3.7339E+00	2.4922E-02	1.9700E+00	2.5755E-02	1.6543E+00	2.7051E-02	1.4039E+00
59	2.3641E-02	3.7617E+00	2.4124E-02	1.9839E+00	2.4926E-02	1.6659E+00	2.6178E-02	1.4138E+00
60	2.2935E-02	3.7892E+00	2.3364E-02	1.9976E+00	2.4138E-02	1.6774E+00	2.5347E-02	1.4234E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Ti; $Z = 22$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	8.4030E+00	2.0031E-01	9.2695E+00	1.1551E-01	9.6563E+00	9.8169E-02	1.0186E+01	8.4087E-02
1	6.5652E+00	2.4904E-01	7.3006E+00	1.4273E-01	7.6151E+00	1.2118E-01	8.0455E+00	1.0365E-01
2	4.0822E+00	3.7245E-01	4.6135E+00	2.1068E-01	4.8233E+00	1.7852E-01	5.1069E+00	1.5242E-01
3	2.7075E+00	5.1119E-01	3.1010E+00	2.8612E-01	3.2477E+00	2.4210E-01	3.4430E+00	2.0650E-01
4	1.9587E+00	6.3742E-01	2.2663E+00	3.5434E-01	2.3767E+00	2.9955E-01	2.5220E+00	2.5533E-01
5	1.4827E+00	7.5771E-01	1.7300E+00	4.1900E-01	1.8162E+00	3.5396E-01	1.9287E+00	3.0157E-01
6	1.1508E+00	8.7970E-01	1.3512E+00	4.8425E-01	1.4196E+00	4.0883E-01	1.5084E+00	3.4818E-01
7	9.1135E-01	1.0050E+00	1.0735E+00	5.5106E-01	1.1284E+00	4.6498E-01	1.1992E+00	3.9586E-01
8	7.3617E-01	1.1314E+00	8.6714E-01	6.1846E-01	9.1151E-01	5.2163E-01	9.6879E-01	4.4396E-01
9	6.0657E-01	1.2555E+00	7.1252E-01	6.8481E-01	7.4875E-01	5.7740E-01	7.9564E-01	4.9133E-01
10	5.0917E-01	1.3743E+00	5.9541E-01	7.4847E-01	6.2536E-01	6.3094E-01	6.6428E-01	5.3680E-01
11	4.3428E-01	1.4855E+00	5.0528E-01	8.0821E-01	5.3037E-01	6.8119E-01	5.6314E-01	5.7949E-01
12	3.7608E-01	1.5889E+00	4.3544E-01	8.6371E-01	4.5678E-01	7.2787E-01	4.8480E-01	6.1915E-01
13	3.2962E-01	1.6844E+00	3.8009E-01	9.1479E-01	3.9851E-01	7.7082E-01	4.2280E-01	6.5563E-01
14	2.9167E-01	1.7727E+00	3.3531E-01	9.6176E-01	3.5142E-01	8.1029E-01	3.7273E-01	6.8914E-01
15	2.6023E-01	1.8549E+00	2.9854E-01	1.0052E+00	3.1280E-01	8.4674E-01	3.3170E-01	7.2008E-01
16	2.3383E-01	1.9320E+00	2.6788E-01	1.0456E+00	2.8062E-01	8.8068E-01	2.9754E-01	7.4885E-01
17	2.1140E-01	2.0050E+00	2.4195E-01	1.0837E+00	2.5342E-01	9.1257E-01	2.6868E-01	7.7589E-01
18	1.9216E-01	2.0747E+00	2.1976E-01	1.1198E+00	2.3016E-01	9.4284E-01	2.4400E-01	8.0153E-01
19	1.7551E-01	2.1416E+00	2.0057E-01	1.1544E+00	2.1004E-01	9.7183E-01	2.2266E-01	8.2608E-01
20	1.6101E-01	2.2063E+00	1.8382E-01	1.1878E+00	1.9248E-01	9.9980E-01	2.0403E-01	8.4977E-01
21	1.4829E-01	2.2692E+00	1.6909E-01	1.2203E+00	1.7704E-01	1.0269E+00	1.8764E-01	8.7276E-01
22	1.3707E-01	2.3304E+00	1.5606E-01	1.2519E+00	1.6337E-01	1.0534E+00	1.7313E-01	8.9516E-01
23	1.2712E-01	2.3902E+00	1.4446E-01	1.2828E+00	1.5119E-01	1.0793E+00	1.6020E-01	9.1708E-01
24	1.1826E-01	2.4486E+00	1.3409E-01	1.3130E+00	1.4030E-01	1.1046E+00	1.4863E-01	9.3855E-01
25	1.1033E-01	2.5059E+00	1.2478E-01	1.3427E+00	1.3051E-01	1.1295E+00	1.3823E-01	9.5962E-01
26	1.0320E-01	2.5620E+00	1.1638E-01	1.3718E+00	1.2168E-01	1.1539E+00	1.2885E-01	9.8030E-01
27	9.6764E-02	2.6170E+00	1.0878E-01	1.4004E+00	1.1370E-01	1.1778E+00	1.2036E-01	1.0006E+00
28	9.0936E-02	2.6708E+00	1.0188E-01	1.4284E+00	1.0645E-01	1.2013E+00	1.1266E-01	1.0205E+00
29	8.5639E-02	2.7236E+00	9.5611E-02	1.4559E+00	9.9850E-02	1.2244E+00	1.0564E-01	1.0401E+00
30	8.0809E-02	2.7753E+00	8.9888E-02	1.4829E+00	9.3832E-02	1.2470E+00	9.9245E-02	1.0593E+00
31	7.6391E-02	2.8260E+00	8.4655E-02	1.5093E+00	8.8328E-02	1.2692E+00	9.3393E-02	1.0781E+00
32	7.2338E-02	2.8756E+00	7.9857E-02	1.5352E+00	8.3284E-02	1.2909E+00	8.8032E-02	1.0965E+00
33	6.8610E-02	2.9241E+00	7.5451E-02	1.5605E+00	7.8651E-02	1.3122E+00	8.3108E-02	1.1145E+00
34	6.5172E-02	2.9716E+00	7.1395E-02	1.5854E+00	7.4388E-02	1.3330E+00	7.8577E-02	1.1321E+00
35	6.1933E-02	3.0182E+00	6.7653E-02	1.6096E+00	7.0457E-02	1.3533E+00	7.4400E-02	1.1494E+00
36	5.9048E-02	3.0637E+00	6.4196E-02	1.6333E+00	6.6825E-02	1.3732E+00	7.0543E-02	1.1663E+00
37	5.6313E-02	3.1083E+00	6.0996E-02	1.6565E+00	6.3465E-02	1.3927E+00	6.6975E-02	1.1828E+00
38	5.3768E-02	3.1519E+00	5.8028E-02	1.6792E+00	6.0350E-02	1.4117E+00	6.3668E-02	1.1989E+00
39	5.1396E-02	3.1946E+00	5.5271E-02	1.7014E+00	5.7458E-02	1.4303E+00	6.0598E-02	1.2147E+00
40	4.9180E-02	3.2364E+00	5.2705E-02	1.7231E+00	5.4767E-02	1.4485E+00	5.7744E-02	1.2301E+00
41	4.7108E-02	3.2774E+00	5.0314E-02	1.7443E+00	5.2262E-02	1.4662E+00	5.5086E-02	1.2452E+00
42	4.5166E-02	3.3175E+00	4.8083E-02	1.7650E+00	4.9924E-02	1.4836E+00	5.2608E-02	1.2599E+00
43	4.3344E-02	3.3568E+00	4.5997E-02	1.7852E+00	4.7740E-02	1.5006E+00	5.0293E-02	1.2743E+00
44	4.1632E-02	3.3953E+00	4.4044E-02	1.8051E+00	4.5697E-02	1.5172E+00	4.8129E-02	1.2883E+00
45	4.0021E-02	3.4330E+00	4.2214E-02	1.8244E+00	4.3783E-02	1.5334E+00	4.6101E-02	1.3021E+00
46	3.8503E-02	3.4700E+00	4.0496E-02	1.8434E+00	4.1987E-02	1.5493E+00	4.4200E-02	1.3155E+00
47	3.7071E-02	3.5063E+00	3.8882E-02	1.8619E+00	4.0300E-02	1.5648E+00	4.2415E-02	1.3287E+00
48	3.5718E-02	3.5419E+00	3.7363E-02	1.8801E+00	3.8714E-02	1.5800E+00	4.0737E-02	1.3416E+00
49	3.4440E-02	3.5768E+00	3.5932E-02	1.8979E+00	3.7220E-02	1.5949E+00	3.9157E-02	1.3542E+00
50	3.3230E-02	3.6110E+00	3.4582E-02	1.9153E+00	3.5812E-02	1.6095E+00	3.7668E-02	1.3665E+00
51	3.2083E-02	3.6447E+00	3.3308E-02	1.9324E+00	3.4483E-02	1.6238E+00	3.6264E-02	1.3786E+00
52	3.0996E-02	3.6777E+00	3.2104E-02	1.9491E+00	3.3228E-02	1.6378E+00	3.4937E-02	1.3904E+00
53	2.9964E-02	3.7102E+00	3.0964E-02	1.9655E+00	3.2040E-02	1.6515E+00	3.3683E-02	1.4021E+00
54	2.8984E-02	3.7421E+00	2.9885E-02	1.9816E+00	3.0916E-02	1.6649E+00	3.2496E-02	1.4134E+00
55	2.8052E-02	3.7734E+00	2.8861E-02	1.9974E+00	2.9851E-02	1.6781E+00	3.1371E-02	1.4246E+00
56	2.7165E-02	3.8043E+00	2.7890E-02	2.0129E+00	2.8840E-02	1.6911E+00	3.0305E-02	1.4355E+00
57	2.6321E-02	3.8346E+00	2.6968E-02	2.0281E+00	2.7881E-02	1.7038E+00	2.9292E-02	1.4463E+00
58	2.5516E-02	3.8644E+00	2.6091E-02	2.0431E+00	2.6969E-02	1.7163E+00	2.8330E-02	1.4568E+00
59	2.4748E-02	3.8938E+00	2.5257E-02	2.0577E+00	2.6102E-02	1.7285E+00	2.7415E-02	1.4672E+00
60	2.4016E-02	3.9227E+00	2.4462E-02	2.0722E+00	2.5276E-02	1.7406E+00	2.6545E-02	1.4774E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

V; Z = 23

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	7.8964E+00	2.1149E-01	8.7493E+00	1.2304E-01	9.1204E+00	1.0472E-01	9.6240E+00	8.9803E-02
1	6.2982E+00	2.5844E-01	7.0348E+00	1.4941E-01	7.3431E+00	1.2702E-01	7.7618E+00	1.0876E-01
2	4.0368E+00	3.7776E-01	4.5843E+00	2.1546E-01	4.7966E+00	1.8281E-01	5.0815E+00	1.5622E-01
3	2.7172E+00	5.1504E-01	3.1298E+00	2.9041E-01	3.2809E+00	2.4601E-01	3.4805E+00	2.1000E-01
4	1.9800E+00	6.4225E-01	2.3056E+00	3.5939E-01	2.4204E+00	3.0412E-01	2.5702E+00	2.5942E-01
5	1.5083E+00	7.6333E-01	1.7722E+00	4.2469E-01	1.8626E+00	3.5909E-01	1.9795E+00	3.0615E-01
6	1.1778E+00	8.8534E-01	1.3935E+00	4.9014E-01	1.4659E+00	4.1416E-01	1.5589E+00	3.5293E-01
7	9.3731E-01	1.0106E+00	1.1136E+00	5.5707E-01	1.1720E+00	4.7043E-01	1.2469E+00	4.0073E-01
8	7.5963E-01	1.1377E+00	9.0330E-01	6.2497E-01	9.5091E-01	5.2751E-01	1.0117E+00	4.4920E-01
9	6.2699E-01	1.2639E+00	7.4402E-01	6.9250E-01	7.8307E-01	5.8429E-01	8.3302E-01	4.9743E-01
10	5.2664E-01	1.3863E+00	6.2226E-01	7.5818E-01	6.5460E-01	6.3953E-01	6.9612E-01	5.4436E-01
11	4.4921E-01	1.5023E+00	5.2792E-01	8.2068E-01	5.5500E-01	6.9212E-01	5.8993E-01	5.8905E-01
12	3.8892E-01	1.6113E+00	4.5445E-01	8.7942E-01	4.7741E-01	7.4155E-01	5.0721E-01	6.3106E-01
13	3.4075E-01	1.7127E+00	3.9610E-01	9.3399E-01	4.1584E-01	7.8747E-01	4.4159E-01	6.7008E-01
14	3.0144E-01	1.8068E+00	3.4891E-01	9.8443E-01	3.6609E-01	8.2990E-01	3.8861E-01	7.0612E-01
15	2.6889E-01	1.8945E+00	3.1022E-01	1.0311E+00	3.2536E-01	8.6914E-01	3.4527E-01	7.3944E-01
16	2.4156E-01	1.9766E+00	2.7803E-01	1.0745E+00	2.9151E-01	9.0559E-01	3.0927E-01	7.7037E-01
17	2.1834E-01	2.0540E+00	2.5089E-01	1.1152E+00	2.6299E-01	9.3968E-01	2.7898E-01	7.9928E-01
18	1.9842E-01	2.1276E+00	2.2773E-01	1.1535E+00	2.3867E-01	9.7182E-01	2.5315E-01	8.2653E-01
19	1.8120E-01	2.1979E+00	2.0775E-01	1.1900E+00	2.1771E-01	1.0024E+00	2.3090E-01	8.5243E-01
20	1.6619E-01	2.2655E+00	1.9037E-01	1.2250E+00	1.9947E-01	1.0317E+00	2.1153E-01	8.7724E-01
21	1.5304E-01	2.3310E+00	1.7511E-01	1.2587E+00	1.8346E-01	1.0599E+00	1.9454E-01	9.0117E-01
22	1.4145E-01	2.3945E+00	1.6164E-01	1.2915E+00	1.6932E-01	1.0874E+00	1.7952E-01	9.2438E-01
23	1.3117E-01	2.4563E+00	1.4966E-01	1.3234E+00	1.5674E-01	1.1141E+00	1.6617E-01	9.4699E-01
24	1.2203E-01	2.5167E+00	1.3896E-01	1.3545E+00	1.4550E-01	1.1401E+00	1.5423E-01	9.6908E-01
25	1.1385E-01	2.5757E+00	1.2935E-01	1.3850E+00	1.3541E-01	1.1657E+00	1.4350E-01	9.9072E-01
26	1.0650E-01	2.6335E+00	1.2070E-01	1.4149E+00	1.2631E-01	1.1907E+00	1.3383E-01	1.0119E+00
27	9.9870E-02	2.6901E+00	1.1286E-01	1.4442E+00	1.1808E-01	1.2153E+00	1.2508E-01	1.0328E+00
28	9.3872E-02	2.7456E+00	1.0576E-01	1.4730E+00	1.1060E-01	1.2394E+00	1.1713E-01	1.0532E+00
29	8.8424E-02	2.7999E+00	9.9293E-02	1.5013E+00	1.0380E-01	1.2631E+00	1.0989E-01	1.0733E+00
30	8.3459E-02	2.8532E+00	9.3391E-02	1.5290E+00	9.7585E-02	1.2863E+00	1.0329E-01	1.0929E+00
31	7.8920E-02	2.9054E+00	8.7992E-02	1.5562E+00	9.1902E-02	1.3091E+00	9.7241E-02	1.1123E+00
32	7.4758E-02	2.9566E+00	8.3040E-02	1.5828E+00	8.6690E-02	1.3315E+00	9.1697E-02	1.1313E+00
33	7.0930E-02	3.0068E+00	7.8488E-02	1.6090E+00	8.1900E-02	1.3534E+00	8.6602E-02	1.1498E+00
34	6.7401E-02	3.0559E+00	7.4295E-02	1.6346E+00	7.7488E-02	1.3749E+00	8.1910E-02	1.1681E+00
35	6.4140E-02	3.1041E+00	7.0427E-02	1.6597E+00	7.3418E-02	1.3959E+00	7.7582E-02	1.1859E+00
36	6.1118E-02	3.1513E+00	6.6849E-02	1.6843E+00	6.9655E-02	1.4166E+00	7.3581E-02	1.2034E+00
37	5.8312E-02	3.1975E+00	6.3535E-02	1.7083E+00	6.6171E-02	1.4368E+00	6.9877E-02	1.2205E+00
38	5.5701E-02	3.2428E+00	6.0460E-02	1.7319E+00	6.2939E-02	1.4565E+00	6.6443E-02	1.2373E+00
39	5.3267E-02	3.2872E+00	5.7602E-02	1.7550E+00	5.9936E-02	1.4759E+00	6.3253E-02	1.2537E+00
40	5.0993E-02	3.3307E+00	5.4941E-02	1.7775E+00	5.7142E-02	1.4948E+00	6.0285E-02	1.2697E+00
41	4.8866E-02	3.3734E+00	5.2460E-02	1.7996E+00	5.4538E-02	1.5133E+00	5.7520E-02	1.2854E+00
42	4.6873E-02	3.4152E+00	5.0144E-02	1.8212E+00	5.2107E-02	1.5314E+00	5.4940E-02	1.3008E+00
43	4.5001E-02	3.4561E+00	4.7977E-02	1.8424E+00	4.9835E-02	1.5492E+00	5.2529E-02	1.3159E+00
44	4.3242E-02	3.4963E+00	4.5948E-02	1.8631E+00	4.7708E-02	1.5665E+00	5.0274E-02	1.3306E+00
45	4.1587E-02	3.5357E+00	4.4046E-02	1.8834E+00	4.5715E-02	1.5835E+00	4.8161E-02	1.3450E+00
46	4.0026E-02	3.5744E+00	4.2260E-02	1.9032E+00	4.3845E-02	1.6001E+00	4.6178E-02	1.3591E+00
47	3.8553E-02	3.6123E+00	4.0581E-02	1.9226E+00	4.2088E-02	1.6164E+00	4.4316E-02	1.3728E+00
48	3.7162E-02	3.6496E+00	3.9000E-02	1.9417E+00	4.0435E-02	1.6324E+00	4.2565E-02	1.3863E+00
49	3.5845E-02	3.6861E+00	3.7511E-02	1.9603E+00	3.8878E-02	1.6480E+00	4.0917E-02	1.3996E+00
50	3.4599E-02	3.7220E+00	3.6105E-02	1.9786E+00	3.7409E-02	1.6633E+00	3.9363E-02	1.4125E+00
51	3.3418E-02	3.7573E+00	3.4779E-02	1.9965E+00	3.6024E-02	1.6782E+00	3.7897E-02	1.4252E+00
52	3.2297E-02	3.7919E+00	3.3524E-02	2.0141E+00	3.4714E-02	1.6929E+00	3.6511E-02	1.4376E+00
53	3.1233E-02	3.8259E+00	3.2337E-02	2.0313E+00	3.3475E-02	1.7073E+00	3.5202E-02	1.4498E+00
54	3.0222E-02	3.8594E+00	3.1212E-02	2.0482E+00	3.2302E-02	1.7215E+00	3.3962E-02	1.4618E+00
55	2.9259E-02	3.8923E+00	3.0145E-02	2.0648E+00	3.1190E-02	1.7353E+00	3.2787E-02	1.4735E+00
56	2.8343E-02	3.9246E+00	2.9133E-02	2.0810E+00	3.0135E-02	1.7489E+00	3.1673E-02	1.4850E+00
57	2.7471E-02	3.9565E+00	2.8171E-02	2.0970E+00	2.9134E-02	1.7623E+00	3.0615E-02	1.4963E+00
58	2.6639E-02	3.9878E+00	2.7257E-02	2.1127E+00	2.8182E-02	1.7754E+00	2.9610E-02	1.5074E+00
59	2.5844E-02	4.0186E+00	2.6387E-02	2.1281E+00	2.7276E-02	1.7883E+00	2.8654E-02	1.5183E+00
60	2.5086E-02	4.0490E+00	2.5558E-02	2.1433E+00	2.6414E-02	1.8009E+00	2.7744E-02	1.5290E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Cr; $Z = 24$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	6.5487E+00	2.3087E-01	7.3124E+00	1.3592E-01	7.6308E+00	1.1590E-01	8.0559E+00	9.9555E-02
1	5.3648E+00	2.7679E-01	6.0387E+00	1.6179E-01	6.3105E+00	1.3779E-01	6.6750E+00	1.1813E-01
2	3.6934E+00	3.8330E-01	4.2223E+00	2.2100E-01	4.4225E+00	1.8781E-01	4.6887E+00	1.6068E-01
3	2.6401E+00	5.0123E-01	3.0602E+00	2.8576E-01	3.2112E+00	2.4247E-01	3.4091E+00	2.0721E-01
4	1.9810E+00	6.1693E-01	2.3230E+00	3.4881E-01	2.4413E+00	2.9563E-01	2.5945E+00	2.5245E-01
5	1.5285E+00	7.3384E-01	1.8101E+00	4.1210E-01	1.9048E+00	3.4893E-01	2.0261E+00	2.9778E-01
6	1.2016E+00	8.5497E-01	1.4339E+00	4.7727E-01	1.5104E+00	4.0378E-01	1.6078E+00	3.4439E-01
7	9.6026E-01	9.8061E-01	1.1516E+00	5.4458E-01	1.2138E+00	4.6039E-01	1.2926E+00	3.9248E-01
8	7.8043E-01	1.1090E+00	9.3749E-01	6.1326E-01	9.8843E-01	5.1814E-01	1.0528E+00	4.4153E-01
9	6.4530E-01	1.2374E+00	7.7399E-01	6.8203E-01	8.1595E-01	5.7597E-01	8.6901E-01	4.9066E-01
10	5.4255E-01	1.3629E+00	6.4812E-01	7.4950E-01	6.8294E-01	6.3273E-01	7.2713E-01	5.3888E-01
11	4.6303E-01	1.4831E+00	5.5005E-01	8.1435E-01	5.7922E-01	6.8730E-01	6.1642E-01	5.8526E-01
12	4.0097E-01	1.5969E+00	4.7331E-01	8.7589E-01	4.9802E-01	7.3912E-01	5.2971E-01	6.2931E-01
13	3.5135E-01	1.7035E+00	4.1220E-01	9.3355E-01	4.3338E-01	7.8766E-01	4.6070E-01	6.7058E-01
14	3.1085E-01	1.8029E+00	3.6273E-01	9.8720E-01	3.8109E-01	8.3283E-01	4.0492E-01	7.0897E-01
15	2.7731E-01	1.8958E+00	3.2217E-01	1.0371E+00	3.3828E-01	8.7476E-01	3.5928E-01	7.4460E-01
16	2.4914E-01	1.9828E+00	2.8845E-01	1.0834E+00	3.0274E-01	9.1375E-01	3.2143E-01	7.7771E-01
17	2.2521E-01	2.0648E+00	2.6007E-01	1.1268E+00	2.7286E-01	9.5016E-01	2.8963E-01	8.0861E-01
18	2.0467E-01	2.1425E+00	2.3590E-01	1.1676E+00	2.4743E-01	9.8438E-01	2.6260E-01	8.3763E-01
19	1.8690E-01	2.2165E+00	2.1509E-01	1.2062E+00	2.2557E-01	1.0167E+00	2.3936E-01	8.6507E-01
20	1.7141E-01	2.2875E+00	1.9702E-01	1.2430E+00	2.0659E-01	1.0476E+00	2.1919E-01	8.9121E-01
21	1.5783E-01	2.3559E+00	1.8120E-01	1.2784E+00	1.8997E-01	1.0772E+00	2.0154E-01	9.1629E-01
22	1.4586E-01	2.4221E+00	1.6724E-01	1.3125E+00	1.7531E-01	1.1058E+00	1.8597E-01	9.4048E-01
23	1.3526E-01	2.4863E+00	1.5486E-01	1.3456E+00	1.6230E-01	1.1335E+00	1.7215E-01	9.6395E-01
24	1.2582E-01	2.5489E+00	1.4380E-01	1.3778E+00	1.5069E-01	1.1605E+00	1.5981E-01	9.8679E-01
25	1.1737E-01	2.6099E+00	1.3389E-01	1.4093E+00	1.4027E-01	1.1868E+00	1.4873E-01	1.0091E+00
26	1.0980E-01	2.6696E+00	1.2497E-01	1.4401E+00	1.3088E-01	1.2126E+00	1.3875E-01	1.0309E+00
27	1.0297E-01	2.7280E+00	1.1689E-01	1.4702E+00	1.2239E-01	1.2378E+00	1.2973E-01	1.0523E+00
28	9.6791E-02	2.7851E+00	1.0957E-01	1.4998E+00	1.1469E-01	1.2626E+00	1.2153E-01	1.0733E+00
29	9.1183E-02	2.8411E+00	1.0291E-01	1.5288E+00	1.0767E-01	1.2869E+00	1.1407E-01	1.0939E+00
30	8.6076E-02	2.8960E+00	9.6828E-02	1.5573E+00	1.0127E-01	1.3108E+00	1.0726E-01	1.1141E+00
31	8.1410E-02	2.9499E+00	9.1263E-02	1.5852E+00	9.5408E-02	1.3342E+00	1.0102E-01	1.1340E+00
32	7.7134E-02	3.0026E+00	8.6158E-02	1.6126E+00	9.0031E-02	1.3572E+00	9.5296E-02	1.1535E+00
33	7.3204E-02	3.0544E+00	8.1464E-02	1.6395E+00	8.5087E-02	1.3798E+00	9.0035E-02	1.1726E+00
34	6.9582E-02	3.1051E+00	7.7139E-02	1.6659E+00	8.0532E-02	1.4019E+00	8.5186E-02	1.1914E+00
35	6.6236E-02	3.1549E+00	7.3145E-02	1.6918E+00	7.6326E-02	1.4236E+00	8.0711E-02	1.2098E+00
36	6.3137E-02	3.2037E+00	6.9452E-02	1.7172E+00	7.2436E-02	1.4449E+00	7.6572E-02	1.2278E+00
37	6.0260E-02	3.2516E+00	6.6028E-02	1.7421E+00	6.8833E-02	1.4658E+00	7.2738E-02	1.2455E+00
38	5.7583E-02	3.2985E+00	6.2850E-02	1.7665E+00	6.5488E-02	1.4862E+00	6.9180E-02	1.2629E+00
39	5.5088E-02	3.3445E+00	5.9895E-02	1.7904E+00	6.2379E-02	1.5063E+00	6.5874E-02	1.2799E+00
40	5.2758E-02	3.3897E+00	5.7142E-02	1.8138E+00	5.9484E-02	1.5259E+00	6.2796E-02	1.2966E+00
41	5.0578E-02	3.4339E+00	5.4574E-02	1.8367E+00	5.6785E-02	1.5452E+00	5.9927E-02	1.3129E+00
42	4.8535E-02	3.4774E+00	5.2175E-02	1.8592E+00	5.4264E-02	1.5640E+00	5.7249E-02	1.3288E+00
43	4.6616E-02	3.5200E+00	4.9931E-02	1.8812E+00	5.1907E-02	1.5825E+00	5.4745E-02	1.3445E+00
44	4.4813E-02	3.5618E+00	4.7829E-02	1.9028E+00	4.9700E-02	1.6005E+00	5.2401E-02	1.3598E+00
45	4.3115E-02	3.6028E+00	4.5857E-02	1.9239E+00	4.7631E-02	1.6182E+00	5.0205E-02	1.3748E+00
46	4.1514E-02	3.6431E+00	4.4004E-02	1.9446E+00	4.5688E-02	1.6356E+00	4.8144E-02	1.3895E+00
47	4.0003E-02	3.6827E+00	4.2262E-02	1.9649E+00	4.3862E-02	1.6526E+00	4.6207E-02	1.4039E+00
48	3.8574E-02	3.7215E+00	4.0622E-02	1.9848E+00	4.2144E-02	1.6692E+00	4.4385E-02	1.4180E+00
49	3.7223E-02	3.7597E+00	3.9076E-02	2.0043E+00	4.0525E-02	1.6855E+00	4.2669E-02	1.4318E+00
50	3.5943E-02	3.7972E+00	3.7617E-02	2.0234E+00	3.8998E-02	1.7015E+00	4.1051E-02	1.4454E+00
51	3.4729E-02	3.8340E+00	3.6239E-02	2.0421E+00	3.7556E-02	1.7172E+00	3.9525E-02	1.4587E+00
52	3.3577E-02	3.8702E+00	3.4935E-02	2.0605E+00	3.6194E-02	1.7326E+00	3.8082E-02	1.4717E+00
53	3.2483E-02	3.9058E+00	3.3701E-02	2.0785E+00	3.4904E-02	1.7477E+00	3.6717E-02	1.4845E+00
54	3.1442E-02	3.9408E+00	3.2532E-02	2.0962E+00	3.3683E-02	1.7625E+00	3.5425E-02	1.4970E+00
55	3.0452E-02	3.9752E+00	3.1423E-02	2.1135E+00	3.2526E-02	1.7770E+00	3.4201E-02	1.5093E+00
56	2.9508E-02	4.0091E+00	3.0371E-02	2.1306E+00	3.1427E-02	1.7912E+00	3.3040E-02	1.5213E+00
57	2.8609E-02	4.0424E+00	2.9371E-02	2.1474E+00	3.0384E-02	1.8052E+00	3.1937E-02	1.5332E+00
58	2.7752E-02	4.0753E+00	2.8419E-02	2.1638E+00	2.9393E-02	1.8190E+00	3.0889E-02	1.5448E+00
59	2.6933E-02	4.1076E+00	2.7514E-02	2.1799E+00	2.8450E-02	1.8325E+00	2.9893E-02	1.5562E+00
60	2.6151E-02	4.1394E+00	2.6652E-02	2.1958E+00	2.7552E-02	1.8457E+00	2.8944E-02	1.5674E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Mn; $Z = 25$

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	7.0380E+00	2.3139E-01	7.8661E+00	1.3708E-01	8.2111E+00	1.1703E-01	8.6717E+00	1.0059E-01
1	5.7919E+00	2.7543E-01	6.5264E+00	1.6210E-01	6.8223E+00	1.3822E-01	7.2186E+00	1.1860E-01
2	3.8974E+00	3.8806E-01	4.4682E+00	2.2511E-01	4.6827E+00	1.9151E-01	4.9667E+00	1.6398E-01
3	2.6962E+00	5.2180E-01	3.1400E+00	2.9878E-01	3.2977E+00	2.5373E-01	3.5031E+00	2.1697E-01
4	1.9947E+00	6.4920E-01	2.3517E+00	3.6836E-01	2.4739E+00	3.1241E-01	2.6311E+00	2.6692E-01
5	1.5387E+00	7.7067E-01	1.8327E+00	4.3431E-01	1.9306E+00	3.6799E-01	2.0551E+00	3.1419E-01
6	1.2156E+00	8.9207E-01	1.4600E+00	4.9985E-01	1.5396E+00	4.2317E-01	1.6402E+00	3.6111E-01
7	9.7702E-01	1.0163E+00	1.1803E+00	5.6662E-01	1.2457E+00	4.7935E-01	1.3278E+00	4.0885E-01
8	7.9768E-01	1.1434E+00	9.6638E-01	6.3473E-01	1.0203E+00	5.3664E-01	1.0879E+00	4.5752E-01
9	6.6153E-01	1.2715E+00	8.0116E-01	7.0343E-01	8.4591E-01	5.9442E-01	9.0193E-01	5.0660E-01
10	5.5715E-01	1.3982E+00	6.7259E-01	7.7156E-01	7.0992E-01	6.5174E-01	7.5676E-01	5.5531E-01
11	4.7592E-01	1.5210E+00	5.7156E-01	8.3790E-01	6.0292E-01	7.0758E-01	6.4243E-01	6.2692E-01
12	4.1228E-01	1.6386E+00	4.9192E-01	9.0162E-01	5.1849E-01	7.6123E-01	5.5217E-01	6.4838E-01
13	3.6135E-01	1.7497E+00	4.2821E-01	9.6197E-01	4.5096E-01	8.1207E-01	4.7996E-01	6.9162E-01
14	3.1976E-01	1.8541E+00	3.7653E-01	1.0186E+00	3.9619E-01	8.5979E-01	4.2143E-01	7.3220E-01
15	2.8534E-01	1.9520E+00	3.3412E-01	1.0716E+00	3.5131E-01	9.0438E-01	3.7349E-01	7.7011E-01
16	2.5642E-01	2.0439E+00	2.9888E-01	1.1210E+00	3.1406E-01	9.4597E-01	3.3374E-01	8.0545E-01
17	2.3184E-01	2.1305E+00	2.6925E-01	1.1672E+00	2.8278E-01	9.8482E-01	3.0039E-01	8.3845E-01
18	2.1074E-01	2.2124E+00	2.4405E-01	1.2106E+00	2.5622E-01	1.0213E+00	2.7210E-01	8.6938E-01
19	1.9246E-01	2.2903E+00	2.2240E-01	1.2515E+00	2.3342E-01	1.0556E+00	2.4783E-01	8.9852E-01
20	1.7653E-01	2.3647E+00	2.0363E-01	1.2904E+00	2.1367E-01	1.0882E+00	2.2683E-01	9.2614E-01
21	1.6254E-01	2.4362E+00	1.8722E-01	1.3275E+00	1.9641E-01	1.1193E+00	2.0848E-01	9.5250E-01
22	1.5021E-01	2.5052E+00	1.7277E-01	1.3631E+00	1.8123E-01	1.1492E+00	1.9234E-01	9.7779E-01
23	1.3928E-01	2.5720E+00	1.5997E-01	1.3976E+00	1.6777E-01	1.1780E+00	1.7804E-01	1.0022E+00
24	1.2954E-01	2.6369E+00	1.4855E-01	1.4310E+00	1.5577E-01	1.2059E+00	1.6529E-01	1.0259E+00
25	1.2084E-01	2.7000E+00	1.3833E-01	1.4634E+00	1.4502E-01	1.2331E+00	1.5386E-01	1.0489E+00
26	1.1303E-01	2.7616E+00	1.2913E-01	1.4951E+00	1.3535E-01	1.2596E+00	1.4357E-01	1.0713E+00
27	1.0599E-01	2.8218E+00	1.2082E-01	1.5261E+00	1.2660E-01	1.2856E+00	1.3427E-01	1.0933E+00
28	9.9633E-02	2.8807E+00	1.1328E-01	1.5565E+00	1.1867E-01	1.3110E+00	1.2583E-01	1.1149E+00
29	9.3861E-02	2.9384E+00	1.0643E-01	1.5863E+00	1.1145E-01	1.3360E+00	1.1815E-01	1.1360E+00
30	8.8608E-02	2.9950E+00	1.0017E-01	1.6155E+00	1.0486E-01	1.3604E+00	1.1113E-01	1.1567E+00
31	8.3812E-02	3.0504E+00	9.4442E-02	1.6442E+00	9.8823E-02	1.3844E+00	1.0471E-01	1.1771E+00
32	7.9419E-02	3.1047E+00	8.9188E-02	1.6723E+00	9.3286E-02	1.4080E+00	9.8811E-02	1.1971E+00
33	7.5385E-02	3.1580E+00	8.4356E-02	1.6999E+00	8.8194E-02	1.4312E+00	9.3388E-02	1.2167E+00
34	7.1669E-02	3.2103E+00	7.9903E-02	1.7271E+00	8.3501E-02	1.4540E+00	8.8390E-02	1.2360E+00
35	6.8238E-02	3.2616E+00	7.5791E-02	1.7537E+00	7.9166E-02	1.4763E+00	8.3774E-02	1.2549E+00
36	6.5062E-02	3.3119E+00	7.1985E-02	1.7798E+00	7.5155E-02	1.4982E+00	7.9503E-02	1.2735E+00
37	6.2116E-02	3.3613E+00	6.8457E-02	1.8055E+00	7.1436E-02	1.5197E+00	7.5544E-02	1.2917E+00
38	5.9376E-02	3.4098E+00	6.5180E-02	1.8306E+00	6.7984E-02	1.5408E+00	7.1868E-02	1.3096E+00
39	5.6822E-02	3.4573E+00	6.2132E-02	1.8553E+00	6.4773E-02	1.5615E+00	6.8450E-02	1.3272E+00
40	5.4438E-02	3.5040E+00	5.9292E-02	1.8795E+00	6.1782E-02	1.5818E+00	6.5267E-02	1.3444E+00
41	5.2207E-02	3.5499E+00	5.6641E-02	1.9033E+00	5.8991E-02	1.6017E+00	6.2298E-02	1.3613E+00
42	5.0117E-02	3.5949E+00	5.4164E-02	1.9266E+00	5.6384E-02	1.6213E+00	5.9526E-02	1.3779E+00
43	4.8155E-02	3.6390E+00	5.1845E-02	1.9494E+00	5.3946E-02	1.6404E+00	5.6932E-02	1.3941E+00
44	4.6310E-02	3.6824E+00	4.9672E-02	1.9718E+00	5.1661E-02	1.6592E+00	5.4504E-02	1.4100E+00
45	4.4573E-02	3.7250E+00	4.7633E-02	1.9937E+00	4.9518E-02	1.6776E+00	5.2227E-02	1.4256E+00
46	4.2935E-02	3.7669E+00	4.5718E-02	2.0152E+00	4.7506E-02	1.6956E+00	5.0089E-02	1.4409E+00
47	4.1389E-02	3.8080E+00	4.3915E-02	2.0364E+00	4.5614E-02	1.7133E+00	4.8080E-02	1.4559E+00
48	3.9927E-02	3.8484E+00	4.2218E-02	2.0570E+00	4.3833E-02	1.7306E+00	4.6189E-02	1.4706E+00
49	3.8544E-02	3.8881E+00	4.0617E-02	2.0773E+00	4.2154E-02	1.7476E+00	4.4407E-02	1.4850E+00
50	3.7233E-02	3.9271E+00	3.9106E-02	2.0973E+00	4.0570E-02	1.7643E+00	4.2727E-02	1.4991E+00
51	3.5990E-02	3.9655E+00	3.7678E-02	2.1168E+00	3.9074E-02	1.7807E+00	4.1141E-02	1.5130E+00
52	3.4809E-02	4.0032E+00	3.6328E-02	2.1360E+00	3.7660E-02	1.7967E+00	3.9642E-02	1.5266E+00
53	3.3688E-02	4.0403E+00	3.5049E-02	2.1548E+00	3.6322E-02	1.8125E+00	3.8224E-02	1.5399E+00
54	3.2621E-02	4.0768E+00	3.3837E-02	2.1732E+00	3.5054E-02	1.8279E+00	3.6881E-02	1.5530E+00
55	3.1605E-02	4.1127E+00	3.2687E-02	2.1914E+00	3.3852E-02	1.8431E+00	3.5608E-02	1.5658E+00
56	3.0637E-02	4.1481E+00	3.1595E-02	2.2092E+00	3.2711E-02	1.8580E+00	3.4401E-02	1.5784E+00
57	2.9714E-02	4.1829E+00	3.0558E-02	2.2267E+00	3.1627E-02	1.8726E+00	3.3254E-02	1.5908E+00
58	2.8833E-02	4.2172E+00	2.9571E-02	2.2439E+00	3.0597E-02	1.8870E+00	3.2164E-02	1.6030E+00
59	2.7992E-02	4.2509E+00	2.8632E-02	2.2608E+00	2.9617E-02	1.9011E+00	3.1128E-02	1.6149E+00
60	2.7188E-02	4.2841E+00	2.7737E-02	2.2774E+00	2.8683E-02	1.9150E+00	3.0141E-02	1.6266E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Fe; $Z = 26$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	6.6697E+00	2.4041E-01	7.4861E+00	1.4374E-01	7.8200E+00	1.2290E-01	8.2623E+00	1.0577E-01
1	5.5574E+00	2.8320E-01	6.2891E+00	1.6818E-01	6.5791E+00	1.4362E-01	6.9649E+00	1.2338E-01
2	3.8154E+00	3.9291E-01	4.3944E+00	2.2990E-01	4.6092E+00	1.9587E-01	4.8917E+00	1.6789E-01
3	2.6722E+00	5.2480E-01	3.1286E+00	3.0289E-01	3.2889E+00	2.5755E-01	3.4961E+00	2.2045E-01
4	1.9914E+00	6.5182E-01	2.3619E+00	3.7253E-01	2.4873E+00	3.1632E-01	2.6473E+00	2.7049E-01
5	1.5453E+00	7.7314E-01	1.8527E+00	4.3863E-01	1.9539E+00	3.7206E-01	2.0817E+00	3.1792E-01
6	1.2275E+00	8.9404E-01	1.4850E+00	5.0411E-01	1.5680E+00	4.2722E-01	1.6719E+00	3.6484E-01
7	9.9133E-01	1.0176E+00	1.2073E+00	5.7068E-01	1.2759E+00	4.8326E-01	1.3613E+00	4.1247E-01
8	8.1244E-01	1.1442E+00	9.9315E-01	6.3867E-01	1.0502E+00	5.4046E-01	1.1209E+00	4.6107E-01
9	6.7562E-01	1.2724E+00	8.2638E-01	7.0753E-01	8.7396E-01	5.9839E-01	9.3292E-01	5.1030E-01
10	5.7003E-01	1.4002E+00	6.9555E-01	7.7631E-01	7.3543E-01	6.5626E-01	7.8492E-01	5.5947E-01
11	4.8748E-01	1.5251E+00	5.9202E-01	8.4388E-01	6.2562E-01	7.1314E-01	6.6748E-01	6.0782E-01
12	4.2259E-01	1.6458E+00	5.0989E-01	9.0936E-01	5.3841E-01	7.6830E-01	5.7412E-01	6.5472E-01
13	3.7056E-01	1.7608E+00	4.4390E-01	9.7197E-01	4.6830E-01	8.2105E-01	4.9905E-01	6.9959E-01
14	3.2807E-01	1.8695E+00	3.9021E-01	1.0312E+00	4.1128E-01	8.7100E-01	4.3800E-01	7.4208E-01
15	2.9289E-01	1.9719E+00	3.4609E-01	1.0870E+00	3.6445E-01	9.1798E-01	3.8789E-01	7.8205E-01
16	2.6334E-01	2.0683E+00	3.0940E-01	1.1392E+00	3.2556E-01	9.6200E-01	3.4631E-01	8.1949E-01
17	2.3821E-01	2.1593E+00	2.7855E-01	1.1882E+00	2.9290E-01	1.0032E+00	3.1142E-01	8.5454E-01
18	2.1662E-01	2.2453E+00	2.5233E-01	1.2342E+00	2.6519E-01	1.0419E+00	2.8185E-01	8.8741E-01
19	1.9790E-01	2.3271E+00	2.2982E-01	1.2776E+00	2.4144E-01	1.0783E+00	2.5653E-01	9.1833E-01
20	1.8156E-01	2.4052E+00	2.1034E-01	1.3186E+00	2.2089E-01	1.1128E+00	2.3465E-01	9.4757E-01
21	1.6721E-01	2.4800E+00	1.9332E-01	1.3577E+00	2.0297E-01	1.1456E+00	2.1557E-01	9.7536E-01
22	1.5454E-01	2.5521E+00	1.7836E-01	1.3951E+00	1.8723E-01	1.1769E+00	1.9882E-01	1.0019E+00
23	1.4330E-01	2.6216E+00	1.6512E-01	1.4311E+00	1.7329E-01	1.2070E+00	1.8399E-01	1.0274E+00
24	1.3328E-01	2.6890E+00	1.5333E-01	1.4658E+00	1.6089E-01	1.2361E+00	1.7080E-01	1.0521E+00
25	1.2432E-01	2.7546E+00	1.4278E-01	1.4995E+00	1.4979E-01	1.2643E+00	1.5900E-01	1.0759E+00
26	1.1628E-01	2.8184E+00	1.3329E-01	1.5323E+00	1.3981E-01	1.2918E+00	1.4838E-01	1.0992E+00
27	1.0904E-01	2.8806E+00	1.2473E-01	1.5643E+00	1.3079E-01	1.3185E+00	1.3879E-01	1.1218E+00
28	1.0249E-01	2.9415E+00	1.1697E-01	1.5956E+00	1.2262E-01	1.3447E+00	1.3009E-01	1.1440E+00
29	9.6545E-02	3.0010E+00	1.0991E-01	1.6262E+00	1.1519E-01	1.3704E+00	1.2218E-01	1.1657E+00
30	9.1140E-02	3.0592E+00	1.0347E-01	1.6562E+00	1.0840E-01	1.3955E+00	1.1495E-01	1.1870E+00
31	8.6208E-02	3.1163E+00	9.7577E-02	1.6856E+00	1.0219E-01	1.4201E+00	1.0834E-01	1.2078E+00
32	8.1694E-02	3.1723E+00	9.2172E-02	1.7145E+00	9.6494E-02	1.4443E+00	1.0227E-01	1.2284E+00
33	7.7550E-02	3.2272E+00	8.7202E-02	1.7429E+00	9.1253E-02	1.4681E+00	9.6691E-02	1.2485E+00
34	7.3736E-02	3.2810E+00	8.2621E-02	1.7708E+00	8.6421E-02	1.4914E+00	9.1544E-02	1.2683E+00
35	7.0216E-02	3.3339E+00	7.8390E-02	1.7981E+00	8.1958E-02	1.5144E+00	8.6789E-02	1.2877E+00
36	6.6960E-02	3.3858E+00	7.4474E-02	1.8250E+00	7.7827E-02	1.5369E+00	8.2387E-02	1.3068E+00
37	6.3941E-02	3.4367E+00	7.0842E-02	1.8514E+00	7.3997E-02	1.5590E+00	7.8307E-02	1.3256E+00
38	6.1135E-02	3.4867E+00	6.7469E-02	1.8773E+00	7.0439E-02	1.5808E+00	7.4516E-02	1.3440E+00
39	5.8521E-02	3.5358E+00	6.4330E-02	1.9027E+00	6.7129E-02	1.6021E+00	7.0990E-02	1.3621E+00
40	5.6081E-02	3.5840E+00	6.1404E-02	1.9277E+00	6.4044E-02	1.6230E+00	6.7704E-02	1.3799E+00
41	5.3800E-02	3.6314E+00	5.8673E-02	1.9522E+00	6.1165E-02	1.6436E+00	6.4639E-02	1.3973E+00
42	5.1663E-02	3.6779E+00	5.6120E-02	1.9762E+00	5.8475E-02	1.6638E+00	6.1774E-02	1.4144E+00
43	4.9657E-02	3.7236E+00	5.3729E-02	1.9998E+00	5.5957E-02	1.6836E+00	5.9094E-02	1.4312E+00
44	4.7771E-02	3.7685E+00	5.1488E-02	2.0230E+00	5.3597E-02	1.7030E+00	5.6583E-02	1.4476E+00
45	4.5996E-02	3.8126E+00	4.9384E-02	2.0457E+00	5.1383E-02	1.7220E+00	5.4228E-02	1.4638E+00
46	4.4323E-02	3.8560E+00	4.7407E-02	2.0680E+00	4.9303E-02	1.7407E+00	5.2016E-02	1.4797E+00
47	4.2743E-02	3.8987E+00	4.5547E-02	2.0899E+00	4.7347E-02	1.7591E+00	4.9936E-02	1.4952E+00
48	4.1249E-02	3.9406E+00	4.3794E-02	2.1114E+00	4.5504E-02	1.7771E+00	4.7978E-02	1.5105E+00
49	3.9835E-02	3.9818E+00	4.2140E-02	2.1325E+00	4.3768E-02	1.7947E+00	4.6133E-02	1.5254E+00
50	3.8495E-02	4.0223E+00	4.0579E-02	2.1532E+00	4.2129E-02	1.8121E+00	4.4392E-02	1.5401E+00
51	3.7224E-02	4.0622E+00	3.9103E-02	2.1735E+00	4.0580E-02	1.8291E+00	4.2748E-02	1.5545E+00
52	3.6017E-02	4.1014E+00	3.7707E-02	2.1934E+00	3.9116E-02	1.8458E+00	4.1194E-02	1.5687E+00
53	3.4870E-02	4.1400E+00	3.6385E-02	2.2130E+00	3.7729E-02	1.8622E+00	3.9724E-02	1.5826E+00
54	3.3778E-02	4.1780E+00	3.5131E-02	2.2323E+00	3.6416E-02	1.8783E+00	3.8331E-02	1.5962E+00
55	3.2738E-02	4.2154E+00	3.3941E-02	2.2512E+00	3.5170E-02	1.8941E+00	3.7010E-02	1.6096E+00
56	3.1747E-02	4.2522E+00	3.2811E-02	2.2697E+00	3.3988E-02	1.9096E+00	3.5757E-02	1.6227E+00
57	3.0802E-02	4.2885E+00	3.1737E-02	2.2880E+00	3.2864E-02	1.9249E+00	3.4567E-02	1.6357E+00
58	2.9900E-02	4.3242E+00	3.0715E-02	2.3059E+00	3.1796E-02	1.9399E+00	3.3436E-02	1.6483E+00
59	2.9038E-02	4.3594E+00	2.9743E-02	2.3235E+00	3.0779E-02	1.9546E+00	3.2360E-02	1.6608E+00
60	2.8214E-02	4.3940E+00	2.8816E-02	2.3408E+00	2.9811E-02	1.9691E+00	3.1336E-02	1.6730E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Co; $Z = 27$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	6.3345E+00	2.4885E-01	7.1396E+00	1.5015E-01	7.4634E+00	1.2860E-01	7.8891E+00	1.1082E-01
1	5.3351E+00	2.9049E-01	6.0630E+00	1.7408E-01	6.3475E+00	1.4890E-01	6.7232E+00	1.2806E-01
2	3.7285E+00	3.9756E-01	4.3138E+00	2.3464E-01	4.5284E+00	2.0021E-01	4.8089E+00	1.7179E-01
3	2.6415E+00	5.2758E-01	3.1086E+00	3.0694E-01	3.2710E+00	2.6136E-01	3.4795E+00	2.2392E-01
4	1.9824E+00	6.5400E-01	2.3650E+00	3.7653E-01	2.4932E+00	3.2012E-01	2.6556E+00	2.7398E-01
5	1.5471E+00	7.7496E-01	1.8668E+00	4.4268E-01	1.9711E+00	3.7592E-01	2.1018E+00	3.2149E-01
6	1.2354E+00	8.9524E-01	1.5051E+00	5.0805E-01	1.5912E+00	4.3102E-01	1.6982E+00	3.6837E-01
7	1.0023E+00	1.0180E+00	1.2302E+00	5.7437E-01	1.3019E+00	4.8688E-01	1.3905E+00	4.1586E-01
8	8.2457E-01	1.1438E+00	1.0168E+00	6.4212E-01	1.0768E+00	5.4390E-01	1.1505E+00	4.6433E-01
9	6.8764E-01	1.2718E+00	8.4926E-01	7.1097E-01	8.9961E-01	6.0184E-01	9.6144E-01	5.1357E-01
10	5.8130E-01	1.4001E+00	7.1684E-01	7.8012E-01	7.5926E-01	6.6003E-01	8.1138E-01	5.6302E-01
11	4.9779E-01	1.5266E+00	6.1133E-01	8.4855E-01	6.4721E-01	7.1764E-01	6.9143E-01	6.1200E-01
12	4.3188E-01	1.6497E+00	5.2710E-01	9.1542E-01	5.5763E-01	7.7396E-01	5.9543E-01	6.5989E-01
13	3.7895E-01	1.7679E+00	4.5911E-01	9.7988E-01	4.8525E-01	8.2829E-01	5.1782E-01	7.0611E-01
14	3.3570E-01	1.8803E+00	4.0361E-01	1.0414E+00	4.2617E-01	8.8015E-01	4.5445E-01	7.5024E-01
15	2.9989E-01	1.9867E+00	3.5789E-01	1.0996E+00	3.7752E-01	9.2927E-01	4.0230E-01	7.9204E-01
16	2.6980E-01	2.0873E+00	3.1984E-01	1.1545E+00	3.3707E-01	9.7557E-01	3.5896E-01	8.3144E-01
17	2.4420E-01	2.1825E+00	2.8782E-01	1.2062E+00	3.0308E-01	1.0191E+00	3.2258E-01	8.6846E-01
18	2.2220E-01	2.2726E+00	2.6061E-01	1.2548E+00	2.7424E-01	1.0600E+00	2.9174E-01	9.0325E-01
19	2.0311E-01	2.3582E+00	2.3727E-01	1.3006E+00	2.4954E-01	1.0985E+00	2.6535E-01	9.3600E-01
20	1.8642E-01	2.4399E+00	2.1707E-01	1.3439E+00	2.2819E-01	1.1350E+00	2.4257E-01	9.6692E-01
21	1.7175E-01	2.5181E+00	1.9945E-01	1.3851E+00	2.0959E-01	1.1695E+00	2.2274E-01	9.9625E-01
22	1.5878E-01	2.5933E+00	1.8397E-01	1.4244E+00	1.9327E-01	1.2025E+00	2.0535E-01	1.0242E+00
23	1.4725E-01	2.6658E+00	1.7028E-01	1.4620E+00	1.7884E-01	1.2340E+00	1.8999E-01	1.0509E+00
24	1.3698E-01	2.7359E+00	1.5810E-01	1.4983E+00	1.6601E-01	1.2644E+00	1.7634E-01	1.0767E+00
25	1.2778E-01	2.8039E+00	1.4722E-01	1.5333E+00	1.5455E-01	1.2938E+00	1.6413E-01	1.1015E+00
26	1.1951E-01	2.8701E+00	1.3744E-01	1.5674E+00	1.4425E-01	1.3222E+00	1.5317E-01	1.1256E+00
27	1.1206E-01	2.9345E+00	1.2861E-01	1.6004E+00	1.3496E-01	1.3499E+00	1.4328E-01	1.1490E+00
28	1.0532E-01	2.9974E+00	1.2062E-01	1.6327E+00	1.2654E-01	1.3769E+00	1.3432E-01	1.1719E+00
29	9.9215E-02	3.0588E+00	1.1335E-01	1.6642E+00	1.1888E-01	1.4033E+00	1.2617E-01	1.1942E+00
30	9.3657E-02	3.1190E+00	1.0673E-01	1.6951E+00	1.1190E-01	1.4291E+00	1.1874E-01	1.2161E+00
31	8.8586E-02	3.1778E+00	1.0067E-01	1.7254E+00	1.0551E-01	1.4544E+00	1.1193E-01	1.2375E+00
32	8.3946E-02	3.2355E+00	9.5111E-02	1.7550E+00	9.9652E-02	1.4793E+00	1.0569E-01	1.2586E+00
33	7.9689E-02	3.2921E+00	9.0001E-02	1.7842E+00	9.4262E-02	1.5037E+00	9.9943E-02	1.2793E+00
34	7.5773E-02	3.3475E+00	8.5292E-02	1.8127E+00	8.9294E-02	1.5276E+00	9.4648E-02	1.2995E+00
35	7.2162E-02	3.4020E+00	8.0942E-02	1.8408E+00	8.4703E-02	1.5512E+00	8.9755E-02	1.3195E+00
36	6.8823E-02	3.4554E+00	7.6917E-02	1.8684E+00	8.0454E-02	1.5743E+00	8.5226E-02	1.3391E+00
37	6.5729E-02	3.5079E+00	7.3183E-02	1.8955E+00	7.6514E-02	1.5970E+00	8.1025E-02	1.3583E+00
38	6.2854E-02	3.5594E+00	6.9715E-02	1.9222E+00	7.2852E-02	1.6193E+00	7.7122E-02	1.3773E+00
39	6.0178E-02	3.6100E+00	6.6487E-02	1.9483E+00	6.9445E-02	1.6413E+00	7.3490E-02	1.3959E+00
40	5.7682E-02	3.6598E+00	6.3477E-02	1.9740E+00	6.6269E-02	1.6628E+00	7.0105E-02	1.4141E+00
41	5.5350E-02	3.7087E+00	6.0667E-02	1.9993E+00	6.3304E-02	1.6840E+00	6.6945E-02	1.4321E+00
42	5.3165E-02	3.7567E+00	5.8040E-02	2.0240E+00	6.0532E-02	1.7048E+00	6.3992E-02	1.4497E+00
43	5.1116E-02	3.8039E+00	5.5580E-02	2.0484E+00	5.7938E-02	1.7252E+00	6.1227E-02	1.4670E+00
44	4.9190E-02	3.8503E+00	5.3272E-02	2.0723E+00	5.5505E-02	1.7452E+00	5.8636E-02	1.4840E+00
45	4.7377E-02	3.8959E+00	5.1106E-02	2.0958E+00	5.3222E-02	1.7649E+00	5.6205E-02	1.5007E+00
46	4.5668E-02	3.9408E+00	4.9069E-02	2.1188E+00	5.1076E-02	1.7843E+00	5.3921E-02	1.5171E+00
47	4.4056E-02	3.9849E+00	4.7152E-02	2.1415E+00	4.9057E-02	1.8032E+00	5.1772E-02	1.5332E+00
48	4.2531E-02	4.0283E+00	4.5345E-02	2.1637E+00	4.7156E-02	1.8219E+00	4.9749E-02	1.5490E+00
49	4.1088E-02	4.0710E+00	4.3641E-02	2.1856E+00	4.5362E-02	1.8402E+00	4.7842E-02	1.5645E+00
50	3.9720E-02	4.1130E+00	4.2031E-02	2.2070E+00	4.3670E-02	1.8582E+00	4.6042E-02	1.5797E+00
51	3.8423E-02	4.1543E+00	4.0509E-02	2.2281E+00	4.2070E-02	1.8758E+00	4.4342E-02	1.5947E+00
52	3.7191E-02	4.1950E+00	3.9068E-02	2.2488E+00	4.0557E-02	1.8931E+00	4.2734E-02	1.6094E+00
53	3.6020E-02	4.2351E+00	3.7703E-02	2.2691E+00	3.9124E-02	1.9102E+00	4.1212E-02	1.6238E+00
54	3.4905E-02	4.2745E+00	3.6409E-02	2.2891E+00	3.7766E-02	1.9269E+00	3.9771E-02	1.6380E+00
55	3.3844E-02	4.3134E+00	3.5181E-02	2.3087E+00	3.6478E-02	1.9433E+00	3.8404E-02	1.6519E+00
56	3.2832E-02	4.3516E+00	3.4014E-02	2.3280E+00	3.5254E-02	1.9595E+00	3.7106E-02	1.6655E+00
57	3.1866E-02	4.3893E+00	3.2905E-02	2.3470E+00	3.4092E-02	1.9753E+00	3.5874E-02	1.6790E+00
58	3.0944E-02	4.4265E+00	3.1849E-02	2.3656E+00	3.2987E-02	1.9909E+00	3.4702E-02	1.6922E+00
59	3.0063E-02	4.4631E+00	3.0844E-02	2.3840E+00	3.1935E-02	2.0062E+00	3.3587E-02	1.7052E+00
60	2.9220E-02	4.4991E+00	2.9886E-02	2.4020E+00	3.0933E-02	2.0213E+00	3.2526E-02	1.7179E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Ni; Z = 28

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	6.0281E+00	2.5677E-01	6.8220E+00	1.5635E-01	7.1366E+00	1.3413E-01	7.5470E+00	1.1574E-01
1	5.1251E+00	2.9736E-01	5.8484E+00	1.7981E-01	6.1275E+00	1.5405E-01	6.4937E+00	1.3265E-01
2	3.6392E+00	4.0197E-01	4.2290E+00	2.3932E-01	4.4432E+00	2.0451E-01	4.7213E+00	1.7568E-01
3	2.6058E+00	5.3016E-01	3.0820E+00	3.1095E-01	3.2460E+00	2.6513E-01	3.4555E+00	2.2740E-01
4	1.9688E+00	6.5582E-01	2.3620E+00	3.8040E-01	2.4927E+00	3.2383E-01	2.6572E+00	2.7742E-01
5	1.5449E+00	7.7628E-01	1.8757E+00	4.4652E-01	1.9828E+00	3.7964E-01	2.1161E+00	3.2496E-01
6	1.2398E+00	8.9586E-01	1.5207E+00	5.1173E-01	1.6097E+00	4.3464E-01	1.7196E+00	3.7176E-01
7	1.0103E+00	1.0177E+00	1.2494E+00	5.7776E-01	1.3241E+00	4.9028E-01	1.4155E+00	4.1909E-01
8	8.3425E-01	1.1426E+00	1.0374E+00	6.4522E-01	1.1002E+00	5.4708E-01	1.1769E+00	4.6738E-01
9	6.9771E-01	1.2701E+00	8.6981E-01	7.1392E-01	9.2287E-01	6.0491E-01	9.8746E-01	5.1653E-01
10	5.9103E-01	1.3986E+00	7.3638E-01	7.8322E-01	7.8131E-01	6.6323E-01	8.3601E-01	5.6611E-01
11	5.0685E-01	1.5261E+00	6.2937E-01	8.5224E-01	6.6755E-01	7.2135E-01	7.1412E-01	6.1552E-01
12	4.4017E-01	1.6510E+00	5.4343E-01	9.2013E-01	5.7601E-01	7.7854E-01	6.1592E-01	6.6415E-01
13	3.8650E-01	1.7717E+00	4.7371E-01	9.8608E-01	5.0167E-01	8.3413E-01	5.3609E-01	7.1145E-01
14	3.4263E-01	1.8873E+00	4.1661E-01	1.0495E+00	4.4074E-01	8.8761E-01	4.7065E-01	7.5696E-01
15	3.0628E-01	1.9973E+00	3.6944E-01	1.1099E+00	3.9043E-01	9.3861E-01	4.1661E-01	8.0038E-01
16	2.7575E-01	2.1017E+00	3.3011E-01	1.1672E+00	3.4850E-01	9.8696E-01	3.7160E-01	8.4155E-01
17	2.4977E-01	2.2007E+00	2.9700E-01	1.2214E+00	3.1324E-01	1.0326E+00	3.3378E-01	8.8043E-01
18	2.2743E-01	2.2946E+00	2.6884E-01	1.2725E+00	2.8330E-01	1.0757E+00	3.0170E-01	9.1708E-01
19	2.0803E-01	2.3840E+00	2.4469E-01	1.3207E+00	2.5767E-01	1.1163E+00	2.7426E-01	9.5164E-01
20	1.9106E-01	2.4692E+00	2.2379E-01	1.3664E+00	2.3552E-01	1.1547E+00	2.5058E-01	9.8428E-01
21	1.7611E-01	2.5508E+00	2.0557E-01	1.4097E+00	2.1624E-01	1.1912E+00	2.2999E-01	1.0152E+00
22	1.6288E-01	2.6291E+00	1.8958E-01	1.4510E+00	1.9933E-01	1.2258E+00	2.1195E-01	1.0446E+00
23	1.5111E-01	2.7046E+00	1.7544E-01	1.4904E+00	1.8441E-01	1.2589E+00	1.9603E-01	1.0727E+00
24	1.4060E-01	2.7775E+00	1.6287E-01	1.5283E+00	1.7115E-01	1.2907E+00	1.8190E-01	1.0996E+00
25	1.3117E-01	2.8482E+00	1.5164E-01	1.5648E+00	1.5931E-01	1.3213E+00	1.6929E-01	1.1255E+00
26	1.2270E-01	2.9168E+00	1.4156E-01	1.6002E+00	1.4869E-01	1.3509E+00	1.5797E-01	1.1506E+00
27	1.1506E-01	2.9835E+00	1.3247E-01	1.6345E+00	1.3911E-01	1.3796E+00	1.4776E-01	1.1749E+00
28	1.0814E-01	3.0486E+00	1.2424E-01	1.6679E+00	1.3043E-01	1.4075E+00	1.3853E-01	1.1985E+00
29	1.0187E-01	3.1121E+00	1.1677E-01	1.7004E+00	1.2255E-01	1.4347E+00	1.3013E-01	1.2215E+00
30	9.6158E-02	3.1742E+00	1.0995E-01	1.7322E+00	1.1537E-01	1.4613E+00	1.2248E-01	1.2441E+00
31	9.0948E-02	3.2349E+00	1.0372E-01	1.7633E+00	1.0880E-01	1.4874E+00	1.1548E-01	1.2661E+00
32	8.6182E-02	3.2944E+00	9.8012E-02	1.7938E+00	1.0277E-01	1.5129E+00	1.0906E-01	1.2877E+00
33	8.1810E-02	3.3527E+00	9.2761E-02	1.8237E+00	9.7232E-02	1.5380E+00	1.0315E-01	1.3089E+00
34	7.7790E-02	3.4098E+00	8.7923E-02	1.8531E+00	9.2125E-02	1.5625E+00	9.7710E-02	1.3298E+00
35	7.4084E-02	3.4659E+00	8.3454E-02	1.8819E+00	8.7407E-02	1.5867E+00	9.2679E-02	1.3502E+00
36	7.0660E-02	3.5210E+00	7.9319E-02	1.9102E+00	8.3040E-02	1.6104E+00	8.8023E-02	1.3703E+00
37	6.7488E-02	3.5750E+00	7.5484E-02	1.9381E+00	7.8990E-02	1.6337E+00	8.3703E-02	1.3901E+00
38	6.4543E-02	3.6281E+00	7.1921E-02	1.9654E+00	7.5226E-02	1.6566E+00	7.9689E-02	1.4095E+00
39	6.1804E-02	3.6802E+00	6.8605E-02	1.9923E+00	7.1723E-02	1.6791E+00	7.5953E-02	1.4286E+00
40	5.9249E-02	3.7315E+00	6.5513E-02	2.0187E+00	6.8458E-02	1.7013E+00	7.2470E-02	1.4473E+00
41	5.6864E-02	3.7818E+00	6.2626E-02	2.0446E+00	6.5409E-02	1.7230E+00	6.9218E-02	1.4658E+00
42	5.4630E-02	3.8314E+00	5.9926E-02	2.0701E+00	6.2557E-02	1.7444E+00	6.6178E-02	1.4839E+00
43	5.2537E-02	3.8800E+00	5.7397E-02	2.0952E+00	5.9887E-02	1.7654E+00	6.3331E-02	1.5017E+00
44	5.0570E-02	3.9279E+00	5.5025E-02	2.1198E+00	5.7384E-02	1.7861E+00	6.0662E-02	1.5192E+00
45	4.8720E-02	3.9750E+00	5.2798E-02	2.1440E+00	5.5034E-02	1.8064E+00	5.8157E-02	1.5364E+00
46	4.6976E-02	4.0213E+00	5.0703E-02	2.1678E+00	5.2824E-02	1.8263E+00	5.5802E-02	1.5533E+00
47	4.5331E-02	4.0669E+00	4.8731E-02	2.1912E+00	5.0745E-02	1.8459E+00	5.3587E-02	1.5699E+00
48	4.3776E-02	4.1118E+00	4.6872E-02	2.2142E+00	4.8785E-02	1.8651E+00	5.1501E-02	1.5863E+00
49	4.2305E-02	4.1559E+00	4.5118E-02	2.2367E+00	4.6937E-02	1.8841E+00	4.9533E-02	1.6023E+00
50	4.0911E-02	4.1994E+00	4.3461E-02	2.2589E+00	4.5192E-02	1.9026E+00	4.7675E-02	1.6181E+00
51	3.9589E-02	4.2422E+00	4.1894E-02	2.2807E+00	4.3542E-02	1.9209E+00	4.5921E-02	1.6335E+00
52	3.8333E-02	4.2843E+00	4.0410E-02	2.3021E+00	4.1982E-02	1.9389E+00	4.4261E-02	1.6487E+00
53	3.7139E-02	4.3258E+00	3.9005E-02	2.3232E+00	4.0504E-02	1.9565E+00	4.2689E-02	1.6637E+00
54	3.6003E-02	4.3667E+00	3.7671E-02	2.3439E+00	3.9102E-02	1.9738E+00	4.1200E-02	1.6784E+00
55	3.4921E-02	4.4069E+00	3.6406E-02	2.3642E+00	3.7773E-02	1.9909E+00	3.9787E-02	1.6928E+00
56	3.3889E-02	4.4466E+00	3.5203E-02	2.3843E+00	3.6510E-02	2.0076E+00	3.8446E-02	1.7070E+00
57	3.2904E-02	4.4857E+00	3.4059E-02	2.4039E+00	3.5310E-02	2.0241E+00	3.7172E-02	1.7209E+00
58	3.1964E-02	4.5243E+00	3.2971E-02	2.4233E+00	3.4169E-02	2.0403E+00	3.5961E-02	1.7346E+00
59	3.1065E-02	4.5623E+00	3.1934E-02	2.4423E+00	3.3082E-02	2.0562E+00	3.4808E-02	1.7481E+00
60	3.0205E-02	4.5997E+00	3.0946E-02	2.4611E+00	3.2046E-02	2.0719E+00	3.3710E-02	1.7614E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Cu; $Z = 29$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	5.0642E+00	2.7713E-01	5.7822E+00	1.7072E-01	6.0572E+00	1.4676E-01	6.4098E+00	1.2687E-01
1	4.3690E+00	3.1776E-01	5.0303E+00	1.9423E-01	5.2779E+00	1.6671E-01	5.5985E+00	1.4378E-01
2	3.2591E+00	4.1339E-01	3.8162E+00	2.4878E-01	4.0147E+00	2.1298E-01	4.2702E+00	1.8320E-01
3	2.4617E+00	5.2313E-01	2.9296E+00	3.1045E-01	3.0891E+00	2.6522E-01	3.2913E+00	2.2779E-01
4	1.9223E+00	6.3324E-01	2.3205E+00	3.7172E-01	2.4517E+00	3.1705E-01	2.6158E+00	2.7199E-01
5	1.5337E+00	7.4484E-01	1.8750E+00	4.3330E-01	1.9844E+00	3.6908E-01	2.1198E+00	3.1633E-01
6	1.2413E+00	8.6014E-01	1.5344E+00	4.9643E-01	1.6264E+00	4.2236E-01	1.7392E+00	3.6170E-01
7	1.0166E+00	9.8006E-01	1.2680E+00	5.6165E-01	1.3457E+00	4.7734E-01	1.4403E+00	4.0848E-01
8	8.4223E-01	1.1043E+00	1.0572E+00	6.2890E-01	1.1230E+00	5.3399E-01	1.2027E+00	4.5666E-01
9	7.0608E-01	1.2319E+00	8.8921E-01	6.9773E-01	9.4508E-01	5.9194E-01	1.0125E+00	5.0593E-01
10	5.9918E-01	1.3609E+00	7.5470E-01	7.6744E-01	8.0223E-01	6.5063E-01	8.5955E-01	5.5581E-01
11	5.1455E-01	1.4896E+00	6.4631E-01	8.3716E-01	6.8684E-01	7.0934E-01	7.3579E-01	6.0574E-01
12	4.4731E-01	1.6163E+00	5.5884E-01	9.0608E-01	5.9352E-01	7.6741E-01	6.3556E-01	6.5512E-01
13	3.9310E-01	1.7394E+00	4.8760E-01	9.7340E-01	5.1742E-01	8.2416E-01	5.5374E-01	7.0341E-01
14	3.4875E-01	1.8578E+00	4.2908E-01	1.0385E+00	4.5484E-01	8.7907E-01	4.8642E-01	7.5015E-01
15	3.1200E-01	1.9710E+00	3.8062E-01	1.1009E+00	4.0302E-01	9.3174E-01	4.3066E-01	7.9500E-01
16	2.8112E-01	2.0788E+00	3.4014E-01	1.1603E+00	3.5975E-01	9.8194E-01	3.8412E-01	8.3775E-01
17	2.5485E-01	2.1813E+00	3.0601E-01	1.2168E+00	3.2330E-01	1.0296E+00	3.4494E-01	8.7832E-01
18	2.3224E-01	2.2788E+00	2.7697E-01	1.2702E+00	2.9234E-01	1.0747E+00	3.1169E-01	9.1671E-01
19	2.1261E-01	2.3717E+00	2.5205E-01	1.3207E+00	2.6580E-01	1.1173E+00	2.8322E-01	9.5299E-01
20	1.9541E-01	2.4603E+00	2.3048E-01	1.3686E+00	2.4288E-01	1.1576E+00	2.5866E-01	9.8731E-01
21	1.8024E-01	2.5452E+00	2.1169E-01	1.4141E+00	2.2294E-01	1.1959E+00	2.3731E-01	1.0198E+00
22	1.6679E-01	2.6267E+00	1.9518E-01	1.4574E+00	2.0545E-01	1.2323E+00	2.1862E-01	1.0507E+00
23	1.5482E-01	2.7051E+00	1.8060E-01	1.4987E+00	1.9002E-01	1.2670E+00	2.0214E-01	1.0802E+00
24	1.4411E-01	2.7809E+00	1.6765E-01	1.5384E+00	1.7633E-01	1.3003E+00	1.8752E-01	1.1084E+00
25	1.3449E-01	2.8542E+00	1.5608E-01	1.5765E+00	1.6411E-01	1.3322E+00	1.7449E-01	1.1355E+00
26	1.2583E-01	2.9254E+00	1.4570E-01	1.6133E+00	1.5315E-01	1.3630E+00	1.6280E-01	1.1616E+00
27	1.1802E-01	2.9946E+00	1.3634E-01	1.6489E+00	1.4327E-01	1.3929E+00	1.5227E-01	1.1869E+00
28	1.1093E-01	3.0619E+00	1.2787E-01	1.6835E+00	1.3433E-01	1.4218E+00	1.4275E-01	1.2114E+00
29	1.0451E-01	3.1276E+00	1.2018E-01	1.7172E+00	1.2622E-01	1.4500E+00	1.3410E-01	1.2352E+00
30	9.8651E-02	3.1918E+00	1.1317E-01	1.7500E+00	1.1883E-01	1.4775E+00	1.2622E-01	1.2585E+00
31	9.3307E-02	3.2545E+00	1.0677E-01	1.7821E+00	1.1207E-01	1.5043E+00	1.1902E-01	1.2812E+00
32	8.8417E-02	3.3159E+00	1.0090E-01	1.8135E+00	1.0588E-01	1.5306E+00	1.1242E-01	1.3035E+00
33	8.3931E-02	3.3760E+00	9.5503E-02	1.8443E+00	1.0018E-01	1.5564E+00	1.0634E-01	1.3253E+00
34	7.9807E-02	3.4350E+00	9.0533E-02	1.8745E+00	9.4933E-02	1.5816E+00	1.0075E-01	1.3466E+00
35	7.6006E-02	3.4928E+00	8.5944E-02	1.9041E+00	9.0086E-02	1.6064E+00	9.5577E-02	1.3676E+00
36	7.2494E-02	3.5495E+00	8.1697E-02	1.9332E+00	8.5600E-02	1.6307E+00	9.0792E-02	1.3882E+00
37	6.9242E-02	3.6052E+00	7.7760E-02	1.9617E+00	8.1439E-02	1.6547E+00	8.6353E-02	1.4085E+00
38	6.6225E-02	3.6599E+00	7.4102E-02	1.9898E+00	7.7573E-02	1.6782E+00	8.2228E-02	1.4284E+00
39	6.3420E-02	3.7136E+00	7.0697E-02	2.0174E+00	7.3975E-02	1.7013E+00	7.8388E-02	1.4480E+00
40	6.0805E-02	3.7664E+00	6.7523E-02	2.0445E+00	7.0620E-02	1.7240E+00	7.4808E-02	1.4673E+00
41	5.8365E-02	3.8183E+00	6.4559E-02	2.0712E+00	6.7487E-02	1.7464E+00	7.1464E-02	1.4862E+00
42	5.6081E-02	3.8693E+00	6.1786E-02	2.0974E+00	6.4557E-02	1.7683E+00	6.8338E-02	1.5048E+00
43	5.3942E-02	3.9195E+00	5.9190E-02	2.1232E+00	6.1813E-02	1.7899E+00	6.5410E-02	1.5231E+00
44	5.1933E-02	3.9689E+00	5.6754E-02	2.1485E+00	5.9239E-02	1.8112E+00	6.2664E-02	1.5411E+00
45	5.0044E-02	4.0175E+00	5.4466E-02	2.1734E+00	5.6823E-02	1.8320E+00	6.0086E-02	1.5588E+00
46	4.8265E-02	4.0653E+00	5.2315E-02	2.1979E+00	5.4550E-02	1.8526E+00	5.7663E-02	1.5762E+00
47	4.6586E-02	4.1123E+00	5.0289E-02	2.2220E+00	5.2411E-02	1.8728E+00	5.5383E-02	1.5934E+00
48	4.5001E-02	4.1586E+00	4.8379E-02	2.2456E+00	5.0396E-02	1.8926E+00	5.3234E-02	1.6102E+00
49	4.3501E-02	4.2042E+00	4.6576E-02	2.2689E+00	4.8494E-02	1.9121E+00	5.1207E-02	1.6267E+00
50	4.2081E-02	4.2491E+00	4.4873E-02	2.2918E+00	4.6698E-02	1.9313E+00	4.9294E-02	1.6430E+00
51	4.0734E-02	4.2934E+00	4.3262E-02	2.3143E+00	4.5000E-02	1.9501E+00	4.7485E-02	1.6589E+00
52	3.9454E-02	4.3369E+00	4.1736E-02	2.3365E+00	4.3393E-02	1.9687E+00	4.5774E-02	1.6747E+00
53	3.8239E-02	4.3799E+00	4.0291E-02	2.3582E+00	4.1870E-02	1.9869E+00	4.4153E-02	1.6901E+00
54	3.7082E-02	4.4222E+00	3.8919E-02	2.3796E+00	4.0427E-02	2.0048E+00	4.2618E-02	1.7053E+00
55	3.5979E-02	4.4639E+00	3.7617E-02	2.4007E+00	3.9057E-02	2.0225E+00	4.1161E-02	1.7202E+00
56	3.4929E-02	4.5049E+00	3.6379E-02	2.4214E+00	3.7755E-02	2.0398E+00	3.9777E-02	1.7349E+00
57	3.3926E-02	4.5455E+00	3.5202E-02	2.4418E+00	3.6518E-02	2.0568E+00	3.8462E-02	1.7494E+00
58	3.2969E-02	4.5854E+00	3.4082E-02	2.4618E+00	3.5341E-02	2.0736E+00	3.7212E-02	1.7636E+00
59	3.2053E-02	4.6248E+00	3.3014E-02	2.4815E+00	3.4221E-02	2.0901E+00	3.6022E-02	1.7775E+00
60	3.1178E-02	4.6636E+00	3.1996E-02	2.5010E+00	3.3153E-02	2.1064E+00	3.4888E-02	1.7913E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Zn; Z = 30

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	5.4874E+00	2.7128E-01	6.2593E+00	1.6820E-01	6.5575E+00	1.4480E-01	6.9412E+00	1.2528E-01
1	4.7400E+00	3.0996E-01	5.4522E+00	1.9082E-01	5.7212E+00	1.6402E-01	6.0698E+00	1.4161E-01
2	3.4593E+00	4.1012E-01	4.0540E+00	2.4844E-01	4.2664E+00	2.1298E-01	4.5393E+00	1.8338E-01
3	2.5248E+00	5.3472E-01	3.0146E+00	3.1876E-01	3.1811E+00	2.7259E-01	3.3912E+00	2.3430E-01
4	1.9313E+00	6.5860E-01	2.3419E+00	3.8781E-01	2.4767E+00	3.3103E-01	2.6444E+00	2.8416E-01
5	1.5308E+00	7.7778E-01	1.8807E+00	4.5373E-01	1.9925E+00	3.8675E-01	2.1302E+00	3.3166E-01
6	1.2397E+00	8.9576E-01	1.5405E+00	5.1854E-01	1.6347E+00	4.4147E-01	1.7496E+00	3.7827E-01
7	1.0187E+00	1.0156E+00	1.2779E+00	5.8393E-01	1.3579E+00	4.9663E-01	1.4546E+00	4.2522E-01
8	8.4717E-01	1.1385E+00	1.0703E+00	6.5067E-01	1.1385E+00	5.5288E-01	1.2205E+00	4.7308E-01
9	7.1254E-01	1.2644E+00	9.0415E-01	7.1882E-01	9.6237E-01	6.1028E-01	1.0322E+00	5.2189E-01
10	6.0616E-01	1.3923E+00	7.7017E-01	7.8798E-01	8.2000E-01	6.6852E-01	8.7964E-01	5.7141E-01
11	5.2145E-01	1.5206E+00	6.6144E-01	8.5750E-01	7.0417E-01	7.2708E-01	7.5534E-01	6.2120E-01
12	4.5381E-01	1.6476E+00	5.7310E-01	9.2664E-01	6.0983E-01	7.8534E-01	6.5395E-01	6.7075E-01
13	3.9913E-01	1.7719E+00	5.0075E-01	9.9466E-01	5.3243E-01	8.4269E-01	5.7064E-01	7.1955E-01
14	3.5433E-01	1.8924E+00	4.4103E-01	1.0609E+00	4.6848E-01	8.9858E-01	5.0175E-01	7.6713E-01
15	3.1720E-01	2.0082E+00	3.9142E-01	1.1249E+00	4.1531E-01	9.5258E-01	4.4446E-01	8.1313E-01
16	2.8601E-01	2.1189E+00	3.4988E-01	1.1862E+00	3.7079E-01	1.0044E+00	3.9648E-01	8.5726E-01
17	2.5948E-01	2.2247E+00	3.1479E-01	1.2447E+00	3.3321E-01	1.0538E+00	3.5601E-01	8.9938E-01
18	2.3666E-01	2.3255E+00	2.8491E-01	1.3003E+00	3.0125E-01	1.1008E+00	3.2161E-01	9.3941E-01
19	2.1683E-01	2.4217E+00	2.5925E-01	1.3532E+00	2.7384E-01	1.1454E+00	2.9214E-01	9.7739E-01
20	1.9945E-01	2.5136E+00	2.3705E-01	1.4033E+00	2.5016E-01	1.1877E+00	2.6671E-01	1.0134E+00
21	1.8411E-01	2.6016E+00	2.1769E-01	1.4509E+00	2.2955E-01	1.2278E+00	2.4460E-01	1.0475E+00
22	1.7049E-01	2.6862E+00	2.0069E-01	1.4963E+00	2.1150E-01	1.2660E+00	2.2525E-01	1.0800E+00
23	1.5834E-01	2.7675E+00	1.8568E-01	1.5395E+00	1.9557E-01	1.3024E+00	2.0821E-01	1.1109E+00
24	1.4746E-01	2.8461E+00	1.7235E-01	1.5810E+00	1.8144E-01	1.3372E+00	1.9310E-01	1.1405E+00
25	1.3768E-01	2.9221E+00	1.6045E-01	1.6208E+00	1.6884E-01	1.3706E+00	1.7964E-01	1.1688E+00
26	1.2886E-01	2.9958E+00	1.4977E-01	1.6591E+00	1.5755E-01	1.4027E+00	1.6758E-01	1.1960E+00
27	1.2088E-01	3.0673E+00	1.4014E-01	1.6961E+00	1.4738E-01	1.4337E+00	1.5673E-01	1.2223E+00
28	1.1365E-01	3.1370E+00	1.3144E-01	1.7320E+00	1.3818E-01	1.4638E+00	1.4692E-01	1.2477E+00
29	1.0707E-01	3.2049E+00	1.2353E-01	1.7668E+00	1.2984E-01	1.4929E+00	1.3802E-01	1.2724E+00
30	1.0108E-01	3.2711E+00	1.1633E-01	1.8008E+00	1.2224E-01	1.5213E+00	1.2991E-01	1.2964E+00
31	9.5606E-02	3.3358E+00	1.0976E-01	1.8339E+00	1.1529E-01	1.5490E+00	1.2251E-01	1.3199E+00
32	9.0596E-02	3.3991E+00	1.0373E-01	1.8662E+00	1.0893E-01	1.5761E+00	1.1572E-01	1.3428E+00
33	8.5998E-02	3.4611E+00	9.8190E-02	1.8978E+00	1.0308E-01	1.6025E+00	1.0948E-01	1.3652E+00
34	8.1770E-02	3.5219E+00	9.3090E-02	1.9288E+00	9.7689E-02	1.6285E+00	1.0373E-01	1.3871E+00
35	7.7874E-02	3.5814E+00	8.8381E-02	1.9592E+00	9.2714E-02	1.6539E+00	9.8425E-02	1.4087E+00
36	7.4275E-02	3.6398E+00	8.4024E-02	1.9891E+00	8.8110E-02	1.6789E+00	9.3512E-02	1.4298E+00
37	7.0943E-02	3.6971E+00	7.9985E-02	2.0184E+00	8.3840E-02	1.7034E+00	8.8955E-02	1.4506E+00
38	6.7853E-02	3.7534E+00	7.6233E-02	2.0472E+00	7.9873E-02	1.7275E+00	8.4720E-02	1.4710E+00
39	6.4980E-02	3.8087E+00	7.2741E-02	2.0755E+00	7.6181E-02	1.7512E+00	8.0779E-02	1.4911E+00
40	6.2305E-02	3.8631E+00	6.9486E-02	2.1033E+00	7.2738E-02	1.7745E+00	7.7103E-02	1.5108E+00
41	5.9809E-02	3.9165E+00	6.6446E-02	2.1306E+00	6.9523E-02	1.7974E+00	7.3671E-02	1.5302E+00
42	5.7475E-02	3.9690E+00	6.3603E-02	2.1575E+00	6.6516E-02	1.8199E+00	7.0460E-02	1.5493E+00
43	5.5289E-02	4.0207E+00	6.0940E-02	2.1840E+00	6.3700E-02	1.8421E+00	6.7453E-02	1.5681E+00
44	5.3238E-02	4.0715E+00	5.8442E-02	2.2100E+00	6.1058E-02	1.8639E+00	6.4633E-02	1.5865E+00
45	5.1311E-02	4.1215E+00	5.6096E-02	2.2356E+00	5.8577E-02	1.8853E+00	6.1985E-02	1.6047E+00
46	4.9496E-02	4.1708E+00	5.3889E-02	2.2608E+00	5.6244E-02	1.9064E+00	5.9495E-02	1.6226E+00
47	4.785E-02	4.2192E+00	5.1811E-02	2.2855E+00	5.4047E-02	1.9272E+00	5.7151E-02	1.6402E+00
48	4.6170E-02	4.2670E+00	4.9851E-02	2.3099E+00	5.1977E-02	1.9476E+00	5.4942E-02	1.6575E+00
49	4.4642E-02	4.3140E+00	4.8002E-02	2.3338E+00	5.0023E-02	1.9677E+00	5.2857E-02	1.6745E+00
50	4.3196E-02	4.3603E+00	4.6254E-02	2.3574E+00	4.8177E-02	1.9874E+00	5.0889E-02	1.6913E+00
51	4.1825E-02	4.4059E+00	4.4600E-02	2.3806E+00	4.6432E-02	2.0069E+00	4.9028E-02	1.7077E+00
52	4.0524E-02	4.4509E+00	4.3034E-02	2.4034E+00	4.4780E-02	2.0260E+00	4.7268E-02	1.7239E+00
53	3.9287E-02	4.4952E+00	4.1550E-02	2.4258E+00	4.3215E-02	2.0448E+00	4.5600E-02	1.7399E+00
54	3.8111E-02	4.5388E+00	4.0142E-02	2.4479E+00	4.1730E-02	2.0633E+00	4.4019E-02	1.7555E+00
55	3.6990E-02	4.5819E+00	3.8805E-02	2.4697E+00	4.0321E-02	2.0815E+00	4.2518E-02	1.7709E+00
56	3.5922E-02	4.6244E+00	3.7533E-02	2.4911E+00	3.8982E-02	2.0994E+00	4.1093E-02	1.7861E+00
57	3.4903E-02	4.6662E+00	3.6324E-02	2.5121E+00	3.7710E-02	2.1170E+00	3.9739E-02	1.8010E+00
58	3.3930E-02	4.7075E+00	3.5173E-02	2.5329E+00	3.6498E-02	2.1343E+00	3.8451E-02	1.8157E+00
59	3.2999E-02	4.7483E+00	3.4076E-02	2.5533E+00	3.5345E-02	2.1514E+00	3.7224E-02	1.8302E+00
60	3.2109E-02	4.7885E+00	3.3029E-02	2.5733E+00	3.4245E-02	2.1682E+00	3.6056E-02	1.8444E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

Ga; $Z = 31$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	6.4743E+00	2.5242E-01	7.3483E+00	1.5747E-01	7.6949E+00	1.3573E-01	8.1454E+00	1.1752E-01
1	5.4069E+00	2.9717E-01	6.1985E+00	1.8391E-01	6.5025E+00	1.5827E-01	6.8986E+00	1.3676E-01
2	3.7407E+00	4.1105E-01	4.3829E+00	2.4991E-01	4.6136E+00	2.1445E-01	4.9098E+00	1.8479E-01
3	2.6231E+00	5.5253E-01	3.1399E+00	3.3009E-01	3.3155E+00	2.8248E-01	3.5363E+00	2.4294E-01
4	1.9583E+00	6.9214E-01	2.3839E+00	4.0807E-01	2.5233E+00	3.4851E-01	2.6907E+00	2.9929E-01
5	1.5352E+00	8.2193E-01	1.8942E+00	4.8000E-01	2.0089E+00	4.0933E-01	2.1493E+00	3.5116E-01
6	1.2401E+00	9.4514E-01	1.5478E+00	5.4787E-01	1.6443E+00	4.6667E-01	1.7613E+00	4.0002E-01
7	1.0205E+00	1.0665E+00	1.2863E+00	6.1432E-01	1.3684E+00	5.2275E-01	1.4671E+00	4.4778E-01
8	8.5101E-01	1.1889E+00	1.0811E+00	6.8101E-01	1.1514E+00	5.7899E-01	1.2355E+00	4.9565E-01
9	7.1785E-01	1.3136E+00	9.1680E-01	7.4864E-01	9.7717E-01	6.3598E-01	1.0491E+00	5.4413E-01
10	6.1215E-01	1.4401E+00	7.8370E-01	8.1721E-01	8.3568E-01	6.9375E-01	8.9749E-01	5.9326E-01
11	5.2753E-01	1.5675E+00	6.7504E-01	8.8635E-01	7.1986E-01	7.5200E-01	7.7314E-01	6.4279E-01
12	4.5965E-01	1.6944E+00	5.8621E-01	9.5544E-01	6.2492E-01	8.1022E-01	6.7104E-01	6.9231E-01
13	4.0459E-01	1.8194E+00	5.1304E-01	1.0238E+00	5.4657E-01	8.6788E-01	5.8664E-01	7.4138E-01
14	3.5941E-01	1.9412E+00	4.5237E-01	1.0909E+00	4.8149E-01	9.2445E-01	5.1647E-01	7.8954E-01
15	3.2193E-01	2.0591E+00	4.0177E-01	1.1560E+00	4.2717E-01	9.7948E-01	4.5785E-01	8.3642E-01
16	2.9046E-01	2.1724E+00	3.5928E-01	1.2189E+00	3.8153E-01	1.0326E+00	4.0859E-01	8.8169E-01
17	2.6371E-01	2.2809E+00	3.2333E-01	1.2793E+00	3.4293E-01	1.0836E+00	3.6693E-01	9.2515E-01
18	2.4070E-01	2.3847E+00	2.9267E-01	1.3369E+00	3.1003E-01	1.1323E+00	3.3145E-01	9.6667E-01
19	2.2071E-01	2.4839E+00	2.6632E-01	1.3918E+00	2.8179E-01	1.1787E+00	3.0102E-01	1.0062E+00
20	2.0319E-01	2.5789E+00	2.4350E-01	1.4440E+00	2.5738E-01	1.2228E+00	2.7474E-01	1.0438E+00
21	1.8772E-01	2.6700E+00	2.2360E-01	1.4938E+00	2.3614E-01	1.2648E+00	2.5189E-01	1.0796E+00
22	1.7396E-01	2.7575E+00	2.0614E-01	1.5412E+00	2.1752E-01	1.3048E+00	2.3190E-01	1.1136E+00
23	1.6168E-01	2.8417E+00	1.9071E-01	1.5864E+00	2.0110E-01	1.3429E+00	2.1429E-01	1.1459E+00
24	1.5066E-01	2.9230E+00	1.7701E-01	1.6296E+00	1.8655E-01	1.3793E+00	1.9870E-01	1.1769E+00
25	1.4074E-01	3.0016E+00	1.6477E-01	1.6711E+00	1.7357E-01	1.4141E+00	1.8480E-01	1.2065E+00
26	1.3178E-01	3.0777E+00	1.5380E-01	1.7111E+00	1.6194E-01	1.4476E+00	1.7237E-01	1.2349E+00
27	1.2366E-01	3.1517E+00	1.4392E-01	1.7496E+00	1.5147E-01	1.4799E+00	1.6119E-01	1.2623E+00
28	1.1629E-01	3.2237E+00	1.3498E-01	1.7868E+00	1.4201E-01	1.5111E+00	1.5108E-01	1.2887E+00
29	1.0958E-01	3.2938E+00	1.2686E-01	1.8229E+00	1.3343E-01	1.5413E+00	1.4192E-01	1.3143E+00
30	1.0346E-01	3.3621E+00	1.1947E-01	1.8580E+00	1.2562E-01	1.5707E+00	1.3359E-01	1.3392E+00
31	9.7870E-02	3.4289E+00	1.1272E-01	1.8922E+00	1.1849E-01	1.5993E+00	1.2597E-01	1.3634E+00
32	9.2745E-02	3.4942E+00	1.0653E-01	1.9255E+00	1.1195E-01	1.6272E+00	1.1900E-01	1.3870E+00
33	8.8040E-02	3.5581E+00	1.0085E-01	1.9581E+00	1.0595E-01	1.6544E+00	1.1259E-01	1.4100E+00
34	8.3711E-02	3.6206E+00	9.5619E-02	1.9899E+00	1.0042E-01	1.6811E+00	1.0669E-01	1.4326E+00
35	7.9721E-02	3.6820E+00	9.0789E-02	2.0212E+00	9.5312E-02	1.7072E+00	1.0124E-01	1.4547E+00
36	7.6035E-02	3.7421E+00	8.6322E-02	2.0518E+00	9.0589E-02	1.7328E+00	9.6200E-02	1.4764E+00
37	7.2623E-02	3.8011E+00	8.2180E-02	2.0819E+00	8.6209E-02	1.7580E+00	9.1525E-02	1.4977E+00
38	6.9459E-02	3.8590E+00	7.8334E-02	2.1114E+00	8.2141E-02	1.7827E+00	8.7181E-02	1.5186E+00
39	6.6519E-02	3.9159E+00	7.4755E-02	2.1404E+00	7.8355E-02	1.8070E+00	8.3137E-02	1.5391E+00
40	6.3782E-02	3.9718E+00	7.1418E-02	2.1689E+00	7.4825E-02	1.8308E+00	7.9367E-02	1.5594E+00
41	6.1229E-02	4.0268E+00	6.8303E-02	2.1970E+00	7.1528E-02	1.8543E+00	7.5846E-02	1.5792E+00
42	5.8843E-02	4.0808E+00	6.5390E-02	2.2245E+00	6.8445E-02	1.8774E+00	7.2553E-02	1.5988E+00
43	5.6609E-02	4.1340E+00	6.2661E-02	2.2517E+00	6.5557E-02	1.9001E+00	6.9468E-02	1.6180E+00
44	5.4515E-02	4.1863E+00	6.0101E-02	2.2784E+00	6.2848E-02	1.9225E+00	6.6574E-02	1.6370E+00
45	5.2547E-02	4.2377E+00	5.7697E-02	2.3046E+00	6.0304E-02	1.9445E+00	6.3856E-02	1.6556E+00
46	5.0696E-02	4.2884E+00	5.5435E-02	2.3304E+00	5.7911E-02	1.9661E+00	6.1300E-02	1.6740E+00
47	4.8952E-02	4.3383E+00	5.3305E-02	2.3559E+00	5.5658E-02	1.9874E+00	5.8894E-02	1.6920E+00
48	4.7306E-02	4.3874E+00	5.1297E-02	2.3809E+00	5.3533E-02	2.0084E+00	5.6626E-02	1.7098E+00
49	4.5751E-02	4.4358E+00	4.9402E-02	2.4055E+00	5.1529E-02	2.0290E+00	5.4486E-02	1.7273E+00
50	4.4278E-02	4.4835E+00	4.7610E-02	2.4297E+00	4.9635E-02	2.0493E+00	5.2464E-02	1.7445E+00
51	4.2884E-02	4.5305E+00	4.5915E-02	2.4536E+00	4.7843E-02	2.0693E+00	5.0552E-02	1.7614E+00
52	4.1560E-02	4.5768E+00	4.4310E-02	2.4771E+00	4.6148E-02	2.0889E+00	4.8743E-02	1.7781E+00
53	4.0303E-02	4.6225E+00	4.2788E-02	2.5002E+00	4.4541E-02	2.1083E+00	4.7029E-02	1.7945E+00
54	3.9107E-02	4.6676E+00	4.1344E-02	2.5229E+00	4.3016E-02	2.1274E+00	4.5404E-02	1.8106E+00
55	3.7969E-02	4.7120E+00	3.9972E-02	2.5453E+00	4.1569E-02	2.1461E+00	4.3861E-02	1.8265E+00
56	3.6884E-02	4.7558E+00	3.8669E-02	2.5674E+00	4.0194E-02	2.1646E+00	4.2396E-02	1.8422E+00
57	3.5849E-02	4.7990E+00	3.7428E-02	2.5891E+00	3.8886E-02	2.1828E+00	4.1003E-02	1.8576E+00
58	3.4861E-02	4.8416E+00	3.6247E-02	2.6105E+00	3.7641E-02	2.2006E+00	3.9677E-02	1.8727E+00
59	3.3916E-02	4.8837E+00	3.5121E-02	2.6315E+00	3.6456E-02	2.2183E+00	3.8415E-02	1.8876E+00
60	3.3013E-02	4.9252E+00	3.4047E-02	2.6523E+00	3.5325E-02	2.2356E+00	3.7213E-02	1.9023E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Ge; $Z = 32$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	6.6981E+00	2.6067E-01	7.6145E+00	1.6293E-01	7.9769E+00	1.4055E-01	8.4472E+00	1.2177E-01
1	5.6931E+00	3.0111E-01	6.5316E+00	1.8695E-01	6.8541E+00	1.6105E-01	7.2738E+00	1.3926E-01
2	3.9785E+00	4.1065E-01	4.6644E+00	2.5086E-01	4.9115E+00	2.1551E-01	5.2283E+00	1.8587E-01
3	2.7452E+00	5.5806E-01	3.2934E+00	3.3485E-01	3.4796E+00	2.8685E-01	3.7132E+00	2.4690E-01
4	2.0062E+00	7.1109E-01	2.4511E+00	4.2056E-01	2.5966E+00	3.5947E-01	2.7762E+00	3.0891E-01
5	1.5507E+00	8.5381E-01	1.9211E+00	4.9980E-01	2.0394E+00	4.2650E-01	2.1836E+00	3.6609E-01
6	1.2449E+00	9.8548E-01	1.5601E+00	5.7250E-01	1.6590E+00	4.8795E-01	1.7784E+00	4.1847E-01
7	1.0233E+00	1.1109E+00	1.2952E+00	6.4139E-01	1.3793E+00	5.4613E-01	1.4801E+00	4.6803E-01
8	8.5457E-01	1.2344E+00	1.0906E+00	7.0889E-01	1.1628E+00	6.0307E-01	1.2489E+00	5.1652E-01
9	7.2243E-01	1.3585E+00	9.2759E-01	7.7641E-01	9.8991E-01	6.6001E-01	1.0639E+00	5.6497E-01
10	6.1735E-01	1.4839E+00	7.9544E-01	8.4452E-01	8.4938E-01	7.1741E-01	9.1319E-01	6.1380E-01
11	5.3292E-01	1.6103E+00	6.8711E-01	9.1320E-01	7.3387E-01	7.7528E-01	7.8913E-01	6.6302E-01
12	4.6491E-01	1.7366E+00	5.9811E-01	9.8202E-01	6.3871E-01	8.3328E-01	6.8674E-01	7.1236E-01
13	4.0956E-01	1.8617E+00	5.2442E-01	1.0505E+00	5.5974E-01	8.9100E-01	6.0162E-01	7.6148E-01
14	3.6404E-01	1.9844E+00	4.6302E-01	1.1180E+00	4.9380E-01	9.4798E-01	5.3046E-01	8.0999E-01
15	3.2625E-01	2.1037E+00	4.1162E-01	1.1840E+00	4.3853E-01	1.0037E+00	4.7074E-01	8.5749E-01
16	2.9452E-01	2.2190E+00	3.6831E-01	1.2481E+00	3.9192E-01	1.0579E+00	4.2036E-01	9.0366E-01
17	2.6756E-01	2.3300E+00	3.3158E-01	1.3100E+00	3.5239E-01	1.1102E+00	3.7762E-01	9.4824E-01
18	2.4439E-01	2.4364E+00	3.0020E-01	1.3694E+00	3.1863E-01	1.1604E+00	3.4115E-01	9.9107E-01
19	2.2427E-01	2.5384E+00	2.7320E-01	1.4262E+00	2.8962E-01	1.2085E+00	3.0981E-01	1.0320E+00
20	2.0664E-01	2.6363E+00	2.4981E-01	1.4804E+00	2.6452E-01	1.2543E+00	2.8272E-01	1.0711E+00
21	1.9106E-01	2.7302E+00	2.2941E-01	1.5322E+00	2.4266E-01	1.2981E+00	2.5916E-01	1.1084E+00
22	1.7720E-01	2.8204E+00	2.1149E-01	1.5815E+00	2.2350E-01	1.3398E+00	2.3853E-01	1.1439E+00
23	1.6482E-01	2.9074E+00	1.9566E-01	1.6287E+00	2.0660E-01	1.3795E+00	2.2037E-01	1.1778E+00
24	1.5369E-01	2.9913E+00	1.8161E-01	1.6738E+00	1.9162E-01	1.4175E+00	2.0429E-01	1.2101E+00
25	1.4365E-01	3.0725E+00	1.6905E-01	1.7170E+00	1.7827E-01	1.4539E+00	1.8997E-01	1.2410E+00
26	1.3458E-01	3.1511E+00	1.5780E-01	1.7586E+00	1.6631E-01	1.4888E+00	1.7716E-01	1.2707E+00
27	1.2634E-01	3.2275E+00	1.4765E-01	1.7986E+00	1.5555E-01	1.5224E+00	1.6564E-01	1.2992E+00
28	1.1885E-01	3.3017E+00	1.3848E-01	1.8373E+00	1.4583E-01	1.5549E+00	1.5524E-01	1.3267E+00
29	1.1203E-01	3.3741E+00	1.3016E-01	1.8747E+00	1.3701E-01	1.5862E+00	1.4582E-01	1.3533E+00
30	1.0580E-01	3.4446E+00	1.2258E-01	1.9110E+00	1.2899E-01	1.6166E+00	1.3725E-01	1.3790E+00
31	1.0009E-01	3.5134E+00	1.1565E-01	1.9463E+00	1.2166E-01	1.6462E+00	1.2942E-01	1.4040E+00
32	9.4861E-02	3.5807E+00	1.0931E-01	1.9807E+00	1.1495E-01	1.6750E+00	1.2226E-01	1.4284E+00
33	9.0054E-02	3.6465E+00	1.0349E-01	2.0143E+00	1.0879E-01	1.7030E+00	1.1568E-01	1.4522E+00
34	8.5629E-02	3.7109E+00	9.8122E-02	2.0471E+00	1.0312E-01	1.7305E+00	1.0962E-01	1.4754E+00
35	8.1548E-02	3.7741E+00	9.3172E-02	2.0792E+00	9.7884E-02	1.7573E+00	1.0403E-01	1.4981E+00
36	7.7777E-02	3.8360E+00	8.8593E-02	2.1107E+00	9.3041E-02	1.7837E+00	9.8861E-02	1.5204E+00
37	7.4286E-02	3.8967E+00	8.4350E-02	2.1416E+00	8.8552E-02	1.8095E+00	9.4067E-02	1.5422E+00
38	7.1049E-02	3.9563E+00	8.0408E-02	2.1718E+00	8.4382E-02	1.8348E+00	8.9613E-02	1.5636E+00
39	6.8041E-02	4.0148E+00	7.6742E-02	2.2016E+00	8.0501E-02	1.8597E+00	8.5468E-02	1.5847E+00
40	6.5241E-02	4.0723E+00	7.3324E-02	2.2308E+00	7.6884E-02	1.8841E+00	8.1603E-02	1.6054E+00
41	6.2630E-02	4.1288E+00	7.0133E-02	2.2595E+00	7.3506E-02	1.9082E+00	7.7993E-02	1.6258E+00
42	6.0191E-02	4.1844E+00	6.7149E-02	2.2878E+00	7.0347E-02	1.9318E+00	7.4617E-02	1.6458E+00
43	5.7909E-02	4.2391E+00	6.4355E-02	2.3156E+00	6.7388E-02	1.9551E+00	7.1455E-02	1.6655E+00
44	5.5769E-02	4.2929E+00	6.1733E-02	2.3429E+00	6.4612E-02	1.9780E+00	6.8488E-02	1.6849E+00
45	5.3761E-02	4.3458E+00	5.9271E-02	2.3698E+00	6.2005E-02	2.0005E+00	6.5702E-02	1.7040E+00
46	5.1873E-02	4.3979E+00	5.6956E-02	2.3963E+00	5.9552E-02	2.0227E+00	6.3082E-02	1.7228E+00
47	5.0094E-02	4.4492E+00	5.4775E-02	2.4224E+00	5.7243E-02	2.0445E+00	6.0614E-02	1.7413E+00
48	4.8417E-02	4.4998E+00	5.2719E-02	2.4481E+00	5.5067E-02	2.0660E+00	5.8288E-02	1.7595E+00
49	4.6832E-02	4.5496E+00	5.0778E-02	2.4733E+00	5.3012E-02	2.0872E+00	5.6093E-02	1.7774E+00
50	4.5334E-02	4.5987E+00	4.8943E-02	2.4982E+00	5.1070E-02	2.1080E+00	5.4019E-02	1.7951E+00
51	4.3914E-02	4.6470E+00	4.7207E-02	2.5227E+00	4.9234E-02	2.1286E+00	5.2057E-02	1.8125E+00
52	4.2568E-02	4.6947E+00	4.5563E-02	2.5468E+00	4.7495E-02	2.1488E+00	5.0201E-02	1.8296E+00
53	4.1290E-02	4.7418E+00	4.4005E-02	2.5706E+00	4.5847E-02	2.1687E+00	4.8441E-02	1.8464E+00
54	4.0076E-02	4.7881E+00	4.2526E-02	2.5940E+00	4.4284E-02	2.1883E+00	4.6773E-02	1.8630E+00
55	3.8920E-02	4.8339E+00	4.1121E-02	2.6170E+00	4.2799E-02	2.2076E+00	4.5189E-02	1.8794E+00
56	3.7818E-02	4.8790E+00	3.9785E-02	2.6397E+00	4.1389E-02	2.2266E+00	4.3684E-02	1.8955E+00
57	3.6768E-02	4.9236E+00	3.8514E-02	2.6621E+00	4.0047E-02	2.2453E+00	4.2253E-02	1.9114E+00
58	3.5766E-02	4.9675E+00	3.7304E-02	2.6841E+00	3.8770E-02	2.2637E+00	4.0891E-02	1.9270E+00
59	3.4808E-02	5.0109E+00	3.6150E-02	2.7058E+00	3.7553E-02	2.2818E+00	3.9595E-02	1.9423E+00
60	3.3892E-02	5.0538E+00	3.5049E-02	2.7272E+00	3.6392E-02	2.2997E+00	3.8359E-02	1.9575E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*As; $Z = 33$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	6.6112E+00	2.7657E-01	7.5499E+00	1.7312E-01	7.9099E+00	1.4950E-01	8.3809E+00	1.2961E-01
1	5.7554E+00	3.1195E-01	6.6239E+00	1.9427E-01	6.9531E+00	1.6751E-01	7.3824E+00	1.4496E-01
2	4.1475E+00	4.1229E-01	4.8706E+00	2.5321E-01	5.1306E+00	2.1774E-01	5.4636E+00	1.8797E-01
3	2.8694E+00	5.5772E-01	3.4504E+00	3.3657E-01	3.6475E+00	2.8861E-01	3.8942E+00	2.4865E-01
4	2.0681E+00	7.1917E-01	2.5359E+00	4.2733E-01	2.6887E+00	3.6555E-01	2.8765E+00	3.1438E-01
5	1.5764E+00	8.7454E-01	1.9610E+00	5.1379E-01	2.0836E+00	4.3872E-01	2.2327E+00	3.7682E-01
6	1.2551E+00	1.0169E+00	1.5790E+00	5.9259E-01	1.6806E+00	5.0533E-01	1.8030E+00	4.3363E-01
7	1.0284E+00	1.1488E+00	1.3065E+00	6.6531E-01	1.3925E+00	5.6676E-01	1.4955E+00	4.8598E-01
8	8.5870E-01	1.2753E+00	1.1001E+00	7.3466E-01	1.1740E+00	6.2530E-01	1.2619E+00	5.3584E-01
9	7.2682E-01	1.4000E+00	9.3737E-01	8.0274E-01	1.0013E+00	6.8272E-01	1.0771E+00	5.8472E-01
10	6.2211E-01	1.5248E+00	8.0594E-01	8.7069E-01	8.6148E-01	7.4002E-01	9.2713E-01	6.3348E-01
11	5.3781E-01	1.6503E+00	6.9823E-01	9.3894E-01	7.4636E-01	7.9758E-01	8.0346E-01	6.8245E-01
12	4.6971E-01	1.7758E+00	6.0919E-01	1.0074E+00	6.5123E-01	8.5527E-01	7.0106E-01	7.3154E-01
13	4.1412E-01	1.9007E+00	5.3512E-01	1.0757E+00	5.7191E-01	9.1288E-01	6.1552E-01	7.8056E-01
14	3.6830E-01	2.0237E+00	4.7319E-01	1.1435E+00	5.0536E-01	9.7002E-01	5.4365E-01	8.2921E-01
15	3.3022E-01	2.1441E+00	4.2113E-01	1.2100E+00	4.4932E-01	1.0263E+00	4.8305E-01	8.7712E-01
16	2.9824E-01	2.2609E+00	3.7713E-01	1.2751E+00	4.0190E-01	1.0812E+00	4.3173E-01	9.2396E-01
17	2.7108E-01	2.3738E+00	3.3971E-01	1.3381E+00	3.6155E-01	1.1346E+00	3.8804E-01	9.6945E-01
18	2.4776E-01	2.4826E+00	3.0769E-01	1.3989E+00	3.2702E-01	1.1861E+00	3.5065E-01	1.0134E+00
19	2.2752E-01	2.5871E+00	2.8010E-01	1.4574E+00	2.9729E-01	1.2356E+00	3.1848E-01	1.0556E+00
20	2.0980E-01	2.6875E+00	2.5617E-01	1.5134E+00	2.7153E-01	1.2830E+00	2.9063E-01	1.0961E+00
21	1.9414E-01	2.7841E+00	2.3528E-01	1.5670E+00	2.4909E-01	1.3284E+00	2.6638E-01	1.1348E+00
22	1.8021E-01	2.8770E+00	2.1693E-01	1.6182E+00	2.2940E-01	1.3717E+00	2.4514E-01	1.1717E+00
23	1.6774E-01	2.9665E+00	2.0072E-01	1.6672E+00	2.1205E-01	1.4131E+00	2.2643E-01	1.2070E+00
24	1.5653E-01	3.0530E+00	1.8632E-01	1.7140E+00	1.9666E-01	1.4527E+00	2.0987E-01	1.2407E+00
25	1.4641E-01	3.1367E+00	1.7346E-01	1.7590E+00	1.8294E-01	1.4907E+00	1.9512E-01	1.2730E+00
26	1.3724E-01	3.2177E+00	1.6193E-01	1.8021E+00	1.7065E-01	1.5270E+00	1.8194E-01	1.3039E+00
27	1.2891E-01	3.2964E+00	1.5153E-01	1.8436E+00	1.5960E-01	1.5620E+00	1.7008E-01	1.3336E+00
28	1.2133E-01	3.3729E+00	1.4213E-01	1.8837E+00	1.4962E-01	1.5957E+00	1.5939E-01	1.3622E+00
29	1.1440E-01	3.4474E+00	1.3360E-01	1.9224E+00	1.4057E-01	1.6283E+00	1.4970E-01	1.3898E+00
30	1.0807E-01	3.5201E+00	1.2583E-01	1.9599E+00	1.3233E-01	1.6598E+00	1.4089E-01	1.4166E+00
31	1.0226E-01	3.5910E+00	1.1873E-01	1.9964E+00	1.2482E-01	1.6904E+00	1.3286E-01	1.4425E+00
32	9.6935E-02	3.6603E+00	1.1223E-01	2.0318E+00	1.1794E-01	1.7201E+00	1.2550E-01	1.4676E+00
33	9.2034E-02	3.7281E+00	1.0626E-01	2.0663E+00	1.1162E-01	1.7491E+00	1.1875E-01	1.4921E+00
34	8.7519E-02	3.7944E+00	1.0076E-01	2.1000E+00	1.0580E-01	1.7773E+00	1.1254E-01	1.5160E+00
35	8.3352E-02	3.8594E+00	9.5683E-02	2.1329E+00	1.0044E-01	1.8049E+00	1.0680E-01	1.5394E+00
36	7.9499E-02	3.9231E+00	9.0988E-02	2.1651E+00	9.5472E-02	1.8320E+00	1.0150E-01	1.5623E+00
37	7.5932E-02	3.9855E+00	8.6637E-02	2.1967E+00	9.0871E-02	1.8585E+00	9.6586E-02	1.5847E+00
38	7.2622E-02	4.0469E+00	8.2598E-02	2.2276E+00	8.6599E-02	1.8845E+00	9.2021E-02	1.6067E+00
39	6.9547E-02	4.1071E+00	7.8839E-02	2.2580E+00	8.2624E-02	1.9100E+00	8.7773E-02	1.6283E+00
40	6.6684E-02	4.1662E+00	7.5335E-02	2.2878E+00	7.8919E-02	1.9350E+00	8.3813E-02	1.6495E+00
41	6.4015E-02	4.2243E+00	7.2064E-02	2.3172E+00	7.5459E-02	1.9597E+00	8.0115E-02	1.6703E+00
42	6.1522E-02	4.2815E+00	6.9005E-02	2.3460E+00	7.2224E-02	1.9839E+00	7.6657E-02	1.6908E+00
43	5.9191E-02	4.3377E+00	6.6141E-02	2.3743E+00	6.9194E-02	2.0077E+00	7.3417E-02	1.7110E+00
44	5.7006E-02	4.3930E+00	6.3453E-02	2.4022E+00	6.6351E-02	2.0311E+00	7.0378E-02	1.7308E+00
45	5.4956E-02	4.4474E+00	6.0929E-02	2.4296E+00	6.3682E-02	2.0542E+00	6.7524E-02	1.7504E+00
46	5.3029E-02	4.5009E+00	5.8555E-02	2.4566E+00	6.1171E-02	2.0769E+00	6.4839E-02	1.7696E+00
47	5.1215E-02	4.5537E+00	5.6319E-02	2.4831E+00	5.8807E-02	2.0993E+00	6.2311E-02	1.7886E+00
48	4.9505E-02	4.6057E+00	5.4211E-02	2.5093E+00	5.6577E-02	2.1213E+00	5.9928E-02	1.8072E+00
49	4.7891E-02	4.6569E+00	5.2221E-02	2.5350E+00	5.4473E-02	2.1430E+00	5.7678E-02	1.8256E+00
50	4.6365E-02	4.7074E+00	5.0339E-02	2.5603E+00	5.2485E-02	2.1644E+00	5.5553E-02	1.8437E+00
51	4.4921E-02	4.7571E+00	4.8558E-02	2.5853E+00	5.0604E-02	2.1854E+00	5.3543E-02	1.8615E+00
52	4.3552E-02	4.8062E+00	4.6872E-02	2.6099E+00	4.8823E-02	2.2061E+00	5.1639E-02	1.8791E+00
53	4.2253E-02	4.8546E+00	4.5273E-02	2.6341E+00	4.7135E-02	2.2266E+00	4.9836E-02	1.8964E+00
54	4.1019E-02	4.9023E+00	4.3756E-02	2.6579E+00	4.5534E-02	2.2467E+00	4.8125E-02	1.9134E+00
55	3.9845E-02	4.9494E+00	4.2313E-02	2.6814E+00	4.4013E-02	2.2665E+00	4.6500E-02	1.9302E+00
56	3.8727E-02	4.9959E+00	4.0942E-02	2.7046E+00	4.2567E-02	2.2860E+00	4.4957E-02	1.9468E+00
57	3.7662E-02	5.0417E+00	3.9637E-02	2.7274E+00	4.1192E-02	2.3052E+00	4.3489E-02	1.9631E+00
58	3.6645E-02	5.0870E+00	3.8394E-02	2.7498E+00	3.9883E-02	2.3242E+00	4.2092E-02	1.9791E+00
59	3.5674E-02	5.1317E+00	3.7209E-02	2.7720E+00	3.8635E-02	2.3429E+00	4.0761E-02	1.9949E+00
60	3.4746E-02	5.1758E+00	3.6078E-02	2.7938E+00	3.7446E-02	2.3613E+00	3.9493E-02	2.0105E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Se; $Z = 34$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	6.4543E+00	2.9336E-01	7.3989E+00	1.8414E-01	7.7633E+00	1.5910E-01	8.2306E+00	1.3803E-01
1	5.7250E+00	3.2496E-01	6.6111E+00	2.0304E-01	6.9468E+00	1.7524E-01	7.3799E+00	1.5176E-01
2	4.2546E+00	4.1681E-01	5.0079E+00	2.5721E-01	5.2786E+00	2.2149E-01	5.6238E+00	1.9139E-01
3	2.9808E+00	5.5661E-01	3.5930E+00	3.3778E-01	3.8008E+00	2.9008E-01	4.0599E+00	2.5016E-01
4	2.1362E+00	7.2123E-01	2.6289E+00	4.3070E-01	2.7897E+00	3.6893E-01	2.9866E+00	3.1758E-01
5	1.6101E+00	8.8679E-01	2.0113E+00	5.2302E-01	2.1393E+00	4.4711E-01	2.2941E+00	3.8432E-01
6	1.2707E+00	1.0404E+00	1.6048E+00	6.0824E-01	1.7099E+00	5.1921E-01	1.8360E+00	4.4582E-01
7	1.0364E+00	1.1809E+00	1.3208E+00	6.8591E-01	1.4094E+00	5.8487E-01	1.5148E+00	5.0180E-01
8	8.6408E-01	1.3124E+00	1.1102E+00	7.5824E-01	1.1861E+00	6.4597E-01	1.2760E+00	5.5386E-01
9	7.3156E-01	1.4392E+00	9.4644E-01	8.2769E-01	1.0122E+00	7.0459E-01	1.0898E+00	6.0379E-01
10	6.2678E-01	1.5643E+00	8.1505E-01	8.9601E-01	8.7245E-01	7.6222E-01	9.3981E-01	6.5284E-01
11	5.4243E-01	1.6893E+00	7.0736E-01	9.6414E-01	7.5757E-01	8.1966E-01	8.1636E-01	7.0173E-01
12	4.7421E-01	1.8141E+00	6.1854E-01	1.0322E+00	6.6256E-01	8.7708E-01	7.1407E-01	7.5059E-01
13	4.1839E-01	1.9384E+00	5.4444E-01	1.1003E+00	5.8308E-01	9.3447E-01	6.2834E-01	7.9944E-01
14	3.7228E-01	2.0615E+00	4.8217E-01	1.1680E+00	5.1612E-01	9.9160E-01	5.5599E-01	8.4807E-01
15	3.3391E-01	2.1824E+00	4.2963E-01	1.2349E+00	4.5950E-01	1.0481E+00	4.9472E-01	8.9619E-01
16	3.0168E-01	2.3004E+00	3.8506E-01	1.3005E+00	4.1141E-01	1.1036E+00	4.4262E-01	9.4349E-01
17	2.7432E-01	2.4149E+00	3.4706E-01	1.3645E+00	3.7036E-01	1.1577E+00	3.9812E-01	9.8967E-01
18	2.5085E-01	2.5255E+00	3.1447E-01	1.4266E+00	3.3514E-01	1.2103E+00	3.5993E-01	1.0345E+00
19	2.3050E-01	2.6323E+00	2.8635E-01	1.4866E+00	3.0476E-01	1.2610E+00	3.2698E-01	1.0778E+00
20	2.1269E-01	2.7350E+00	2.6194E-01	1.5443E+00	2.7840E-01	1.3099E+00	2.9842E-01	1.1195E+00
21	1.9696E-01	2.8340E+00	2.4061E-01	1.5996E+00	2.5541E-01	1.3568E+00	2.7352E-01	1.1595E+00
22	1.8297E-01	2.9294E+00	2.2186E-01	1.6527E+00	2.3523E-01	1.4017E+00	2.5169E-01	1.1978E+00
23	1.7045E-01	3.0214E+00	2.0529E-01	1.7035E+00	2.1743E-01	1.4447E+00	2.3246E-01	1.2345E+00
24	1.5918E-01	3.1103E+00	1.9057E-01	1.7522E+00	2.0164E-01	1.4858E+00	2.1543E-01	1.2696E+00
25	1.4900E-01	3.1963E+00	1.7742E-01	1.7989E+00	1.8756E-01	1.5253E+00	2.0026E-01	1.3032E+00
26	1.3976E-01	3.2797E+00	1.6563E-01	1.8438E+00	1.7496E-01	1.5631E+00	1.8670E-01	1.3354E+00
27	1.3136E-01	3.3607E+00	1.5500E-01	1.8870E+00	1.6362E-01	1.5995E+00	1.7452E-01	1.3663E+00
28	1.2369E-01	3.4394E+00	1.4539E-01	1.9287E+00	1.5338E-01	1.6345E+00	1.6353E-01	1.3961E+00
29	1.1668E-01	3.5161E+00	1.3666E-01	1.9689E+00	1.4410E-01	1.6683E+00	1.5358E-01	1.4247E+00
30	1.1026E-01	3.5908E+00	1.2871E-01	2.0078E+00	1.3566E-01	1.7010E+00	1.4453E-01	1.4525E+00
31	1.0437E-01	3.6638E+00	1.2145E-01	2.0456E+00	1.2795E-01	1.7326E+00	1.3628E-01	1.4793E+00
32	9.8957E-02	3.7351E+00	1.1480E-01	2.0823E+00	1.2090E-01	1.7633E+00	1.2873E-01	1.5053E+00
33	9.3972E-02	3.8048E+00	1.0869E-01	2.1180E+00	1.1443E-01	1.7932E+00	1.2181E-01	1.5306E+00
34	8.9374E-02	3.8730E+00	1.0306E-01	2.1529E+00	1.0847E-01	1.8224E+00	1.1543E-01	1.5553E+00
35	8.5126E-02	3.9399E+00	9.7872E-02	2.1869E+00	1.0297E-01	1.8508E+00	1.0956E-01	1.5794E+00
36	8.1197E-02	4.0054E+00	9.3072E-02	2.2201E+00	9.7882E-02	1.8786E+00	1.0412E-01	1.6029E+00
37	7.7556E-02	4.0696E+00	8.8623E-02	2.2527E+00	9.3171E-02	1.9059E+00	9.9085E-02	1.6259E+00
38	7.4177E-02	4.1327E+00	8.4492E-02	2.2846E+00	8.8796E-02	1.9325E+00	9.4408E-02	1.6485E+00
39	7.1036E-02	4.1946E+00	8.0649E-02	2.3159E+00	8.4726E-02	1.9587E+00	9.0057E-02	1.6706E+00
40	6.8112E-02	4.2554E+00	7.7068E-02	2.3466E+00	8.0932E-02	1.9844E+00	8.6002E-02	1.6923E+00
41	6.5386E-02	4.3151E+00	7.3725E-02	2.3768E+00	7.7391E-02	2.0096E+00	8.2215E-02	1.7137E+00
42	6.2840E-02	4.3739E+00	7.0600E-02	2.4065E+00	7.4079E-02	2.0344E+00	7.8674E-02	1.7347E+00
43	6.0458E-02	4.4316E+00	6.7674E-02	2.4356E+00	7.0978E-02	2.0588E+00	7.5357E-02	1.7553E+00
44	5.8227E-02	4.4885E+00	6.4929E-02	2.4643E+00	6.8069E-02	2.0828E+00	7.2246E-02	1.7756E+00
45	5.6135E-02	4.5444E+00	6.2352E-02	2.4925E+00	6.5337E-02	2.1064E+00	6.9324E-02	1.7956E+00
46	5.4168E-02	4.5995E+00	5.9928E-02	2.5203E+00	6.2768E-02	2.1297E+00	6.6575E-02	1.8153E+00
47	5.2318E-02	4.6537E+00	5.7646E-02	2.5477E+00	6.0348E-02	2.1525E+00	6.3987E-02	1.8347E+00
48	5.0575E-02	4.7071E+00	5.5495E-02	2.5747E+00	5.8067E-02	2.1751E+00	6.1547E-02	1.8538E+00
49	4.8931E-02	4.7597E+00	5.3464E-02	2.6012E+00	5.5914E-02	2.1973E+00	5.9244E-02	1.8726E+00
50	4.7377E-02	4.8116E+00	5.1544E-02	2.6273E+00	5.3880E-02	2.2192E+00	5.7068E-02	1.8911E+00
51	4.5907E-02	4.8628E+00	4.9729E-02	2.6531E+00	5.1955E-02	2.2407E+00	5.5009E-02	1.9094E+00
52	4.4514E-02	4.9132E+00	4.8009E-02	2.6785E+00	5.0132E-02	2.2620E+00	5.3060E-02	1.9274E+00
53	4.3194E-02	4.9630E+00	4.6378E-02	2.7034E+00	4.8405E-02	2.2829E+00	5.1213E-02	1.9451E+00
54	4.1940E-02	5.0120E+00	4.4831E-02	2.7281E+00	4.6765E-02	2.3035E+00	4.9460E-02	1.9626E+00
55	4.0748E-02	5.0605E+00	4.3361E-02	2.7524E+00	4.5209E-02	2.3239E+00	4.7796E-02	1.9798E+00
56	3.9613E-02	5.1083E+00	4.1964E-02	2.7763E+00	4.3729E-02	2.3439E+00	4.6215E-02	1.9967E+00
57	3.8532E-02	5.1554E+00	4.0633E-02	2.7999E+00	4.2321E-02	2.3636E+00	4.4711E-02	2.0135E+00
58	3.7502E-02	5.2020E+00	3.9367E-02	2.8231E+00	4.0981E-02	2.3831E+00	4.3279E-02	2.0299E+00
59	3.6518E-02	5.2480E+00	3.8159E-02	2.8461E+00	3.9704E-02	2.4023E+00	4.1915E-02	2.0462E+00
60	3.5577E-02	5.2935E+00	3.7007E-02	2.8687E+00	3.8486E-02	2.4212E+00	4.0615E-02	2.0622E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Br; $Z = 35$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	6.2644E+00	3.1037E-01	7.2156E+00	1.9538E-01	7.5777E+00	1.6896E-01	8.0394E+00	1.4670E-01
1	5.6398E+00	3.3900E-01	6.5399E+00	2.1255E-01	6.8776E+00	1.8362E-01	7.3109E+00	1.5916E-01
2	4.3108E+00	4.2341E-01	5.0893E+00	2.6255E-01	5.3679E+00	2.2636E-01	5.7221E+00	1.9578E-01
3	3.0732E+00	5.5614E-01	3.7143E+00	3.3948E-01	3.9317E+00	2.9193E-01	4.2021E+00	2.5201E-01
4	2.2045E+00	7.1996E-01	2.7230E+00	4.3236E-01	2.8919E+00	3.7082E-01	3.0981E+00	3.1951E-01
5	1.6488E+00	8.9233E-01	2.0690E+00	5.2874E-01	2.2029E+00	4.5248E-01	2.3643E+00	3.8925E-01
6	1.2908E+00	1.0564E+00	1.6372E+00	6.1998E-01	1.7463E+00	5.2970E-01	1.8766E+00	4.5516E-01
7	1.0473E+00	1.2066E+00	1.3393E+00	7.0323E-01	1.4305E+00	6.0013E-01	1.5388E+00	5.1522E-01
8	8.7105E-01	1.3448E+00	1.1222E+00	7.7958E-01	1.2001E+00	6.6465E-01	1.2921E+00	5.7022E-01
9	7.3704E-01	1.4754E+00	9.5597E-01	8.5135E-01	1.0234E+00	7.2527E-01	1.1027E+00	6.2189E-01
10	6.3172E-01	1.6020E+00	8.2389E-01	9.2070E-01	8.8282E-01	7.8380E-01	9.5182E-01	6.7171E-01
11	5.4706E-01	1.7272E+00	7.1609E-01	9.8908E-01	7.6781E-01	8.4148E-01	8.2819E-01	7.2081E-01
12	4.7860E-01	1.8515E+00	6.2734E-01	1.0570E+00	6.7286E-01	8.9876E-01	7.2594E-01	7.6957E-01
13	4.2250E-01	1.9753E+00	5.5318E-01	1.1248E+00	5.9332E-01	9.5593E-01	6.4013E-01	8.1824E-01
14	3.7608E-01	2.0982E+00	4.9067E-01	1.1923E+00	5.2609E-01	1.0129E+00	5.6746E-01	8.6677E-01
15	3.3741E-01	2.2193E+00	4.3776E-01	1.2593E+00	4.6905E-01	1.0695E+00	5.0570E-01	9.1495E-01
16	3.0491E-01	2.3380E+00	3.9275E-01	1.3253E+00	4.2042E-01	1.1253E+00	4.5299E-01	9.6251E-01
17	2.7734E-01	2.4537E+00	3.5425E-01	1.3900E+00	3.7879E-01	1.1800E+00	4.0780E-01	1.0092E+00
18	2.5370E-01	2.5659E+00	3.2117E-01	1.4531E+00	3.4297E-01	1.2334E+00	3.6891E-01	1.0547E+00
19	2.3324E-01	2.6745E+00	2.9257E-01	1.5142E+00	3.1201E-01	1.2852E+00	3.3528E-01	1.0990E+00
20	2.1534E-01	2.7793E+00	2.6770E-01	1.5733E+00	2.8510E-01	1.3353E+00	3.0606E-01	1.1417E+00
21	1.9955E-01	2.8805E+00	2.4596E-01	1.6302E+00	2.6159E-01	1.3835E+00	2.8055E-01	1.1829E+00
22	1.8552E-01	2.9781E+00	2.2684E-01	1.6849E+00	2.4095E-01	1.4298E+00	2.5817E-01	1.2225E+00
23	1.7295E-01	3.0724E+00	2.0994E-01	1.7374E+00	2.2272E-01	1.4743E+00	2.3843E-01	1.2604E+00
24	1.6164E-01	3.1636E+00	1.9491E-01	1.7879E+00	2.0655E-01	1.5170E+00	2.2095E-01	1.2968E+00
25	1.5141E-01	3.2519E+00	1.8149E-01	1.8363E+00	1.9214E-01	1.5579E+00	2.0538E-01	1.3317E+00
26	1.4212E-01	3.3375E+00	1.6944E-01	1.8828E+00	1.7922E-01	1.5972E+00	1.9145E-01	1.3652E+00
27	1.3366E-01	3.4207E+00	1.5858E-01	1.9276E+00	1.6761E-01	1.6350E+00	1.7894E-01	1.3973E+00
28	1.2594E-01	3.5016E+00	1.4876E-01	1.9708E+00	1.5712E-01	1.6713E+00	1.6766E-01	1.4283E+00
29	1.1886E-01	3.5804E+00	1.3984E-01	2.0124E+00	1.4761E-01	1.7064E+00	1.5744E-01	1.4581E+00
30	1.1237E-01	3.6572E+00	1.3172E-01	2.0528E+00	1.3896E-01	1.7403E+00	1.4816E-01	1.4868E+00
31	1.0641E-01	3.7322E+00	1.2430E-01	2.0918E+00	1.3107E-01	1.7730E+00	1.3969E-01	1.5146E+00
32	1.0092E-01	3.8054E+00	1.1750E-01	2.1298E+00	1.2385E-01	1.8048E+00	1.3195E-01	1.5416E+00
33	9.5858E-02	3.8771E+00	1.1125E-01	2.1666E+00	1.1721E-01	1.8357E+00	1.2485E-01	1.5677E+00
34	9.1185E-02	3.9472E+00	1.0550E-01	2.2025E+00	1.1111E-01	1.8658E+00	1.1832E-01	1.5932E+00
35	8.6865E-02	4.0159E+00	1.0019E-01	2.2376E+00	1.0548E-01	1.8951E+00	1.1229E-01	1.6180E+00
36	8.2865E-02	4.0833E+00	9.5281E-02	2.2718E+00	1.0028E-01	1.9237E+00	1.0673E-01	1.6422E+00
37	7.9155E-02	4.1493E+00	9.0731E-02	2.3053E+00	9.5452E-02	1.9517E+00	1.0157E-01	1.6659E+00
38	7.5710E-02	4.2141E+00	8.6505E-02	2.3381E+00	9.0975E-02	1.9791E+00	9.6778E-02	1.6890E+00
39	7.2507E-02	4.2777E+00	8.2575E-02	2.3702E+00	8.6809E-02	2.0059E+00	9.2323E-02	1.7118E+00
40	6.9523E-02	4.3402E+00	7.8912E-02	2.4017E+00	8.2927E-02	2.0323E+00	8.8171E-02	1.7340E+00
41	6.6741E-02	4.4016E+00	7.5493E-02	2.4326E+00	7.9304E-02	2.0581E+00	8.4295E-02	1.7559E+00
42	6.4142E-02	4.4620E+00	7.2297E-02	2.4630E+00	7.5915E-02	2.0835E+00	8.0671E-02	1.7774E+00
43	6.1711E-02	4.5213E+00	6.9304E-02	2.4929E+00	7.2743E-02	2.1085E+00	7.7277E-02	1.7985E+00
44	5.9435E-02	4.5797E+00	6.6498E-02	2.5223E+00	6.9767E-02	2.1331E+00	7.4094E-02	1.8193E+00
45	5.7299E-02	4.6372E+00	6.3863E-02	2.5512E+00	6.6973E-02	2.1572E+00	7.1104E-02	1.8397E+00
46	5.5293E-02	4.6938E+00	6.1385E-02	2.5796E+00	6.4345E-02	2.1810E+00	6.8292E-02	1.8599E+00
47	5.3407E-02	4.7495E+00	5.9052E-02	2.6077E+00	6.1871E-02	2.2044E+00	6.5644E-02	1.8797E+00
48	5.1630E-02	4.8044E+00	5.6853E-02	2.6352E+00	5.9538E-02	2.2275E+00	6.3147E-02	1.8992E+00
49	4.9954E-02	4.8585E+00	5.4777E-02	2.6624E+00	5.7336E-02	2.2502E+00	6.0791E-02	1.9184E+00
50	4.8371E-02	4.9118E+00	5.2816E-02	2.6892E+00	5.5255E-02	2.2726E+00	5.8564E-02	1.9374E+00
51	4.6875E-02	4.9643E+00	5.0960E-02	2.7155E+00	5.3287E-02	2.2947E+00	5.6458E-02	1.9561E+00
52	4.5458E-02	5.0161E+00	4.9203E-02	2.7415E+00	5.1423E-02	2.3164E+00	5.4463E-02	1.9745E+00
53	4.4115E-02	5.0673E+00	4.7537E-02	2.7671E+00	4.9657E-02	2.3379E+00	5.2573E-02	1.9927E+00
54	4.2840E-02	5.1177E+00	4.5956E-02	2.7924E+00	4.7980E-02	2.3590E+00	5.0779E-02	2.0105E+00
55	4.1630E-02	5.1675E+00	4.4454E-02	2.8173E+00	4.6388E-02	2.3798E+00	4.9076E-02	2.0282E+00
56	4.0478E-02	5.2166E+00	4.3026E-02	2.8418E+00	4.4875E-02	2.4003E+00	4.7457E-02	2.0456E+00
57	3.9382E-02	5.2651E+00	4.1667E-02	2.8660E+00	4.3435E-02	2.4206E+00	4.5918E-02	2.0627E+00
58	3.8337E-02	5.3130E+00	4.0373E-02	2.8898E+00	4.2064E-02	2.4405E+00	4.4452E-02	2.0796E+00
59	3.7340E-02	5.3603E+00	3.9139E-02	2.9134E+00	4.0757E-02	2.4602E+00	4.3055E-02	2.0963E+00
60	3.6387E-02	5.4071E+00	3.7962E-02	2.9365E+00	3.9511E-02	2.4796E+00	4.1724E-02	2.1127E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Kr; $Z = 36$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	6.0600E+00	3.2728E-01	7.0151E+00	2.0669E-01	7.3740E+00	1.7892E-01	7.8299E+00	1.5545E-01
1	5.5219E+00	3.5349E-01	6.4320E+00	2.2246E-01	6.7701E+00	1.9238E-01	7.2009E+00	1.6691E-01
2	4.3272E+00	4.3146E-01	5.1262E+00	2.6884E-01	5.4109E+00	2.3205E-01	5.7716E+00	2.0088E-01
3	3.1447E+00	5.5680E-01	3.8119E+00	3.4187E-01	4.0378E+00	2.9437E-01	4.3178E+00	2.5439E-01
4	2.2687E+00	7.1718E-01	2.8126E+00	4.3323E-01	2.9897E+00	3.7205E-01	3.2052E+00	3.2087E-01
5	1.6900E+00	8.9301E-01	2.1308E+00	5.3184E-01	2.2710E+00	4.5566E-01	2.4393E+00	3.9236E-01
6	1.3142E+00	1.0658E+00	1.6748E+00	6.2809E-01	1.7884E+00	5.3716E-01	1.9236E+00	4.6191E-01
7	1.0607E+00	1.2257E+00	1.3617E+00	7.1702E-01	1.4560E+00	6.1242E-01	1.5675E+00	5.2615E-01
8	8.7963E-01	1.3719E+00	1.1364E+00	7.9811E-01	1.2165E+00	6.8100E-01	1.3108E+00	5.8462E-01
9	7.4347E-01	1.5077E+00	9.6636E-01	8.7311E-01	1.0355E+00	7.4439E-01	1.1166E+00	6.3867E-01
10	6.3715E-01	1.6372E+00	8.3272E-01	9.4426E-01	8.9312E-01	8.0448E-01	9.6369E-01	6.8985E-01
11	5.5191E-01	1.7635E+00	7.2435E-01	1.0134E+00	7.7746E-01	8.6284E-01	8.3933E-01	7.3954E-01
12	4.8305E-01	1.8879E+00	6.3546E-01	1.0815E+00	6.8237E-01	9.2026E-01	7.3692E-01	7.8843E-01
13	4.2659E-01	2.0114E+00	5.6122E-01	1.1491E+00	6.0274E-01	9.7731E-01	6.5100E-01	8.3700E-01
14	3.7980E-01	2.1340E+00	4.9853E-01	1.2164E+00	5.3532E-01	1.0342E+00	5.7811E-01	8.8540E-01
15	3.4079E-01	2.2551E+00	4.4533E-01	1.2834E+00	4.7796E-01	1.0907E+00	5.1599E-01	9.3354E-01
16	3.0800E-01	2.3742E+00	3.9996E-01	1.3496E+00	4.2892E-01	1.1466E+00	4.6279E-01	9.8122E-01
17	2.8018E-01	2.4907E+00	3.6106E-01	1.4147E+00	3.8680E-01	1.2017E+00	4.1705E-01	1.0282E+00
18	2.5637E-01	2.6042E+00	3.2754E-01	1.4785E+00	3.5048E-01	1.2557E+00	3.7756E-01	1.0743E+00
19	2.3577E-01	2.7143E+00	2.9852E-01	1.5406E+00	3.1900E-01	1.3083E+00	3.4332E-01	1.1192E+00
20	2.1778E-01	2.8210E+00	2.7325E-01	1.6009E+00	2.9159E-01	1.3594E+00	3.1351E-01	1.1629E+00
21	2.0193E-01	2.9241E+00	2.5114E-01	1.6591E+00	2.6761E-01	1.4088E+00	2.8745E-01	1.2051E+00
22	1.8785E-01	3.0238E+00	2.3167E-01	1.7153E+00	2.4654E-01	1.4565E+00	2.6454E-01	1.2458E+00
23	1.7526E-01	3.1202E+00	2.1445E-01	1.7694E+00	2.2792E-01	1.5023E+00	2.4433E-01	1.2849E+00
24	1.6391E-01	3.2135E+00	1.9914E-01	1.8214E+00	2.1138E-01	1.5464E+00	2.2641E-01	1.3226E+00
25	1.5365E-01	3.3040E+00	1.8545E-01	1.8715E+00	1.9664E-01	1.5888E+00	2.1045E-01	1.3587E+00
26	1.4433E-01	3.3917E+00	1.7317E-01	1.9196E+00	1.8343E-01	1.6295E+00	1.9617E-01	1.3935E+00
27	1.3583E-01	3.4770E+00	1.6210E-01	1.9660E+00	1.7155E-01	1.6686E+00	1.8334E-01	1.4268E+00
28	1.2806E-01	3.5599E+00	1.5208E-01	2.0107E+00	1.6082E-01	1.7063E+00	1.7176E-01	1.4589E+00
29	1.2093E-01	3.6407E+00	1.4298E-01	2.0538E+00	1.5109E-01	1.7427E+00	1.6129E-01	1.4898E+00
30	1.1438E-01	3.7195E+00	1.3469E-01	2.0955E+00	1.4224E-01	1.7778E+00	1.5177E-01	1.5197E+00
31	1.0836E-01	3.7965E+00	1.2711E-01	2.1359E+00	1.3416E-01	1.8117E+00	1.4309E-01	1.5485E+00
32	1.0281E-01	3.8717E+00	1.2017E-01	2.1751E+00	1.2677E-01	1.8446E+00	1.3516E-01	1.5764E+00
33	9.7684E-02	3.9453E+00	1.1379E-01	2.2132E+00	1.1998E-01	1.8765E+00	1.2788E-01	1.6034E+00
34	9.2946E-02	4.0173E+00	1.0791E-01	2.2502E+00	1.1374E-01	1.9075E+00	1.2119E-01	1.6297E+00
35	8.8561E-02	4.0878E+00	1.0249E-01	2.2863E+00	1.0798E-01	1.9378E+00	1.1502E-01	1.6553E+00
36	8.4496E-02	4.1570E+00	9.7470E-02	2.3215E+00	1.0265E-01	1.9672E+00	1.0932E-01	1.6803E+00
37	8.0723E-02	4.2248E+00	9.2819E-02	2.3560E+00	9.7717E-02	1.9960E+00	1.0403E-01	1.7046E+00
38	7.7217E-02	4.2913E+00	8.8500E-02	2.3897E+00	9.3137E-02	2.0242E+00	9.9132E-02	1.7284E+00
39	7.3955E-02	4.3567E+00	8.4483E-02	2.4226E+00	8.8876E-02	2.0517E+00	9.4573E-02	1.7517E+00
40	7.0915E-02	4.4209E+00	8.0739E-02	2.4550E+00	8.4906E-02	2.0788E+00	9.0324E-02	1.7746E+00
41	6.8079E-02	4.4840E+00	7.7244E-02	2.4867E+00	8.1199E-02	2.1053E+00	8.6359E-02	1.7970E+00
42	6.5429E-02	4.5460E+00	7.3977E-02	2.5179E+00	7.7735E-02	2.1313E+00	8.2651E-02	1.8190E+00
43	6.2950E-02	4.6069E+00	7.0919E-02	2.5485E+00	7.4491E-02	2.1569E+00	7.9179E-02	1.8406E+00
44	6.0628E-02	4.6669E+00	6.8051E-02	2.5786E+00	7.1448E-02	2.1820E+00	7.5923E-02	1.8619E+00
45	5.8450E-02	4.7260E+00	6.5358E-02	2.6082E+00	6.8591E-02	2.2067E+00	7.2865E-02	1.8828E+00
46	5.6404E-02	4.7841E+00	6.2826E-02	2.6373E+00	6.5905E-02	2.2311E+00	6.9990E-02	1.9034E+00
47	5.4481E-02	4.8413E+00	6.0442E-02	2.6660E+00	6.3376E-02	2.2550E+00	6.7282E-02	1.9237E+00
48	5.2670E-02	4.8977E+00	5.8195E-02	2.6942E+00	6.0991E-02	2.2786E+00	6.4729E-02	1.9436E+00
49	5.0962E-02	4.9532E+00	5.6074E-02	2.7220E+00	5.8741E-02	2.3019E+00	6.2320E-02	1.9633E+00
50	4.9350E-02	5.0080E+00	5.4070E-02	2.7494E+00	5.6614E-02	2.3248E+00	6.0043E-02	1.9827E+00
51	4.7827E-02	5.0620E+00	5.2175E-02	2.7764E+00	5.4602E-02	2.3473E+00	5.7889E-02	2.0018E+00
52	4.6385E-02	5.1152E+00	5.0380E-02	2.8029E+00	5.2697E-02	2.3696E+00	5.5849E-02	2.0206E+00
53	4.5019E-02	5.1677E+00	4.8679E-02	2.8292E+00	5.0892E-02	2.3915E+00	5.3916E-02	2.0392E+00
54	4.3724E-02	5.2196E+00	4.7064E-02	2.8550E+00	4.9178E-02	2.4131E+00	5.2082E-02	2.0575E+00
55	4.2494E-02	5.2707E+00	4.5531E-02	2.8805E+00	4.7551E-02	2.4345E+00	5.0340E-02	2.0755E+00
56	4.1325E-02	5.3212E+00	4.4073E-02	2.9056E+00	4.6005E-02	2.4555E+00	4.8685E-02	2.0933E+00
57	4.0212E-02	5.3710E+00	4.2685E-02	2.9304E+00	4.4533E-02	2.4762E+00	4.7110E-02	2.1109E+00
58	3.9152E-02	5.4202E+00	4.1364E-02	2.9548E+00	4.3132E-02	2.4966E+00	4.5610E-02	2.1282E+00
59	3.8142E-02	5.4689E+00	4.0104E-02	2.9789E+00	4.1797E-02	2.5168E+00	4.4182E-02	2.1453E+00
60	3.7177E-02	5.5169E+00	3.8902E-02	3.0027E+00	4.0523E-02	2.5367E+00	4.2820E-02	2.1621E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Rb; $Z = 37$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.0749E+01	2.2111E-01	1.2119E+01	1.4172E-01	1.2690E+01	1.2303E-01	1.3445E+01	1.0707E-01
1	7.4644E+00	3.0977E-01	8.5844E+00	1.9532E-01	9.0189E+00	1.6907E-01	9.5832E+00	1.4675E-01
2	4.5885E+00	4.7190E-01	5.4384E+00	2.9089E-01	5.7421E+00	2.5080E-01	6.1261E+00	2.1698E-01
3	3.1976E+00	6.2097E-01	3.8864E+00	3.7750E-01	4.1196E+00	3.2470E-01	4.4079E+00	2.8041E-01
4	2.3153E+00	7.8149E-01	2.8786E+00	4.6924E-01	3.0621E+00	4.0276E-01	3.2848E+00	3.4729E-01
5	1.7283E+00	9.5641E-01	2.1871E+00	5.6771E-01	2.3332E+00	4.8632E-01	2.5080E+00	4.1874E-01
6	1.3398E+00	1.1332E+00	1.7149E+00	6.6649E-01	1.8331E+00	5.7002E-01	1.9733E+00	4.9022E-01
7	1.0768E+00	1.3008E+00	1.3879E+00	7.5987E-01	1.4856E+00	6.4908E-01	1.6009E+00	5.5771E-01
8	8.9022E-01	1.4548E+00	1.1536E+00	8.4563E-01	1.2362E+00	7.2167E-01	1.3331E+00	6.1965E-01
9	7.5122E-01	1.5969E+00	9.7851E-01	9.2448E-01	1.0495E+00	7.8835E-01	1.1326E+00	6.7652E-01
10	6.4345E-01	1.7307E+00	8.4223E-01	9.9838E-01	9.0412E-01	8.5080E-01	9.7631E-01	7.2976E-01
11	5.5732E-01	1.8592E+00	7.3272E-01	1.0689E+00	7.8717E-01	9.1038E-01	8.5050E-01	7.8052E-01
12	4.8789E-01	1.9847E+00	6.4327E-01	1.1378E+00	6.9145E-01	9.6847E-01	7.4737E-01	8.2999E-01
13	4.3092E-01	2.1084E+00	5.6877E-01	1.2055E+00	6.1155E-01	1.0257E+00	6.6115E-01	8.7870E-01
14	3.8367E-01	2.2308E+00	5.0587E-01	1.2728E+00	5.4391E-01	1.0825E+00	5.8803E-01	9.2704E-01
15	3.4425E-01	2.3519E+00	4.5242E-01	1.3396E+00	4.8629E-01	1.1389E+00	5.2562E-01	9.7510E-01
16	3.1110E-01	2.4713E+00	4.0674E-01	1.4058E+00	4.3692E-01	1.1948E+00	4.7204E-01	1.0228E+00
17	2.8300E-01	2.5883E+00	3.6749E-01	1.4712E+00	3.9440E-01	1.2501E+00	4.2585E-01	1.0700E+00
18	2.5896E-01	2.7027E+00	3.3361E-01	1.5355E+00	3.5764E-01	1.3046E+00	3.8586E-01	1.1164E+00
19	2.3819E-01	2.8141E+00	3.0422E-01	1.5984E+00	3.2572E-01	1.3578E+00	3.5109E-01	1.1618E+00
20	2.2009E-01	2.9222E+00	2.7859E-01	1.6596E+00	2.9787E-01	1.4097E+00	3.2076E-01	1.2062E+00
21	2.0416E-01	3.0270E+00	2.5613E-01	1.7190E+00	2.7347E-01	1.4601E+00	2.9419E-01	1.2493E+00
22	1.9002E-01	3.1286E+00	2.3634E-01	1.7765E+00	2.5199E-01	1.5089E+00	2.7081E-01	1.2909E+00
23	1.7739E-01	3.2269E+00	2.1883E-01	1.8320E+00	2.3300E-01	1.5560E+00	2.5014E-01	1.3312E+00
24	1.6602E-01	3.3222E+00	2.0325E-01	1.8855E+00	2.1613E-01	1.6014E+00	2.3181E-01	1.3700E+00
25	1.5574E-01	3.4146E+00	1.8932E-01	1.9370E+00	2.0107E-01	1.6451E+00	2.1547E-01	1.4073E+00
26	1.4639E-01	3.5043E+00	1.7681E-01	1.9867E+00	1.8758E-01	1.6872E+00	2.0084E-01	1.4433E+00
27	1.3786E-01	3.5916E+00	1.6554E-01	2.0346E+00	1.7544E-01	1.7277E+00	1.8770E-01	1.4778E+00
28	1.3005E-01	3.6765E+00	1.5533E-01	2.0808E+00	1.6447E-01	1.7667E+00	1.7585E-01	1.5111E+00
29	1.2289E-01	3.7592E+00	1.4606E-01	2.1254E+00	1.5453E-01	1.8043E+00	1.6512E-01	1.5431E+00
30	1.1630E-01	3.8399E+00	1.3761E-01	2.1685E+00	1.4548E-01	1.8406E+00	1.5537E-01	1.5740E+00
31	1.1022E-01	3.9188E+00	1.2988E-01	2.2102E+00	1.3722E-01	1.8757E+00	1.4648E-01	1.6039E+00
32	1.0462E-01	3.9958E+00	1.2280E-01	2.2506E+00	1.2967E-01	1.9097E+00	1.3835E-01	1.6327E+00
33	9.9441E-02	4.0712E+00	1.1629E-01	2.2899E+00	1.2273E-01	1.9427E+00	1.3090E-01	1.6607E+00
34	9.4648E-02	4.1451E+00	1.1029E-01	2.3281E+00	1.1635E-01	1.9747E+00	1.2405E-01	1.6879E+00
35	9.0205E-02	4.2174E+00	1.0476E-01	2.3653E+00	1.1046E-01	2.0059E+00	1.1773E-01	1.7143E+00
36	8.6083E-02	4.2883E+00	9.9637E-02	2.4016E+00	1.0501E-01	2.0363E+00	1.1190E-01	1.7400E+00
37	8.2254E-02	4.3579E+00	9.4889E-02	2.4370E+00	9.9967E-02	2.0659E+00	1.0649E-01	1.7651E+00
38	7.8692E-02	4.4262E+00	9.0478E-02	2.4716E+00	9.5284E-02	2.0949E+00	1.0148E-01	1.7896E+00
39	7.5374E-02	4.4932E+00	8.6375E-02	2.5055E+00	9.0928E-02	2.1232E+00	9.6810E-02	1.8135E+00
40	7.2281E-02	4.5591E+00	8.2550E-02	2.5387E+00	8.6869E-02	2.1509E+00	9.2464E-02	1.8370E+00
41	6.9394E-02	4.6238E+00	7.8981E-02	2.5713E+00	8.3081E-02	2.1781E+00	8.8409E-02	1.8600E+00
42	6.6695E-02	4.6875E+00	7.5644E-02	2.6032E+00	7.9540E-02	2.2048E+00	8.4617E-02	1.8825E+00
43	6.4170E-02	4.7500E+00	7.2519E-02	2.6346E+00	7.6224E-02	2.2310E+00	8.1067E-02	1.9047E+00
44	6.1804E-02	4.8116E+00	6.9589E-02	2.6654E+00	7.3115E-02	2.2567E+00	7.7738E-02	1.9264E+00
45	5.9584E-02	4.8722E+00	6.6838E-02	2.6957E+00	7.0195E-02	2.2820E+00	7.4612E-02	1.9478E+00
46	5.7500E-02	4.9319E+00	6.4251E-02	2.7255E+00	6.7450E-02	2.3069E+00	7.1672E-02	1.9689E+00
47	5.5540E-02	4.9906E+00	6.1816E-02	2.7548E+00	6.4865E-02	2.3314E+00	6.8904E-02	1.9896E+00
48	5.3694E-02	5.0485E+00	5.9522E-02	2.7837E+00	6.2429E-02	2.3556E+00	6.6295E-02	2.0100E+00
49	5.1954E-02	5.1055E+00	5.7356E-02	2.8122E+00	6.0129E-02	2.3793E+00	6.3833E-02	2.0301E+00
50	5.0313E-02	5.1617E+00	5.5310E-02	2.8402E+00	5.7957E-02	2.4027E+00	6.1506E-02	2.0499E+00
51	4.8762E-02	5.2171E+00	5.3374E-02	2.8678E+00	5.5902E-02	2.4258E+00	5.9304E-02	2.0694E+00
52	4.7295E-02	5.2718E+00	5.1542E-02	2.8950E+00	5.3956E-02	2.4485E+00	5.7220E-02	2.0887E+00
53	4.5905E-02	5.3257E+00	4.9805E-02	2.9218E+00	5.2111E-02	2.4710E+00	5.5244E-02	2.1077E+00
54	4.4588E-02	5.3789E+00	4.8157E-02	2.9482E+00	5.0361E-02	2.4931E+00	5.3370E-02	2.1264E+00
55	4.3338E-02	5.4314E+00	4.6592E-02	2.9743E+00	4.8699E-02	2.5149E+00	5.1590E-02	2.1448E+00
56	4.2151E-02	5.4832E+00	4.5104E-02	3.0000E+00	4.7120E-02	2.5364E+00	4.9898E-02	2.1630E+00
57	4.1021E-02	5.5344E+00	4.3687E-02	3.0254E+00	4.5616E-02	2.5576E+00	4.8288E-02	2.1810E+00
58	3.9946E-02	5.5849E+00	4.2339E-02	3.0504E+00	4.4185E-02	2.5785E+00	4.6755E-02	2.1987E+00
59	3.8922E-02	5.6348E+00	4.1053E-02	3.0751E+00	4.2821E-02	2.5991E+00	4.5295E-02	2.2162E+00
60	3.7945E-02	5.6842E+00	3.9826E-02	3.0994E+00	4.1520E-02	2.6195E+00	4.3902E-02	2.2334E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Sr; $Z = 38$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.2019E+01	2.2526E-01	1.3533E+01	1.4349E-01	1.4169E+01	1.2451E-01	1.5012E+01	1.0832E-01
1	8.6382E+00	3.0252E-01	9.8978E+00	1.9041E-01	1.0394E+01	1.6486E-01	1.1042E+01	1.4313E-01
2	4.9783E+00	4.8384E-01	5.8977E+00	2.9752E-01	6.2275E+00	2.5654E-01	6.6448E+00	2.2199E-01
3	3.2826E+00	6.6408E-01	3.9973E+00	4.0195E-01	4.2396E+00	3.4563E-01	4.5385E+00	2.9847E-01
4	2.3569E+00	8.3296E-01	2.9372E+00	4.9862E-01	3.1267E+00	4.2793E-01	3.3560E+00	3.6900E-01
5	1.7627E+00	1.0073E+00	2.2376E+00	5.9710E-01	2.3891E+00	5.1157E-01	2.5700E+00	4.4057E-01
6	1.3655E+00	1.1853E+00	1.7550E+00	6.9681E-01	1.8778E+00	5.9611E-01	2.0232E+00	5.1281E-01
7	1.0942E+00	1.3580E+00	1.4164E+00	7.9333E-01	1.5177E+00	6.7788E-01	1.6370E+00	5.8264E-01
8	9.0209E-01	1.5193E+00	1.1730E+00	8.8345E-01	1.2582E+00	7.5420E-01	1.3581E+00	6.4779E-01
9	7.5997E-01	1.6683E+00	9.9209E-01	9.6652E-01	1.0651E+00	8.2451E-01	1.1503E+00	7.0779E-01
10	6.5046E-01	1.8072E+00	8.5254E-01	1.0436E+00	9.1597E-01	8.8973E-01	9.8987E-01	7.6342E-01
11	5.6327E-01	1.9391E+00	7.4120E-01	1.1164E+00	7.9694E-01	9.5123E-01	8.6170E-01	8.1584E-01
12	4.9310E-01	2.0663E+00	6.5094E-01	1.1864E+00	7.0031E-01	1.0103E+00	7.5755E-01	8.6619E-01
13	4.3555E-01	2.1908E+00	5.7601E-01	1.2547E+00	6.1995E-01	1.0680E+00	6.7081E-01	9.1531E-01
14	3.8776E-01	2.3135E+00	5.1280E-01	1.3221E+00	5.5200E-01	1.1249E+00	5.9736E-01	9.6377E-01
15	3.4785E-01	2.4347E+00	4.5908E-01	1.3889E+00	4.9411E-01	1.1813E+00	5.3465E-01	1.0118E+00
16	3.1429E-01	2.5542E+00	4.1312E-01	1.4551E+00	4.4444E-01	1.2373E+00	4.8076E-01	1.0595E+00
17	2.8584E-01	2.6716E+00	3.7357E-01	1.5206E+00	4.0159E-01	1.2926E+00	4.3418E-01	1.1067E+00
18	2.6152E-01	2.7867E+00	3.3937E-01	1.5852E+00	3.6446E-01	1.3473E+00	3.9377E-01	1.1534E+00
19	2.4055E-01	2.8990E+00	3.0964E-01	1.6486E+00	3.3215E-01	1.4010E+00	3.5856E-01	1.1992E+00
20	2.2229E-01	3.0084E+00	2.8369E-01	1.7105E+00	3.0391E-01	1.4535E+00	3.2777E-01	1.2441E+00
21	2.0626E-01	3.1147E+00	2.6092E-01	1.7709E+00	2.7912E-01	1.5048E+00	3.0074E-01	1.2879E+00
22	1.9206E-01	3.2178E+00	2.4084E-01	1.8295E+00	2.5728E-01	1.5545E+00	2.7691E-01	1.3304E+00
23	1.7938E-01	3.3179E+00	2.2306E-01	1.8862E+00	2.3795E-01	1.6027E+00	2.5584E-01	1.3716E+00
24	1.6798E-01	3.4150E+00	2.0722E-01	1.9411E+00	2.2075E-01	1.6493E+00	2.3712E-01	1.4115E+00
25	1.5767E-01	3.5092E+00	1.9307E-01	1.9941E+00	2.0540E-01	1.6942E+00	2.2042E-01	1.4499E+00
26	1.4830E-01	3.6008E+00	1.8035E-01	2.0452E+00	1.9164E-01	1.7376E+00	2.0546E-01	1.4869E+00
27	1.3974E-01	3.6899E+00	1.6888E-01	2.0945E+00	1.7926E-01	1.7794E+00	1.9202E-01	1.5226E+00
28	1.3191E-01	3.7767E+00	1.5850E-01	2.1422E+00	1.6806E-01	1.8197E+00	1.7990E-01	1.5570E+00
29	1.2472E-01	3.8613E+00	1.4906E-01	2.1882E+00	1.5791E-01	1.8586E+00	1.6892E-01	1.5902E+00
30	1.1810E-01	3.9438E+00	1.4046E-01	2.2327E+00	1.4868E-01	1.8961E+00	1.5894E-01	1.6222E+00
31	1.1199E-01	4.0245E+00	1.3260E-01	2.2757E+00	1.4025E-01	1.9324E+00	1.4984E-01	1.6531E+00
32	1.0634E-01	4.1034E+00	1.2538E-01	2.3175E+00	1.3253E-01	1.9676E+00	1.4153E-01	1.6830E+00
33	1.0112E-01	4.1806E+00	1.1875E-01	2.3580E+00	1.2545E-01	2.0016E+00	1.3390E-01	1.7119E+00
34	9.6275E-02	4.2561E+00	1.1264E-01	2.3974E+00	1.1893E-01	2.0347E+00	1.2689E-01	1.7399E+00
35	9.1783E-02	4.3302E+00	1.0700E-01	2.4357E+00	1.1291E-01	2.0668E+00	1.2043E-01	1.7672E+00
36	8.7611E-02	4.4029E+00	1.0177E-01	2.4730E+00	1.0735E-01	2.0981E+00	1.1446E-01	1.7937E+00
37	8.3730E-02	4.4742E+00	9.6931E-02	2.5095E+00	1.0220E-01	2.1286E+00	1.0893E-01	1.8196E+00
38	8.0118E-02	4.5442E+00	9.2431E-02	2.5451E+00	9.7412E-02	2.1584E+00	1.0380E-01	1.8448E+00
39	7.6751E-02	4.6129E+00	8.8244E-02	2.5799E+00	9.2962E-02	2.1876E+00	9.9033E-02	1.8694E+00
40	7.3609E-02	4.6805E+00	8.4341E-02	2.6140E+00	8.8816E-02	2.2160E+00	9.4590E-02	1.8935E+00
41	7.0674E-02	4.7469E+00	8.0697E-02	2.6474E+00	8.4946E-02	2.2439E+00	9.0444E-02	1.9171E+00
42	6.7930E-02	4.8122E+00	7.7291E-02	2.6801E+00	8.1328E-02	2.2713E+00	8.6568E-02	1.9402E+00
43	6.5360E-02	4.8764E+00	7.4101E-02	2.7123E+00	7.7941E-02	2.2982E+00	8.2940E-02	1.9629E+00
44	6.2952E-02	4.9396E+00	7.1109E-02	2.7439E+00	7.4764E-02	2.3245E+00	7.9538E-02	1.9852E+00
45	6.0693E-02	5.0017E+00	6.8300E-02	2.7749E+00	7.1782E-02	2.3504E+00	7.6343E-02	2.0071E+00
46	5.8570E-02	5.0630E+00	6.5660E-02	2.8054E+00	6.8978E-02	2.3759E+00	7.3340E-02	2.0286E+00
47	5.6575E-02	5.1233E+00	6.3174E-02	2.8354E+00	6.6338E-02	2.4010E+00	7.0512E-02	2.0498E+00
48	5.4696E-02	5.1827E+00	6.0831E-02	2.8650E+00	6.3850E-02	2.4256E+00	6.7846E-02	2.0707E+00
49	5.2925E-02	5.2412E+00	5.8621E-02	2.8941E+00	6.1502E-02	2.4499E+00	6.5330E-02	2.0912E+00
50	5.1254E-02	5.2989E+00	5.6532E-02	2.9227E+00	5.9284E-02	2.4739E+00	6.2953E-02	2.1115E+00
51	4.9676E-02	5.3558E+00	5.4557E-02	2.9510E+00	5.7185E-02	2.4975E+00	6.0704E-02	2.1314E+00
52	4.8183E-02	5.4119E+00	5.2687E-02	2.9788E+00	5.5198E-02	2.5207E+00	5.8575E-02	2.1511E+00
53	4.6770E-02	5.4672E+00	5.0915E-02	3.0062E+00	5.3315E-02	2.5436E+00	5.6557E-02	2.1705E+00
54	4.5432E-02	5.5218E+00	4.9233E-02	3.0333E+00	5.1529E-02	2.5662E+00	5.4643E-02	2.1896E+00
55	4.4162E-02	5.5757E+00	4.7636E-02	3.0599E+00	4.9832E-02	2.5885E+00	5.2825E-02	2.2085E+00
56	4.2956E-02	5.6289E+00	4.6118E-02	3.0863E+00	4.8219E-02	2.6105E+00	5.1096E-02	2.2271E+00
57	4.1810E-02	5.6814E+00	4.4674E-02	3.1122E+00	4.6685E-02	2.6322E+00	4.9452E-02	2.2454E+00
58	4.0720E-02	5.7333E+00	4.3298E-02	3.1378E+00	4.5224E-02	2.6536E+00	4.7887E-02	2.2635E+00
59	3.9682E-02	5.7846E+00	4.1987E-02	3.1630E+00	4.3832E-02	2.6747E+00	4.6395E-02	2.2814E+00
60	3.8692E-02	5.8352E+00	4.0736E-02	3.1880E+00	4.2504E-02	2.6955E+00	4.4973E-02	2.2990E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

Y; Z = 39

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	1.1519E+01	2.4347E-01	1.3035E+01	1.5527E-01	1.3660E+01	1.3481E-01	1.4482E+01	1.1736E-01
1	8.6824E+00	3.1259E-01	9.9798E+00	1.9728E-01	1.0486E+01	1.7095E-01	1.1145E+01	1.4854E-01
2	5.1872E+00	4.8364E-01	6.1563E+00	2.9865E-01	6.5034E+00	2.5779E-01	6.9418E+00	2.2327E-01
3	3.3892E+00	6.7070E-01	4.1376E+00	4.0719E-01	4.3911E+00	3.5045E-01	4.7031E+00	3.0285E-01
4	2.4133E+00	8.4790E-01	3.0161E+00	5.0877E-01	3.2130E+00	4.3697E-01	3.4509E+00	3.7704E-01
5	1.7998E+00	1.0263E+00	2.2923E+00	6.0983E-01	2.4495E+00	5.2285E-01	2.6368E+00	4.5056E-01
6	1.3913E+00	1.2077E+00	1.7950E+00	7.1169E-01	1.9225E+00	6.0927E-01	2.0730E+00	5.2444E-01
7	1.1119E+00	1.3854E+00	1.4451E+00	8.1123E-01	1.5501E+00	6.9364E-01	1.6733E+00	5.9653E-01
8	9.1454E-01	1.5531E+00	1.1932E+00	9.0521E-01	1.2812E+00	7.7327E-01	1.3841E+00	6.6453E-01
9	7.6927E-01	1.7084E+00	1.0066E+00	9.9222E-01	1.0816E+00	8.4698E-01	1.1691E+00	7.2746E-01
10	6.5792E-01	1.8527E+00	8.6348E-01	1.0727E+00	9.2851E-01	9.1510E-01	1.0042E+00	7.8560E-01
11	5.6956E-01	1.9884E+00	7.5004E-01	1.1480E+00	8.0708E-01	9.7876E-01	8.7329E-01	8.3990E-01
12	4.9858E-01	2.1181E+00	6.5865E-01	1.2196E+00	7.0918E-01	1.0393E+00	7.6771E-01	8.9147E-01
13	4.4037E-01	2.2440E+00	5.8307E-01	1.2888E+00	6.2811E-01	1.0977E+00	6.8019E-01	9.4129E-01
14	3.9199E-01	2.3674E+00	5.1945E-01	1.3566E+00	5.5973E-01	1.1550E+00	6.0626E-01	9.9008E-01
15	3.5157E-01	2.4889E+00	4.6542E-01	1.4236E+00	5.0151E-01	1.2115E+00	5.4321E-01	1.0382E+00
16	3.1755E-01	2.6086E+00	4.1917E-01	1.4898E+00	4.5155E-01	1.2675E+00	4.8899E-01	1.0859E+00
17	2.8871E-01	2.7264E+00	3.7933E-01	1.5554E+00	4.0839E-01	1.3230E+00	4.4209E-01	1.1332E+00
18	2.6408E-01	2.8421E+00	3.4483E-01	1.6202E+00	3.7094E-01	1.3778E+00	4.0131E-01	1.1800E+00
19	2.4287E-01	2.9552E+00	3.1481E-01	1.6839E+00	3.3828E-01	1.4318E+00	3.6571E-01	1.2261E+00
20	2.2443E-01	3.0656E+00	2.8856E-01	1.7465E+00	3.0970E-01	1.4849E+00	3.3451E-01	1.2714E+00
21	2.0827E-01	3.1732E+00	2.6551E-01	1.8076E+00	2.8457E-01	1.5367E+00	3.0707E-01	1.3157E+00
22	1.9398E-01	3.2777E+00	2.4516E-01	1.8671E+00	2.6240E-01	1.5873E+00	2.8286E-01	1.3590E+00
23	1.8124E-01	3.3793E+00	2.2713E-01	1.9250E+00	2.4275E-01	1.6364E+00	2.6140E-01	1.4010E+00
24	1.6980E-01	3.4781E+00	2.1107E-01	1.9810E+00	2.2526E-01	1.6840E+00	2.4232E-01	1.4418E+00
25	1.5947E-01	3.5740E+00	1.9670E-01	2.0353E+00	2.0964E-01	1.7301E+00	2.2528E-01	1.4812E+00
26	1.5008E-01	3.6674E+00	1.8379E-01	2.0877E+00	1.9563E-01	1.7747E+00	2.1002E-01	1.5193E+00
27	1.4151E-01	3.7582E+00	1.7214E-01	2.1385E+00	1.8301E-01	1.8177E+00	1.9629E-01	1.5561E+00
28	1.3366E-01	3.8467E+00	1.6159E-01	2.1875E+00	1.7160E-01	1.8592E+00	1.8390E-01	1.5915E+00
29	1.2644E-01	3.9331E+00	1.5200E-01	2.2348E+00	1.6125E-01	1.8993E+00	1.7268E-01	1.6258E+00
30	1.1980E-01	4.0174E+00	1.4326E-01	2.2807E+00	1.5183E-01	1.9381E+00	1.6248E-01	1.6588E+00
31	1.1366E-01	4.0998E+00	1.3526E-01	2.3251E+00	1.4324E-01	1.9756E+00	1.5319E-01	1.6908E+00
32	1.0798E-01	4.1804E+00	1.2792E-01	2.3681E+00	1.3536E-01	2.0118E+00	1.4469E-01	1.7217E+00
33	1.0272E-01	4.2593E+00	1.2118E-01	2.4099E+00	1.2814E-01	2.0470E+00	1.3689E-01	1.7515E+00
34	9.7840E-02	4.3366E+00	1.1495E-01	2.4504E+00	1.2149E-01	2.0811E+00	1.2973E-01	1.7805E+00
35	9.3308E-02	4.4124E+00	1.0921E-01	2.4899E+00	1.1535E-01	2.1143E+00	1.2312E-01	1.8087E+00
36	8.9092E-02	4.4868E+00	1.0389E-01	2.5283E+00	1.0967E-01	2.1465E+00	1.1702E-01	1.8360E+00
37	8.5168E-02	4.5597E+00	9.8954E-02	2.5658E+00	1.0441E-01	2.1779E+00	1.1137E-01	1.8627E+00
38	8.1511E-02	4.6314E+00	9.4368E-02	2.6024E+00	9.9529E-02	2.2086E+00	1.0612E-01	1.8886E+00
39	7.8099E-02	4.7018E+00	9.0099E-02	2.6382E+00	9.4986E-02	2.2385E+00	1.0125E-01	1.9139E+00
40	7.4914E-02	4.7710E+00	8.6120E-02	2.6732E+00	9.0753E-02	2.2678E+00	9.6709E-02	1.9387E+00
41	7.1935E-02	4.8391E+00	8.2403E-02	2.7075E+00	8.6802E-02	2.2964E+00	9.2472E-02	1.9629E+00
42	6.9149E-02	4.9060E+00	7.8928E-02	2.7411E+00	8.3108E-02	2.3245E+00	8.8512E-02	1.9867E+00
43	6.6538E-02	4.9718E+00	7.5674E-02	2.7741E+00	7.9649E-02	2.3520E+00	8.4805E-02	2.0099E+00
44	6.4090E-02	5.0366E+00	7.2622E-02	2.8064E+00	7.6406E-02	2.3791E+00	8.1329E-02	2.0328E+00
45	6.1793E-02	5.1004E+00	6.9756E-02	2.8382E+00	7.3361E-02	2.4056E+00	7.8066E-02	2.0552E+00
46	5.9634E-02	5.1632E+00	6.7061E-02	2.8695E+00	7.0498E-02	2.4317E+00	7.4998E-02	2.0773E+00
47	5.7604E-02	5.2250E+00	6.4525E-02	2.9002E+00	6.7803E-02	2.4573E+00	7.2109E-02	2.0989E+00
48	5.5692E-02	5.2860E+00	6.2134E-02	2.9305E+00	6.5263E-02	2.4826E+00	6.9387E-02	2.1203E+00
49	5.3891E-02	5.3460E+00	5.9878E-02	2.9602E+00	6.2866E-02	2.5074E+00	6.6818E-02	2.1413E+00
50	5.2191E-02	5.4052E+00	5.7747E-02	2.9895E+00	6.0601E-02	2.5319E+00	6.4390E-02	2.1620E+00
51	5.0585E-02	5.4636E+00	5.5732E-02	3.0184E+00	5.8459E-02	2.5560E+00	6.2094E-02	2.1823E+00
52	4.9067E-02	5.5212E+00	5.3824E-02	3.0469E+00	5.6431E-02	2.5798E+00	5.9920E-02	2.2024E+00
53	4.7631E-02	5.5780E+00	5.2016E-02	3.0749E+00	5.4509E-02	2.6032E+00	5.7860E-02	2.2221E+00
54	4.6270E-02	5.6340E+00	5.0300E-02	3.1026E+00	5.2686E-02	2.6263E+00	5.5905E-02	2.2418E+00
55	4.4980E-02	5.6893E+00	4.8671E-02	3.1298E+00	5.0955E-02	2.6491E+00	5.4049E-02	2.2610E+00
56	4.3756E-02	5.7439E+00	4.7123E-02	3.1567E+00	4.9309E-02	2.6715E+00	5.2284E-02	2.2800E+00
57	4.2593E-02	5.7979E+00	4.5650E-02	3.1833E+00	4.7743E-02	2.6937E+00	5.0606E-02	2.2988E+00
58	4.1486E-02	5.8511E+00	4.4248E-02	3.2094E+00	4.6252E-02	2.7156E+00	4.9008E-02	2.3173E+00
59	4.0434E-02	5.9037E+00	4.2911E-02	3.2353E+00	4.4832E-02	2.7371E+00	4.7485E-02	2.3355E+00
60	3.9431E-02	5.9557E+00	4.1636E-02	3.2608E+00	4.3477E-02	2.7584E+00	4.6033E-02	2.3536E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

Zr; Z = 40

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	1.0956E+01	2.5995E-01	1.2463E+01	1.6634E-01	1.3073E+01	1.4456E-01	1.3869E+01	1.2595E-01
1	8.5337E+00	3.2396E-01	9.8489E+00	2.0528E-01	1.0357E+01	1.7807E-01	1.1014E+01	1.5486E-01
2	5.2935E+00	4.8516E-01	6.2997E+00	3.0108E-01	6.6589E+00	2.6020E-01	7.1114E+00	2.2558E-01
3	3.4785E+00	6.7142E-01	4.2594E+00	4.0944E-01	4.5235E+00	3.5277E-01	4.8476E+00	3.0513E-01
4	2.4695E+00	8.5310E-01	3.0966E+00	5.1379E-01	3.3015E+00	4.4170E-01	3.5482E+00	3.8142E-01
5	1.8376E+00	1.0354E+00	2.3489E+00	6.1732E-01	2.5123E+00	5.2974E-01	2.7064E+00	4.5682E-01
6	1.4175E+00	1.2205E+00	1.8362E+00	7.2149E-01	1.9687E+00	6.1817E-01	2.1246E+00	5.3247E-01
7	1.1302E+00	1.4030E+00	1.4749E+00	8.2396E-01	1.5838E+00	7.0508E-01	1.7112E+00	6.0675E-01
8	9.2756E-01	1.5767E+00	1.2146E+00	9.2158E-01	1.3055E+00	7.8784E-01	1.4116E+00	6.7747E-01
9	7.7909E-01	1.7383E+00	1.0221E+00	1.0125E+00	1.0993E+00	8.6489E-01	1.1892E+00	7.4329E-01
10	6.6583E-01	1.8880E+00	8.7514E-01	1.0965E+00	9.4184E-01	9.3607E-01	1.0194E+00	8.0407E-01
11	5.7622E-01	2.0281E+00	7.5930E-01	1.1746E+00	8.1767E-01	1.0022E+00	8.8538E-01	8.6048E-01
12	5.0439E-01	2.1609E+00	6.6650E-01	1.2482E+00	7.1817E-01	1.0645E+00	7.7799E-01	9.1360E-01
13	4.4547E-01	2.2888E+00	5.9008E-01	1.3188E+00	6.3616E-01	1.1241E+00	6.8941E-01	9.6441E-01
14	3.9646E-01	2.4133E+00	5.2592E-01	1.3873E+00	5.6719E-01	1.1820E+00	6.1484E-01	1.0137E+00
15	3.5547E-01	2.5355E+00	4.7150E-01	1.4546E+00	5.0858E-01	1.2388E+00	5.5136E-01	1.0622E+00
16	3.2095E-01	2.657E+00	4.2494E-01	1.5210E+00	4.5830E-01	1.2949E+00	4.9681E-01	1.1100E+00
17	2.9169E-01	2.7740E+00	3.8481E-01	1.5867E+00	4.1485E-01	1.3504E+00	4.4958E-01	1.1573E+00
18	2.6670E-01	2.8901E+00	3.5003E-01	1.6516E+00	3.7709E-01	1.4054E+00	4.0847E-01	1.2042E+00
19	2.4520E-01	3.0040E+00	3.1973E-01	1.7156E+00	3.4414E-01	1.4596E+00	3.7253E-01	1.2505E+00
20	2.2655E-01	3.1153E+00	2.9321E-01	1.7786E+00	3.1524E-01	1.5130E+00	3.4098E-01	1.2961E+00
21	2.1023E-01	3.2239E+00	2.6990E-01	1.8403E+00	2.8981E-01	1.5654E+00	3.1319E-01	1.3408E+00
22	1.9582E-01	3.3297E+00	2.4931E-01	1.9006E+00	2.6734E-01	1.6166E+00	2.8861E-01	1.3846E+00
23	1.8300E-01	3.4327E+00	2.3105E-01	1.9594E+00	2.4740E-01	1.6665E+00	2.6681E-01	1.4274E+00
24	1.7151E-01	3.5329E+00	2.1477E-01	2.0165E+00	2.2964E-01	1.7151E+00	2.4739E-01	1.4689E+00
25	1.6115E-01	3.6304E+00	2.0020E-01	2.0719E+00	2.1376E-01	1.7622E+00	2.3005E-01	1.5092E+00
26	1.5173E-01	3.7253E+00	1.8711E-01	2.1256E+00	1.9951E-01	1.8078E+00	2.1449E-01	1.5483E+00
27	1.4315E-01	3.8178E+00	1.7529E-01	2.1776E+00	1.8667E-01	1.8519E+00	2.0050E-01	1.5861E+00
28	1.3528E-01	3.9079E+00	1.6459E-01	2.2279E+00	1.7506E-01	1.8946E+00	1.8785E-01	1.6226E+00
29	1.2805E-01	3.9959E+00	1.5486E-01	2.2766E+00	1.6453E-01	1.9359E+00	1.7640E-01	1.6579E+00
30	1.2139E-01	4.0819E+00	1.4598E-01	2.3237E+00	1.5494E-01	1.9758E+00	1.6599E-01	1.6919E+00
31	1.1523E-01	4.1659E+00	1.3786E-01	2.3694E+00	1.4618E-01	2.0145E+00	1.5650E-01	1.7249E+00
32	1.0953E-01	4.2482E+00	1.3040E-01	2.4137E+00	1.3816E-01	2.0519E+00	1.4782E-01	1.7568E+00
33	1.0424E-01	4.3288E+00	1.2355E-01	2.4567E+00	1.3079E-01	2.0881E+00	1.3986E-01	1.7876E+00
34	9.9331E-02	4.4077E+00	1.1723E-01	2.4985E+00	1.2401E-01	2.1233E+00	1.3254E-01	1.8176E+00
35	9.4765E-02	4.4852E+00	1.1138E-01	2.5391E+00	1.1776E-01	2.1575E+00	1.2579E-01	1.8466E+00
36	9.0514E-02	4.5612E+00	1.0597E-01	2.5786E+00	1.1197E-01	2.1907E+00	1.1956E-01	1.8748E+00
37	8.6553E-02	4.6358E+00	1.0095E-01	2.6172E+00	1.0661E-01	2.2231E+00	1.1379E-01	1.9023E+00
38	8.2857E-02	4.7091E+00	9.6279E-02	2.6548E+00	1.0163E-01	2.2546E+00	1.0843E-01	1.9290E+00
39	7.9406E-02	4.7812E+00	9.1932E-02	2.6916E+00	9.6993E-02	2.2854E+00	1.0345E-01	1.9551E+00
40	7.6181E-02	4.8520E+00	8.7879E-02	2.7275E+00	9.2675E-02	2.3155E+00	9.8816E-02	1.9805E+00
41	7.3164E-02	4.9217E+00	8.4092E-02	2.7627E+00	8.8643E-02	2.3449E+00	9.4489E-02	2.0054E+00
42	7.0339E-02	4.9902E+00	8.0550E-02	2.7972E+00	8.4875E-02	2.3737E+00	9.0445E-02	2.0298E+00
43	6.7690E-02	5.0576E+00	7.7233E-02	2.8310E+00	8.1346E-02	2.4019E+00	8.6659E-02	2.0537E+00
44	6.5206E-02	5.1240E+00	7.4121E-02	2.8642E+00	7.8036E-02	2.4296E+00	8.3110E-02	2.0771E+00
45	6.2873E-02	5.1894E+00	7.1199E-02	2.8968E+00	7.4929E-02	2.4568E+00	7.9778E-02	2.1000E+00
46	6.0680E-02	5.2537E+00	6.8451E-02	2.9288E+00	7.2008E-02	2.4835E+00	7.6646E-02	2.1226E+00
47	5.8617E-02	5.3172E+00	6.5864E-02	2.9602E+00	6.9257E-02	2.5098E+00	7.3697E-02	2.1448E+00
48	5.6674E-02	5.3797E+00	6.3426E-02	2.9912E+00	6.6665E-02	2.5356E+00	7.0918E-02	2.1666E+00
49	5.4842E-02	5.4412E+00	6.1125E-02	3.0216E+00	6.4219E-02	2.5610E+00	6.8295E-02	2.1881E+00
50	5.3114E-02	5.5020E+00	5.8952E-02	3.0516E+00	6.1908E-02	2.5861E+00	6.5817E-02	2.2092E+00
51	5.1482E-02	5.5619E+00	5.6896E-02	3.0812E+00	5.9723E-02	2.6107E+00	6.3473E-02	2.2301E+00
52	4.9939E-02	5.6209E+00	5.4950E-02	3.1102E+00	5.7654E-02	2.6350E+00	6.1254E-02	2.2506E+00
53	4.8480E-02	5.6792E+00	5.3107E-02	3.1389E+00	5.5693E-02	2.6589E+00	5.9151E-02	2.2708E+00
54	4.7097E-02	5.7367E+00	5.1357E-02	3.1672E+00	5.3833E-02	2.6825E+00	5.7156E-02	2.2908E+00
55	4.5787E-02	5.7934E+00	4.9697E-02	3.1951E+00	5.2066E-02	2.7058E+00	5.5262E-02	2.3104E+00
56	4.4543E-02	5.8495E+00	4.8118E-02	3.2226E+00	5.0388E-02	2.7287E+00	5.3461E-02	2.3298E+00
57	4.3363E-02	5.9048E+00	4.6616E-02	3.2497E+00	4.8791E-02	2.7514E+00	5.1748E-02	2.3490E+00
58	4.2241E-02	5.9595E+00	4.5187E-02	3.2764E+00	4.7270E-02	2.7737E+00	5.0117E-02	2.3679E+00
59	4.1173E-02	6.0135E+00	4.3825E-02	3.3029E+00	4.5821E-02	2.7958E+00	4.8563E-02	2.3865E+00
60	4.0157E-02	6.0668E+00	4.2525E-02	3.3289E+00	4.4440E-02	2.8175E+00	4.7081E-02	2.4049E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Nb; $Z = 41$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	9.4533E+00	2.8664E-01	1.0859E+01	1.8480E-01	1.1409E+01	1.6086E-01	1.2118E+01	1.4036E-01
1	7.6822E+00	3.4475E-01	8.9406E+00	2.2013E-01	9.4162E+00	1.9125E-01	1.0025E+01	1.6655E-01
2	5.1468E+00	4.8463E-01	6.1561E+00	3.0354E-01	6.5136E+00	2.6282E-01	6.9617E+00	2.2818E-01
3	3.5240E+00	6.5147E-01	4.3323E+00	4.0115E-01	4.6046E+00	3.4630E-01	4.9378E+00	2.9999E-01
4	2.5263E+00	8.2739E-01	3.1820E+00	5.0257E-01	3.3955E+00	4.3281E-01	3.6520E+00	3.7425E-01
5	1.8783E+00	1.0119E+00	2.4129E+00	6.0756E-01	2.5834E+00	5.2214E-01	2.7854E+00	4.5081E-01
6	1.4447E+00	1.2020E+00	1.8811E+00	7.1480E-01	2.0190E+00	6.1323E-01	2.1809E+00	5.2876E-01
7	1.1487E+00	1.3907E+00	1.5062E+00	8.2099E-01	1.6193E+00	7.0334E-01	1.7512E+00	6.0581E-01
8	9.4076E-01	1.5711E+00	1.2367E+00	9.2265E-01	1.3307E+00	7.8958E-01	1.4402E+00	6.7953E-01
9	7.8916E-01	1.7391E+00	1.0381E+00	1.0176E+00	1.1176E+00	8.7009E-01	1.2101E+00	7.4834E-01
10	6.7400E-01	1.8945E+00	8.8722E-01	1.1052E+00	9.5563E-01	9.4440E-01	1.0351E+00	8.1184E-01
11	5.8313E-01	2.0391E+00	7.6884E-01	1.1863E+00	8.2855E-01	1.0131E+00	8.9780E-01	8.7049E-01
12	5.1041E-01	2.1753E+00	6.7448E-01	1.2622E+00	7.2726E-01	1.0773E+00	7.8837E-01	9.2532E-01
13	4.5075E-01	2.3056E+00	5.9707E-01	1.3343E+00	6.4415E-01	1.1383E+00	6.9855E-01	9.7732E-01
14	4.0110E-01	2.4317E+00	5.3226E-01	1.4038E+00	5.7448E-01	1.1971E+00	6.2320E-01	1.0274E+00
15	3.5951E-01	2.5549E+00	4.7740E-01	1.4716E+00	5.1539E-01	1.2544E+00	5.5921E-01	1.0762E+00
16	3.2447E-01	2.6757E+00	4.3048E-01	1.5383E+00	4.6475E-01	1.3107E+00	5.0427E-01	1.1243E+00
17	2.9475E-01	2.7945E+00	3.9005E-01	1.6042E+00	4.2099E-01	1.3664E+00	4.5672E-01	1.1717E+00
18	2.6938E-01	2.9112E+00	3.5499E-01	1.6693E+00	3.8295E-01	1.4215E+00	4.1530E-01	1.2187E+00
19	2.4757E-01	3.0257E+00	3.2442E-01	1.7335E+00	3.4971E-01	1.4759E+00	3.7904E-01	1.2651E+00
20	2.2867E-01	3.1379E+00	2.9765E-01	1.7968E+00	3.2054E-01	1.5295E+00	3.4718E-01	1.3109E+00
21	2.1216E-01	3.2474E+00	2.7410E-01	1.8590E+00	2.9483E-01	1.5823E+00	3.1906E-01	1.3561E+00
22	1.9761E-01	3.3543E+00	2.5328E-01	1.9200E+00	2.7208E-01	1.6341E+00	2.9416E-01	1.4003E+00
23	1.8470E-01	3.4585E+00	2.3480E-01	1.9795E+00	2.5188E-01	1.6847E+00	2.7205E-01	1.4436E+00
24	1.7314E-01	3.5601E+00	2.1833E-01	2.0375E+00	2.3387E-01	1.7340E+00	2.5233E-01	1.4858E+00
25	1.6273E-01	3.6590E+00	2.0357E-01	2.0939E+00	2.1776E-01	1.7820E+00	2.3470E-01	1.5269E+00
26	1.5329E-01	3.7554E+00	1.9031E-01	2.1487E+00	2.0329E-01	1.8286E+00	2.1887E-01	1.5668E+00
27	1.4468E-01	3.8494E+00	1.7834E-01	2.2019E+00	1.9024E-01	1.8738E+00	2.0462E-01	1.6055E+00
28	1.3680E-01	3.9411E+00	1.6749E-01	2.2534E+00	1.7844E-01	1.9175E+00	1.9174E-01	1.6430E+00
29	1.2956E-01	4.0307E+00	1.5763E-01	2.3033E+00	1.6773E-01	1.9599E+00	1.8007E-01	1.6793E+00
30	1.2288E-01	4.1182E+00	1.4863E-01	2.3517E+00	1.5798E-01	2.0010E+00	1.6945E-01	1.7143E+00
31	1.1671E-01	4.2038E+00	1.4039E-01	2.3986E+00	1.4907E-01	2.0407E+00	1.5977E-01	1.7483E+00
32	1.1099E-01	4.2876E+00	1.3283E-01	2.4441E+00	1.4090E-01	2.0792E+00	1.5092E-01	1.7811E+00
33	1.0568E-01	4.3698E+00	1.2587E-01	2.4883E+00	1.3341E-01	2.1165E+00	1.4280E-01	1.8130E+00
34	1.0074E-01	4.4503E+00	1.1945E-01	2.5313E+00	1.2651E-01	2.1528E+00	1.3533E-01	1.8438E+00
35	9.6151E-02	4.5294E+00	1.1351E-01	2.5731E+00	1.2013E-01	2.1880E+00	1.2844E-01	1.8737E+00
36	9.1871E-02	4.6070E+00	1.0801E-01	2.6137E+00	1.1424E-01	2.2222E+00	1.2208E-01	1.9028E+00
37	8.7879E-02	4.6832E+00	1.0291E-01	2.6534E+00	1.0878E-01	2.2555E+00	1.1619E-01	1.9311E+00
38	8.4151E-02	4.7581E+00	9.8162E-02	2.6920E+00	1.0370E-01	2.2879E+00	1.1073E-01	1.9586E+00
39	8.0667E-02	4.8317E+00	9.3741E-02	2.7298E+00	9.8981E-02	2.3196E+00	1.0565E-01	1.9855E+00
40	7.7408E-02	4.9042E+00	8.9616E-02	2.7667E+00	9.4580E-02	2.3505E+00	1.0091E-01	2.0117E+00
41	7.4356E-02	4.9754E+00	8.5762E-02	2.8028E+00	9.0471E-02	2.3807E+00	9.6497E-02	2.0372E+00
42	7.1497E-02	5.0455E+00	8.2156E-02	2.8382E+00	8.6628E-02	2.4103E+00	9.2369E-02	2.0623E+00
43	6.8814E-02	5.1146E+00	7.8777E-02	2.8729E+00	8.3030E-02	2.4393E+00	8.8506E-02	2.0868E+00
44	6.6296E-02	5.1825E+00	7.5608E-02	2.9069E+00	7.9656E-02	2.4677E+00	8.4883E-02	2.1108E+00
45	6.3931E-02	5.2495E+00	7.2630E-02	2.9403E+00	7.6487E-02	2.4955E+00	8.1483E-02	2.1343E+00
46	6.1706E-02	5.3154E+00	6.9830E-02	2.9731E+00	7.3508E-02	2.5229E+00	7.8286E-02	2.1574E+00
47	5.9612E-02	5.3804E+00	6.7194E-02	3.0053E+00	7.0703E-02	2.5498E+00	7.5276E-02	2.1802E+00
48	5.7640E-02	5.4444E+00	6.4709E-02	3.0370E+00	6.8059E-02	2.5762E+00	7.2440E-02	2.2025E+00
49	5.5780E-02	5.5076E+00	6.2364E-02	3.0681E+00	6.5564E-02	2.6022E+00	6.9763E-02	2.2245E+00
50	5.4025E-02	5.5698E+00	6.0148E-02	3.0988E+00	6.3207E-02	2.6278E+00	6.7235E-02	2.2461E+00
51	5.2368E-02	5.6312E+00	5.8053E-02	3.1290E+00	6.0978E-02	2.6530E+00	6.4843E-02	2.2674E+00
52	5.0801E-02	5.6918E+00	5.6069E-02	3.1588E+00	5.8868E-02	2.6779E+00	6.2580E-02	2.2883E+00
53	4.9318E-02	5.7516E+00	5.4190E-02	3.1881E+00	5.6868E-02	2.7023E+00	6.0434E-02	2.3090E+00
54	4.7915E-02	5.8106E+00	5.2407E-02	3.2170E+00	5.4971E-02	2.7264E+00	5.8399E-02	2.3294E+00
55	4.6584E-02	5.8688E+00	5.0714E-02	3.2455E+00	5.3170E-02	2.7502E+00	5.6466E-02	2.3495E+00
56	4.5322E-02	5.9263E+00	4.9105E-02	3.2736E+00	5.1458E-02	2.7736E+00	5.4629E-02	2.3693E+00
57	4.4124E-02	5.9831E+00	4.7575E-02	3.3013E+00	4.9829E-02	2.7968E+00	5.2882E-02	2.3888E+00
58	4.2986E-02	6.0392E+00	4.6118E-02	3.3287E+00	4.8279E-02	2.8196E+00	5.1218E-02	2.4081E+00
59	4.1904E-02	6.0946E+00	4.4730E-02	3.3557E+00	4.6802E-02	2.8421E+00	4.9633E-02	2.4272E+00
60	4.0874E-02	6.1493E+00	4.3406E-02	3.3823E+00	4.5393E-02	2.8644E+00	4.8122E-02	2.4460E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Mo; $Z = 42$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	9.0059E+00	3.0131E-01	1.0400E+01	1.9512E-01	1.0938E+01	1.7004E-01	1.1626E+01	1.4852E-01
1	7.4550E+00	3.5648E-01	8.7167E+00	2.2870E-01	9.1886E+00	1.9894E-01	9.7897E+00	1.7341E-01
2	5.1330E+00	4.8964E-01	6.1622E+00	3.0831E-01	6.5251E+00	2.6728E-01	6.9784E+00	2.3230E-01
3	3.5642E+00	6.5168E-01	4.3971E+00	4.0341E-01	4.6770E+00	3.4869E-01	5.0187E+00	3.0236E-01
4	2.5684E+00	8.2601E-01	3.2475E+00	5.0418E-01	3.4683E+00	4.3470E-01	3.7329E+00	3.7626E-01
5	1.9124E+00	1.0109E+00	2.4674E+00	6.0963E-01	2.6443E+00	5.2450E-01	2.8532E+00	4.5325E-01
6	1.4701E+00	1.2030E+00	1.9236E+00	7.1821E-01	2.0668E+00	6.1677E-01	2.2345E+00	5.3225E-01
7	1.1670E+00	1.3955E+00	1.5381E+00	8.2673E-01	1.6554E+00	7.0890E-01	1.7920E+00	6.1105E-01
8	9.5419E-01	1.5811E+00	1.2603E+00	9.3162E-01	1.3576E+00	7.9793E-01	1.4707E+00	6.8719E-01
9	7.9948E-01	1.7552E+00	1.0554E+00	1.0303E+00	1.1375E+00	8.8170E-01	1.2328E+00	7.5882E-01
10	6.8243E-01	1.9164E+00	9.0033E-01	1.1217E+00	9.7064E-01	9.5929E-01	1.0522E+00	8.2516E-01
11	5.9034E-01	2.0661E+00	7.7908E-01	1.2062E+00	8.4024E-01	1.0309E+00	9.1113E-01	8.8635E-01
12	5.1676E-01	2.2063E+00	6.8287E-01	1.2848E+00	7.3680E-01	1.0975E+00	7.9924E-01	9.4325E-01
13	4.5639E-01	2.3396E+00	6.0427E-01	1.3589E+00	6.5231E-01	1.1603E+00	7.0785E-01	9.9679E-01
14	4.0608E-01	2.4678E+00	5.3866E-01	1.4298E+00	5.8175E-01	1.2202E+00	6.3150E-01	1.0479E+00
15	3.6388E-01	2.5924E+00	4.8323E-01	1.4985E+00	5.2207E-01	1.2783E+00	5.6686E-01	1.0974E+00
16	3.2828E-01	2.7142E+00	4.3590E-01	1.5657E+00	4.7100E-01	1.3350E+00	5.1147E-01	1.1458E+00
17	2.9806E-01	2.8337E+00	3.9513E-01	1.6318E+00	4.2691E-01	1.3909E+00	4.6356E-01	1.1934E+00
18	2.7225E-01	2.9511E+00	3.5977E-01	1.6971E+00	3.8857E-01	1.4461E+00	4.2183E-01	1.2405E+00
19	2.5007E-01	3.0663E+00	3.2894E-01	1.7615E+00	3.5505E-01	1.5007E+00	3.8528E-01	1.2871E+00
20	2.3088E-01	3.1791E+00	3.0192E-01	1.8251E+00	3.2561E-01	1.5546E+00	3.5312E-01	1.3331E+00
21	2.1413E-01	3.2896E+00	2.7813E-01	1.8877E+00	2.9964E-01	1.6076E+00	3.2471E-01	1.3784E+00
22	1.9941E-01	3.3975E+00	2.5710E-01	1.9491E+00	2.7664E-01	1.6598E+00	2.9952E-01	1.4230E+00
23	1.8637E-01	3.5028E+00	2.3841E-01	2.0092E+00	2.5620E-01	1.7109E+00	2.7712E-01	1.4668E+00
24	1.7472E-01	3.6055E+00	2.2175E-01	2.0680E+00	2.3796E-01	1.7609E+00	2.5712E-01	1.5096E+00
25	1.6424E-01	3.7058E+00	2.0682E-01	2.1253E+00	2.2163E-01	1.8097E+00	2.3922E-01	1.5514E+00
26	1.5476E-01	3.8035E+00	1.9340E-01	2.1811E+00	2.0695E-01	1.8571E+00	2.2314E-01	1.5920E+00
27	1.4613E-01	3.8989E+00	1.8128E-01	2.2353E+00	1.9371E-01	1.9033E+00	2.0865E-01	1.6315E+00
28	1.3823E-01	3.9920E+00	1.7029E-01	2.2880E+00	1.8173E-01	1.9481E+00	1.9555E-01	1.6699E+00
29	1.3097E-01	4.0830E+00	1.6030E-01	2.3391E+00	1.7085E-01	1.9915E+00	1.8366E-01	1.7070E+00
30	1.2428E-01	4.1720E+00	1.5119E-01	2.3886E+00	1.6094E-01	2.0336E+00	1.7286E-01	1.7431E+00
31	1.1809E-01	4.2591E+00	1.4284E-01	2.4367E+00	1.5189E-01	2.0744E+00	1.6299E-01	1.7780E+00
32	1.1236E-01	4.3444E+00	1.3518E-01	2.4834E+00	1.4359E-01	2.1140E+00	1.5397E-01	1.8118E+00
33	1.0704E-01	4.4281E+00	1.2812E-01	2.5288E+00	1.3597E-01	2.1523E+00	1.4570E-01	1.8445E+00
34	1.0208E-01	4.5101E+00	1.2161E-01	2.5729E+00	1.2895E-01	2.1896E+00	1.3808E-01	1.8763E+00
35	9.7467E-02	4.5907E+00	1.1559E-01	2.6158E+00	1.2247E-01	2.2258E+00	1.3107E-01	1.9071E+00
36	9.3164E-02	4.6698E+00	1.1001E-01	2.6576E+00	1.1648E-01	2.2610E+00	1.2458E-01	1.9371E+00
37	8.9145E-02	4.7475E+00	1.0483E-01	2.6983E+00	1.1092E-01	2.2952E+00	1.1858E-01	1.9662E+00
38	8.5390E-02	4.8240E+00	1.0001E-01	2.7380E+00	1.0575E-01	2.3286E+00	1.1300E-01	1.9945E+00
39	8.1877E-02	4.8991E+00	9.5517E-02	2.7768E+00	1.0095E-01	2.3612E+00	1.0782E-01	2.0222E+00
40	7.8588E-02	4.9731E+00	9.1324E-02	2.8147E+00	9.6463E-02	2.3929E+00	1.0299E-01	2.0491E+00
41	7.5506E-02	5.0459E+00	8.7406E-02	2.8517E+00	9.2278E-02	2.4240E+00	9.8488E-02	2.0754E+00
42	7.2615E-02	5.1176E+00	8.3738E-02	2.8880E+00	8.8364E-02	2.4543E+00	9.4278E-02	2.1011E+00
43	6.9902E-02	5.1881E+00	8.0301E-02	2.9236E+00	8.4698E-02	2.4841E+00	9.0337E-02	2.1263E+00
44	6.7354E-02	5.2577E+00	7.7075E-02	2.9584E+00	8.1259E-02	2.5132E+00	8.6643E-02	2.1509E+00
45	6.4958E-02	5.3261E+00	7.4044E-02	2.9926E+00	7.8030E-02	2.5418E+00	8.3174E-02	2.1750E+00
46	6.2704E-02	5.3937E+00	7.1193E-02	3.0262E+00	7.4993E-02	2.5698E+00	7.9913E-02	2.1987E+00
47	6.0581E-02	5.4602E+00	6.8509E-02	3.0592E+00	7.2134E-02	2.5973E+00	7.6843E-02	2.2220E+00
48	5.8581E-02	5.5258E+00	6.5978E-02	3.0917E+00	6.9439E-02	2.6244E+00	7.3950E-02	2.2448E+00
49	5.6695E-02	5.5904E+00	6.3589E-02	3.1235E+00	6.6896E-02	2.6510E+00	7.1221E-02	2.2673E+00
50	5.4914E-02	5.6542E+00	6.1332E-02	3.1549E+00	6.4494E-02	2.6772E+00	6.8642E-02	2.2894E+00
51	5.3232E-02	5.7172E+00	5.9197E-02	3.1858E+00	6.2221E-02	2.7029E+00	6.6203E-02	2.3112E+00
52	5.1642E-02	5.7793E+00	5.7176E-02	3.2163E+00	6.0070E-02	2.7283E+00	6.3894E-02	2.3326E+00
53	5.0138E-02	5.8405E+00	5.5261E-02	3.2462E+00	5.8032E-02	2.7533E+00	6.1706E-02	2.3537E+00
54	4.8713E-02	5.9010E+00	5.3444E-02	3.2758E+00	5.6098E-02	2.7779E+00	5.9630E-02	2.3745E+00
55	4.7363E-02	5.9607E+00	5.1720E-02	3.3049E+00	5.4262E-02	2.8022E+00	5.7659E-02	2.3951E+00
56	4.6083E-02	6.0197E+00	5.0081E-02	3.3336E+00	5.2517E-02	2.8262E+00	5.5786E-02	2.4153E+00
57	4.4868E-02	6.0779E+00	4.8521E-02	3.3620E+00	5.0857E-02	2.8498E+00	5.4004E-02	2.4352E+00
58	4.3715E-02	6.1354E+00	4.7037E-02	3.3899E+00	4.9277E-02	2.8731E+00	5.2308E-02	2.4549E+00
59	4.2618E-02	6.1922E+00	4.5623E-02	3.4175E+00	4.7772E-02	2.8961E+00	5.0692E-02	2.4744E+00
60	4.1575E-02	6.2484E+00	4.4275E-02	3.4447E+00	4.6336E-02	2.9188E+00	4.9151E-02	2.4936E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

Tc; Z = 43

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	9.5099E+00	3.0091E-01	1.0981E+01	1.9529E-01	1.1551E+01	1.7032E-01	1.2279E+01	1.4887E-01
1	7.8509E+00	3.5633E-01	9.1816E+00	2.2917E-01	9.6802E+00	1.9951E-01	1.0315E+01	1.7404E-01
2	5.3042E+00	4.9705E-01	6.3791E+00	3.1346E-01	6.7578E+00	2.7193E-01	7.2300E+00	2.3648E-01
3	3.6232E+00	6.7061E-01	4.4829E+00	4.1530E-01	4.7716E+00	3.5912E-01	5.1231E+00	3.1156E-01
4	2.6008E+00	8.5112E-01	3.2985E+00	5.1973E-01	3.5256E+00	4.4830E-01	3.7970E+00	3.8820E-01
5	1.9393E+00	1.0372E+00	2.5104E+00	6.2610E-01	2.6927E+00	5.3894E-01	2.9075E+00	4.6595E-01
6	1.4928E+00	1.2291E+00	1.9611E+00	7.3483E-01	2.1092E+00	6.3140E-01	2.2822E+00	5.4515E-01
7	1.1848E+00	1.4226E+00	1.5690E+00	8.4416E-01	1.6906E+00	7.2427E-01	1.8318E+00	6.2463E-01
8	9.6761E-01	1.6115E+00	1.2844E+00	9.5107E-01	1.3853E+00	8.1506E-01	1.5022E+00	7.0230E-01
9	8.0986E-01	1.7905E+00	1.0739E+00	1.0529E+00	1.1587E+00	9.0149E-01	1.2570E+00	7.7625E-01
10	6.9093E-01	1.9574E+00	9.1441E-01	1.1479E+00	9.8684E-01	9.8220E-01	1.0708E+00	8.4529E-01
11	5.9766E-01	2.1122E+00	7.9008E-01	1.2358E+00	8.5283E-01	1.0569E+00	9.2554E-01	9.0916E-01
12	5.2329E-01	2.2570E+00	6.9178E-01	1.3176E+00	7.4693E-01	1.1263E+00	8.1079E-01	9.6845E-01
13	4.6229E-01	2.3939E+00	6.1177E-01	1.3942E+00	6.6079E-01	1.1912E+00	7.1750E-01	1.0239E+00
14	4.1137E-01	2.5247E+00	5.4520E-01	1.4670E+00	5.8914E-01	1.2527E+00	6.3991E-01	1.0764E+00
15	3.6858E-01	2.6512E+00	4.8911E-01	1.5368E+00	5.2873E-01	1.3118E+00	5.7445E-01	1.1268E+00
16	3.3241E-01	2.7744E+00	4.4128E-01	1.6048E+00	4.7714E-01	1.3693E+00	5.1849E-01	1.1758E+00
17	3.0165E-01	2.8949E+00	4.0012E-01	1.6714E+00	4.3266E-01	1.4255E+00	4.7017E-01	1.2237E+00
18	2.7537E-01	3.0131E+00	3.6445E-01	1.7369E+00	3.9400E-01	1.4810E+00	4.2811E-01	1.2710E+00
19	2.5278E-01	3.1290E+00	3.3333E-01	1.8016E+00	3.6020E-01	1.5357E+00	3.9126E-01	1.3177E+00
20	2.3324E-01	3.2426E+00	3.0606E-01	1.8653E+00	3.3050E-01	1.5897E+00	3.5882E-01	1.3638E+00
21	2.1622E-01	3.3539E+00	2.8203E-01	1.9282E+00	3.0428E-01	1.6430E+00	3.3014E-01	1.4093E+00
22	2.0128E-01	3.4627E+00	2.6078E-01	1.9900E+00	2.8104E-01	1.6955E+00	3.0468E-01	1.4542E+00
23	1.8807E-01	3.5691E+00	2.4189E-01	2.0507E+00	2.6037E-01	1.7471E+00	2.8202E-01	1.4983E+00
24	1.7630E-01	3.6729E+00	2.2504E-01	2.1101E+00	2.4191E-01	1.7976E+00	2.6177E-01	1.5416E+00
25	1.6574E-01	3.7743E+00	2.0995E-01	2.1682E+00	2.2537E-01	1.8470E+00	2.4362E-01	1.5839E+00
26	1.5619E-01	3.8733E+00	1.9637E-01	2.2248E+00	2.1050E-01	1.8952E+00	2.2730E-01	1.6252E+00
27	1.4751E-01	3.9700E+00	1.8411E-01	2.2800E+00	1.9708E-01	1.9422E+00	2.1258E-01	1.6655E+00
28	1.3959E-01	4.0644E+00	1.7300E-01	2.3336E+00	1.8493E-01	1.9878E+00	1.9927E-01	1.7046E+00
29	1.3231E-01	4.1568E+00	1.6289E-01	2.3858E+00	1.7389E-01	2.0322E+00	1.8719E-01	1.7427E+00
30	1.2560E-01	4.2472E+00	1.5366E-01	2.4365E+00	1.6384E-01	2.0753E+00	1.7620E-01	1.7796E+00
31	1.1940E-01	4.3357E+00	1.4521E-01	2.4857E+00	1.5465E-01	2.1172E+00	1.6616E-01	1.8154E+00
32	1.1366E-01	4.4224E+00	1.3746E-01	2.5336E+00	1.4622E-01	2.1577E+00	1.5698E-01	1.8501E+00
33	1.0832E-01	4.5074E+00	1.3031E-01	2.5801E+00	1.3849E-01	2.1972E+00	1.4855E-01	1.8838E+00
34	1.0335E-01	4.5909E+00	1.2372E-01	2.6253E+00	1.3135E-01	2.2354E+00	1.4080E-01	1.9165E+00
35	9.8716E-02	4.6729E+00	1.1762E-01	2.6693E+00	1.2477E-01	2.2726E+00	1.3365E-01	1.9482E+00
36	9.4392E-02	4.7534E+00	1.1196E-01	2.7122E+00	1.1867E-01	2.3088E+00	1.2705E-01	1.9790E+00
37	9.0352E-02	4.8326E+00	1.0671E-01	2.7539E+00	1.1302E-01	2.3440E+00	1.2093E-01	2.0089E+00
38	8.6573E-02	4.9105E+00	1.0182E-01	2.7947E+00	1.0777E-01	2.3783E+00	1.1525E-01	2.0381E+00
39	8.3035E-02	4.9871E+00	9.7257E-02	2.8345E+00	1.0288E-01	2.4117E+00	1.0997E-01	2.0665E+00
40	7.9720E-02	5.0626E+00	9.3001E-02	2.8733E+00	9.8320E-02	2.4444E+00	1.0505E-01	2.0942E+00
41	7.6610E-02	5.1368E+00	8.9021E-02	2.9114E+00	9.4061E-02	2.4762E+00	1.0046E-01	2.1212E+00
42	7.3692E-02	5.2100E+00	8.5295E-02	2.9485E+00	9.0078E-02	2.5074E+00	9.6171E-02	2.1476E+00
43	7.0951E-02	5.2821E+00	8.1801E-02	2.9850E+00	8.6346E-02	2.5379E+00	9.2154E-02	2.1734E+00
44	6.8375E-02	5.3531E+00	7.8521E-02	3.0207E+00	8.2845E-02	2.5678E+00	8.8388E-02	2.1987E+00
45	6.5951E-02	5.4231E+00	7.5439E-02	3.0557E+00	7.9557E-02	2.5970E+00	8.4852E-02	2.2235E+00
46	6.3670E-02	5.4921E+00	7.2539E-02	3.0901E+00	7.6464E-02	2.6258E+00	8.1528E-02	2.2478E+00
47	6.1521E-02	5.5602E+00	6.9807E-02	3.1239E+00	7.3552E-02	2.6540E+00	7.8398E-02	2.2716E+00
48	5.9495E-02	5.6273E+00	6.7231E-02	3.1571E+00	7.0807E-02	2.6817E+00	7.5449E-02	2.2950E+00
49	5.7583E-02	5.6935E+00	6.4800E-02	3.1897E+00	6.8216E-02	2.7089E+00	7.2666E-02	2.3180E+00
50	5.5779E-02	5.7588E+00	6.2502E-02	3.2219E+00	6.5768E-02	2.7357E+00	7.0037E-02	2.3406E+00
51	5.4074E-02	5.8232E+00	6.0328E-02	3.2535E+00	6.3453E-02	2.7620E+00	6.7551E-02	2.3628E+00
52	5.2461E-02	5.8868E+00	5.8271E-02	3.2846E+00	6.1261E-02	2.7879E+00	6.5197E-02	2.3847E+00
53	5.0936E-02	5.9495E+00	5.6320E-02	3.3152E+00	5.9184E-02	2.8135E+00	6.2966E-02	2.4063E+00
54	4.9491E-02	6.0115E+00	5.4470E-02	3.3454E+00	5.7213E-02	2.8387E+00	6.0850E-02	2.4276E+00
55	4.8123E-02	6.0727E+00	5.2714E-02	3.3752E+00	5.5343E-02	2.8635E+00	5.8841E-02	2.4485E+00
56	4.6825E-02	6.1331E+00	5.1045E-02	3.4045E+00	5.3565E-02	2.8879E+00	5.6932E-02	2.4692E+00
57	4.5593E-02	6.1928E+00	4.9457E-02	3.4335E+00	5.1874E-02	2.9121E+00	5.5116E-02	2.4895E+00
58	4.4424E-02	6.2518E+00	4.7946E-02	3.4620E+00	5.0264E-02	2.9359E+00	5.3387E-02	2.5096E+00
59	4.3313E-02	6.3101E+00	4.6506E-02	3.4902E+00	4.8731E-02	2.9594E+00	5.1740E-02	2.5295E+00
60	4.2257E-02	6.3676E+00	4.5134E-02	3.5180E+00	4.7268E-02	2.9825E+00	5.0170E-02	2.5491E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Ru; $Z = 44$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	8.2183E+00	3.2751E-01	9.5878E+00	2.1419E-01	1.0104E+01	1.8712E-01	1.0755E+01	1.6380E-01
1	6.9854E+00	3.7863E-01	8.2449E+00	2.4539E-01	8.7075E+00	2.1399E-01	9.2906E+00	1.8693E-01
2	5.0257E+00	5.0145E-01	6.0814E+00	3.1917E-01	6.4503E+00	2.7740E-01	6.9077E+00	2.4161E-01
3	3.5929E+00	6.5343E-01	4.4653E+00	4.0890E-01	4.7572E+00	3.5433E-01	5.1116E+00	3.0791E-01
4	2.6283E+00	8.2136E-01	3.3493E+00	5.0655E-01	3.5832E+00	4.3781E-01	3.8621E+00	3.7971E-01
5	1.9698E+00	1.0034E+00	2.5644E+00	6.1095E-01	2.7536E+00	5.2683E-01	2.9759E+00	4.5612E-01
6	1.5164E+00	1.1964E+00	2.0047E+00	7.2046E-01	2.1587E+00	6.2001E-01	2.3380E+00	5.3598E-01
7	1.2018E+00	1.3937E+00	1.6019E+00	8.3205E-01	1.7283E+00	7.1485E-01	1.8746E+00	6.1717E-01
8	9.8019E-01	1.5878E+00	1.3089E+00	9.4213E-01	1.4135E+00	8.0837E-01	1.5344E+00	6.9721E-01
9	8.1970E-01	1.7727E+00	1.0922E+00	1.0475E+00	1.1799E+00	8.9794E-01	1.2813E+00	7.7388E-01
10	6.9914E-01	1.9452E+00	9.2838E-01	1.1463E+00	1.0030E+00	9.8190E-01	1.0892E+00	8.4575E-01
11	6.0483E-01	2.1052E+00	8.0105E-01	1.2378E+00	8.6543E-01	1.0596E+00	9.3992E-01	9.1227E-01
12	5.2976E-01	2.2545E+00	7.0069E-01	1.3226E+00	7.5708E-01	1.1317E+00	8.2237E-01	9.7391E-01
13	4.6815E-01	2.3949E+00	6.1928E-01	1.4018E+00	6.6929E-01	1.1988E+00	7.2717E-01	1.0313E+00
14	4.1665E-01	2.5285E+00	5.5173E-01	1.4764E+00	5.9651E-01	1.2620E+00	6.4828E-01	1.0852E+00
15	3.7330E-01	2.6572E+00	4.9493E-01	1.5477E+00	5.3531E-01	1.3223E+00	5.8194E-01	1.1367E+00
16	3.3657E-01	2.7819E+00	4.4658E-01	1.6165E+00	4.8316E-01	1.3806E+00	5.2537E-01	1.1864E+00
17	3.0530E-01	2.9037E+00	4.0500E-01	1.6837E+00	4.3825E-01	1.4374E+00	4.7659E-01	1.2348E+00
18	2.7855E-01	3.0228E+00	3.6898E-01	1.7497E+00	3.9925E-01	1.4931E+00	4.3417E-01	1.2823E+00
19	2.5554E-01	3.1396E+00	3.3758E-01	1.8146E+00	3.6516E-01	1.5481E+00	3.9701E-01	1.3292E+00
20	2.3565E-01	3.2541E+00	3.1004E-01	1.8786E+00	3.3519E-01	1.6023E+00	3.6430E-01	1.3755E+00
21	2.1834E-01	3.3662E+00	2.8578E-01	1.9418E+00	3.0873E-01	1.6558E+00	3.3536E-01	1.4212E+00
22	2.0317E-01	3.4759E+00	2.6432E-01	2.0039E+00	2.8527E-01	1.7086E+00	3.0965E-01	1.4663E+00
23	1.8977E-01	3.5833E+00	2.4524E-01	2.0650E+00	2.6438E-01	1.7605E+00	2.8674E-01	1.5107E+00
24	1.7786E-01	3.6882E+00	2.2822E-01	2.1250E+00	2.4572E-01	1.8115E+00	2.6625E-01	1.5544E+00
25	1.6719E-01	3.7907E+00	2.1296E-01	2.1837E+00	2.2898E-01	1.8615E+00	2.4787E-01	1.5972E+00
26	1.5757E-01	3.8909E+00	1.9924E-01	2.2411E+00	2.1393E-01	1.9103E+00	2.3134E-01	1.6391E+00
27	1.4884E-01	3.9887E+00	1.8684E-01	2.2971E+00	2.0034E-01	1.9580E+00	2.1641E-01	1.6800E+00
28	1.4088E-01	4.0844E+00	1.7560E-01	2.3517E+00	1.8803E-01	2.0045E+00	2.0290E-01	1.7198E+00
29	1.3357E-01	4.1781E+00	1.6538E-01	2.4048E+00	1.7685E-01	2.0498E+00	1.9063E-01	1.7586E+00
30	1.2685E-01	4.2698E+00	1.5605E-01	2.4565E+00	1.6665E-01	2.0938E+00	1.7947E-01	1.7963E+00
31	1.2063E-01	4.3596E+00	1.4751E-01	2.5068E+00	1.5733E-01	2.1366E+00	1.6927E-01	1.8330E+00
32	1.1487E-01	4.4476E+00	1.3966E-01	2.5558E+00	1.4879E-01	2.1781E+00	1.5993E-01	1.8685E+00
33	1.0952E-01	4.5340E+00	1.3244E-01	2.6033E+00	1.4094E-01	2.2185E+00	1.5137E-01	1.9031E+00
34	1.0454E-01	4.6188E+00	1.2576E-01	2.6497E+00	1.3370E-01	2.2578E+00	1.4348E-01	1.9367E+00
35	9.9895E-02	4.7022E+00	1.1959E-01	2.6948E+00	1.2702E-01	2.2959E+00	1.3621E-01	1.9692E+00
36	9.5556E-02	4.7841E+00	1.1386E-01	2.7387E+00	1.2083E-01	2.3331E+00	1.2949E-01	2.0009E+00
37	9.1498E-02	4.8647E+00	1.0854E-01	2.7815E+00	1.1509E-01	2.3692E+00	1.2326E-01	2.0317E+00
38	8.7700E-02	4.9440E+00	1.0358E-01	2.8233E+00	1.0976E-01	2.4044E+00	1.1748E-01	2.0617E+00
39	8.4141E-02	5.0220E+00	9.8962E-02	2.8640E+00	1.0479E-01	2.4387E+00	1.1211E-01	2.0909E+00
40	8.0804E-02	5.0989E+00	9.4646E-02	2.9039E+00	1.0015E-01	2.4722E+00	1.0710E-01	2.1193E+00
41	7.7672E-02	5.1746E+00	9.0608E-02	2.9429E+00	9.5824E-02	2.5050E+00	1.0242E-01	2.1471E+00
42	7.4730E-02	5.2492E+00	8.6827E-02	2.9810E+00	9.1773E-02	2.5369E+00	9.8051E-02	2.1742E+00
43	7.1965E-02	5.3228E+00	8.3280E-02	3.0183E+00	8.7978E-02	2.5682E+00	9.3959E-02	2.2007E+00
44	6.9365E-02	5.3953E+00	7.9949E-02	3.0549E+00	8.4417E-02	2.5988E+00	9.0123E-02	2.2266E+00
45	6.6917E-02	5.4668E+00	7.6818E-02	3.0908E+00	8.1071E-02	2.6288E+00	8.6521E-02	2.2520E+00
46	6.4611E-02	5.5373E+00	7.3871E-02	3.1260E+00	7.7924E-02	2.6583E+00	8.3134E-02	2.2769E+00
47	6.2438E-02	5.6068E+00	7.1094E-02	3.1606E+00	7.4960E-02	2.6872E+00	7.9946E-02	2.3013E+00
48	6.0389E-02	5.6754E+00	6.8474E-02	3.1946E+00	7.2165E-02	2.7155E+00	7.6941E-02	2.3253E+00
49	5.8454E-02	5.7431E+00	6.6001E-02	3.2280E+00	6.9528E-02	2.7434E+00	7.4105E-02	2.3488E+00
50	5.6627E-02	5.8099E+00	6.3664E-02	3.2608E+00	6.7035E-02	2.7708E+00	7.1426E-02	2.3720E+00
51	5.4901E-02	5.8759E+00	6.1452E-02	3.2932E+00	6.4678E-02	2.7977E+00	6.8893E-02	2.3947E+00
52	5.3268E-02	5.9410E+00	5.9359E-02	3.3250E+00	6.2446E-02	2.8242E+00	6.6494E-02	2.4171E+00
53	5.1723E-02	6.0052E+00	5.7374E-02	3.3563E+00	6.0330E-02	2.8503E+00	6.4221E-02	2.4392E+00
54	5.0259E-02	6.0687E+00	5.5491E-02	3.3872E+00	5.8323E-02	2.8761E+00	6.2065E-02	2.4609E+00
55	4.8873E-02	6.1314E+00	5.3703E-02	3.4176E+00	5.6418E-02	2.9014E+00	6.0018E-02	2.4823E+00
56	4.7558E-02	6.1933E+00	5.2004E-02	3.4476E+00	5.4608E-02	2.9264E+00	5.8073E-02	2.5034E+00
57	4.6311E-02	6.2545E+00	5.0388E-02	3.4772E+00	5.2885E-02	2.9511E+00	5.6222E-02	2.5242E+00
58	4.5127E-02	6.3150E+00	4.8850E-02	3.5063E+00	5.1246E-02	2.9754E+00	5.4461E-02	2.5447E+00
59	4.4002E-02	6.3747E+00	4.7385E-02	3.5351E+00	4.9684E-02	2.9993E+00	5.2783E-02	2.5649E+00
60	4.2933E-02	6.4338E+00	4.5987E-02	3.5635E+00	4.8195E-02	3.0230E+00	5.1183E-02	2.5849E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

Rh; $Z = 45$

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	7.8710E+00	3.3930E-01	9.2282E+00	2.2307E-01	9.7341E+00	1.9512E-01	1.0369E+01	1.7100E-01
1	6.7562E+00	3.8897E-01	8.0117E+00	2.5343E-01	8.4692E+00	2.2128E-01	9.0430E+00	1.9351E-01
2	4.9472E+00	5.0781E-01	6.0112E+00	3.2498E-01	6.3814E+00	2.8281E-01	6.8387E+00	2.4658E-01
3	3.5861E+00	6.5507E-01	4.4738E+00	4.1217E-01	4.7703E+00	3.5762E-01	5.1291E+00	3.1110E-01
4	2.6461E+00	8.1902E-01	3.3853E+00	5.0780E-01	3.6249E+00	4.3944E-01	3.9098E+00	3.8152E-01
5	1.9924E+00	9.9845E-01	2.6055E+00	6.1096E-01	2.8004E+00	5.2746E-01	3.0289E+00	4.5712E-01
6	1.5365E+00	1.1904E+00	2.0421E+00	7.2014E-01	2.2014E+00	6.2042E-01	2.3865E+00	5.3683E-01
7	1.2177E+00	1.3888E+00	1.6329E+00	8.3249E-01	1.7638E+00	7.1594E-01	1.9151E+00	6.1865E-01
8	9.9234E-01	1.5860E+00	1.3333E+00	9.4443E-01	1.4418E+00	8.1108E-01	1.5668E+00	7.0010E-01
9	8.2924E-01	1.7754E+00	1.1111E+00	1.0526E+00	1.2019E+00	9.0309E-01	1.3066E+00	7.7888E-01
10	7.0709E-01	1.9531E+00	9.4309E-01	1.1548E+00	1.0200E+00	9.8998E-01	1.1089E+00	8.5330E-01
11	6.1184E-01	2.1182E+00	8.1266E-01	1.2498E+00	8.7883E-01	1.0708E+00	9.5534E-01	9.2249E-01
12	5.3616E-01	2.2722E+00	7.1010E-01	1.3379E+00	7.6784E-01	1.1457E+00	8.3469E-01	9.8667E-01
13	4.7407E-01	2.4166E+00	6.2714E-01	1.4199E+00	6.7819E-01	1.2154E+00	7.3731E-01	1.0462E+00
14	4.2210E-01	2.5534E+00	5.5849E-01	1.4968E+00	6.0411E-01	1.2806E+00	6.5691E-01	1.1020E+00
15	3.7824E-01	2.6845E+00	5.0089E-01	1.5698E+00	5.4200E-01	1.3424E+00	5.8952E-01	1.1548E+00
16	3.4100E-01	2.8112E+00	4.5194E-01	1.6400E+00	4.8918E-01	1.4018E+00	5.3222E-01	1.2054E+00
17	3.0922E-01	2.9345E+00	4.0990E-01	1.7080E+00	4.4378E-01	1.4593E+00	4.8291E-01	1.2544E+00
18	2.8199E-01	3.0549E+00	3.7350E-01	1.7745E+00	4.0440E-01	1.5155E+00	4.4008E-01	1.3024E+00
19	2.5854E-01	3.1727E+00	3.4177E-01	1.8398E+00	3.6999E-01	1.5708E+00	4.0259E-01	1.3495E+00
20	2.3826E-01	3.2881E+00	3.1396E-01	1.9041E+00	3.3975E-01	1.6252E+00	3.6959E-01	1.3959E+00
21	2.2062E-01	3.4011E+00	2.8945E-01	1.9676E+00	3.1305E-01	1.6789E+00	3.4039E-01	1.4418E+00
22	2.0518E-01	3.5118E+00	2.6777E-01	2.0300E+00	2.8935E-01	1.7320E+00	3.1444E-01	1.4871E+00
23	1.9157E-01	3.6201E+00	2.4849E-01	2.0915E+00	2.6825E-01	1.7842E+00	2.9130E-01	1.5318E+00
24	1.7948E-01	3.7260E+00	2.3129E-01	2.1519E+00	2.4940E-01	1.8355E+00	2.7059E-01	1.5758E+00
25	1.6868E-01	3.8296E+00	2.1587E-01	2.2112E+00	2.3248E-01	1.8860E+00	2.5200E-01	1.6190E+00
26	1.5896E-01	3.9308E+00	2.0200E-01	2.2692E+00	2.1725E-01	1.9354E+00	2.3526E-01	1.6613E+00
27	1.5016E-01	4.0299E+00	1.8947E-01	2.3260E+00	2.0350E-01	1.9837E+00	2.2013E-01	1.7028E+00
28	1.4214E-01	4.1267E+00	1.7812E-01	2.3814E+00	1.9104E-01	2.0309E+00	2.0644E-01	1.7433E+00
29	1.3480E-01	4.2216E+00	1.6779E-01	2.4354E+00	1.7971E-01	2.0770E+00	1.9400E-01	1.7828E+00
30	1.2805E-01	4.3145E+00	1.5836E-01	2.4880E+00	1.6939E-01	2.1218E+00	1.8266E-01	1.8212E+00
31	1.2181E-01	4.4055E+00	1.4973E-01	2.5393E+00	1.5995E-01	2.1655E+00	1.7231E-01	1.8586E+00
32	1.1603E-01	4.4948E+00	1.4179E-01	2.5893E+00	1.5129E-01	2.2080E+00	1.6283E-01	1.8950E+00
33	1.1067E-01	4.5825E+00	1.3449E-01	2.6379E+00	1.4333E-01	2.2493E+00	1.5412E-01	1.9304E+00
34	1.0567E-01	4.6686E+00	1.2774E-01	2.6852E+00	1.3599E-01	2.2895E+00	1.4611E-01	1.9648E+00
35	1.0101E-01	4.7532E+00	1.2150E-01	2.7313E+00	1.2922E-01	2.3286E+00	1.3872E-01	1.9982E+00
36	9.6661E-02	4.8364E+00	1.1570E-01	2.7763E+00	1.2294E-01	2.3666E+00	1.3189E-01	2.0307E+00
37	9.2588E-02	4.9183E+00	1.1032E-01	2.8201E+00	1.1712E-01	2.4037E+00	1.2556E-01	2.0624E+00
38	8.8773E-02	4.9989E+00	1.0530E-01	2.8629E+00	1.1170E-01	2.4398E+00	1.1968E-01	2.0931E+00
39	8.5196E-02	5.0783E+00	1.0062E-01	2.9047E+00	1.0666E-01	2.4750E+00	1.1421E-01	2.1231E+00
40	8.1840E-02	5.1565E+00	9.6252E-02	2.9455E+00	1.0195E-01	2.5094E+00	1.0911E-01	2.1523E+00
41	7.8687E-02	5.2337E+00	9.2161E-02	2.9854E+00	9.7558E-02	2.5429E+00	1.0436E-01	2.1808E+00
42	7.5724E-02	5.3097E+00	8.8327E-02	3.0245E+00	9.3443E-02	2.5757E+00	9.9910E-02	2.2087E+00
43	7.2938E-02	5.3846E+00	8.4730E-02	3.0627E+00	8.9586E-02	2.6078E+00	9.5746E-02	2.2359E+00
44	7.0315E-02	5.4585E+00	8.1351E-02	3.1002E+00	8.5967E-02	2.6392E+00	9.1841E-02	2.2625E+00
45	6.7845E-02	5.5314E+00	7.8173E-02	3.1369E+00	8.2565E-02	2.6700E+00	8.8174E-02	2.2885E+00
46	6.5517E-02	5.6034E+00	7.5181E-02	3.1730E+00	7.9365E-02	2.7001E+00	8.4726E-02	2.3140E+00
47	6.3322E-02	5.6744E+00	7.2360E-02	3.2084E+00	7.6351E-02	2.7297E+00	8.1479E-02	2.3391E+00
48	6.1251E-02	5.7445E+00	6.9699E-02	3.2431E+00	7.3508E-02	2.7587E+00	7.8419E-02	2.3636E+00
49	5.9295E-02	5.8137E+00	6.7186E-02	3.2773E+00	7.0825E-02	2.7872E+00	7.5532E-02	2.3877E+00
50	5.7447E-02	5.8819E+00	6.4810E-02	3.3109E+00	6.8289E-02	2.8152E+00	7.2803E-02	2.4114E+00
51	5.5700E-02	5.9494E+00	6.2562E-02	3.3440E+00	6.5890E-02	2.8428E+00	7.0223E-02	2.4346E+00
52	5.4048E-02	6.0160E+00	6.0433E-02	3.3765E+00	6.3618E-02	2.8699E+00	6.7781E-02	2.4575E+00
53	5.2484E-02	6.0817E+00	5.8414E-02	3.4085E+00	6.1465E-02	2.8966E+00	6.5466E-02	2.4801E+00
54	5.1003E-02	6.1467E+00	5.6499E-02	3.4401E+00	5.9422E-02	2.9229E+00	6.3270E-02	2.5022E+00
55	4.9600E-02	6.2109E+00	5.4681E-02	3.4712E+00	5.7483E-02	2.9488E+00	6.1185E-02	2.5241E+00
56	4.8269E-02	6.2743E+00	5.2952E-02	3.5018E+00	5.5640E-02	2.9743E+00	5.9204E-02	2.5456E+00
57	4.7007E-02	6.3370E+00	5.1308E-02	3.5320E+00	5.3886E-02	2.9995E+00	5.7319E-02	2.5669E+00
58	4.5808E-02	6.3989E+00	4.9743E-02	3.5618E+00	5.2217E-02	3.0243E+00	5.5525E-02	2.5878E+00
59	4.4670E-02	6.4601E+00	4.8252E-02	3.5912E+00	5.0628E-02	3.0488E+00	5.3816E-02	2.6085E+00
60	4.3589E-02	6.5206E+00	4.6831E-02	3.6202E+00	4.9112E-02	3.0729E+00	5.2186E-02	2.6289E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Pd; $Z = 46$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	6.2666E+00	3.9922E-01	7.4746E+00	2.6234E-01	7.9081E+00	2.2956E-01	8.4411E+00	2.0131E-01
1	5.7508E+00	4.2928E-01	6.9084E+00	2.8076E-01	7.3202E+00	2.4538E-01	7.8297E+00	2.1480E-01
2	4.6398E+00	5.1221E-01	5.6764E+00	3.3110E-01	6.0342E+00	2.8872E-01	6.4738E+00	2.5215E-01
3	3.5349E+00	6.3449E-01	4.4296E+00	4.0416E-01	4.7276E+00	3.5151E-01	5.0873E+00	3.0636E-01
4	2.6576E+00	7.8602E-01	3.4153E+00	4.9305E-01	3.6604E+00	4.2766E-01	3.9512E+00	3.7196E-01
5	2.0138E+00	9.6024E-01	2.6475E+00	5.9355E-01	2.8486E+00	5.1348E-01	3.0837E+00	4.4573E-01
6	1.5554E+00	1.1510E+00	2.0803E+00	7.0224E-01	2.2453E+00	6.0608E-01	2.4364E+00	5.2517E-01
7	1.2323E+00	1.3509E+00	1.6640E+00	8.1549E-01	1.7999E+00	7.0242E-01	1.9564E+00	6.0771E-01
8	1.0034E+00	1.5514E+00	1.3577E+00	9.2943E-01	1.4703E+00	7.9929E-01	1.5996E+00	6.9069E-01
9	8.3800E-01	1.7453E+00	1.1301E+00	1.0405E+00	1.2241E+00	8.9374E-01	1.3321E+00	7.7158E-01
10	7.1450E-01	1.9281E+00	9.5785E-01	1.1459E+00	1.0373E+00	9.8351E-01	1.1288E+00	8.4851E-01
11	6.1846E-01	2.0983E+00	8.2437E-01	1.2444E+00	8.9241E-01	1.0673E+00	9.7102E-01	9.2033E-01
12	5.4232E-01	2.2569E+00	7.1963E-01	1.3358E+00	7.7880E-01	1.1452E+00	8.4727E-01	9.8705E-01
13	4.7985E-01	2.4053E+00	6.3512E-01	1.4208E+00	6.8726E-01	1.2174E+00	7.4766E-01	1.0489E+00
14	4.2748E-01	2.5455E+00	5.6534E-01	1.5001E+00	6.1183E-01	1.2848E+00	6.6568E-01	1.1065E+00
15	3.8320E-01	2.6793E+00	5.0691E-01	1.5751E+00	5.4874E-01	1.3483E+00	5.9716E-01	1.1608E+00
16	3.4550E-01	2.8082E+00	4.5732E-01	1.6466E+00	4.9521E-01	1.4089E+00	5.3905E-01	1.2125E+00
17	3.1325E-01	2.9332E+00	4.1478E-01	1.7157E+00	4.4927E-01	1.4674E+00	4.8915E-01	1.2624E+00
18	2.8555E-01	3.0550E+00	3.7797E-01	1.7830E+00	4.0947E-01	1.5242E+00	4.4587E-01	1.3109E+00
19	2.6168E-01	3.1740E+00	3.4591E-01	1.8488E+00	3.7472E-01	1.5799E+00	4.0803E-01	1.3583E+00
20	2.4100E-01	3.2905E+00	3.1780E-01	1.9135E+00	3.4419E-01	1.6346E+00	3.7473E-01	1.4050E+00
21	2.2302E-01	3.4045E+00	2.9304E-01	1.9772E+00	3.1723E-01	1.6886E+00	3.4527E-01	1.4511E+00
22	2.0728E-01	3.5162E+00	2.7113E-01	2.0400E+00	2.9331E-01	1.7419E+00	3.1908E-01	1.4966E+00
23	1.9343E-01	3.6255E+00	2.5165E-01	2.1018E+00	2.7201E-01	1.7944E+00	2.9571E-01	1.5415E+00
24	1.8115E-01	3.7324E+00	2.3427E-01	2.1626E+00	2.5295E-01	1.8461E+00	2.7479E-01	1.5857E+00
25	1.7020E-01	3.8370E+00	2.1869E-01	2.2224E+00	2.3586E-01	1.8969E+00	2.5599E-01	1.6293E+00
26	1.6036E-01	3.9394E+00	2.0467E-01	2.2810E+00	2.2046E-01	1.9468E+00	2.3905E-01	1.6720E+00
27	1.5147E-01	4.0395E+00	1.9202E-01	2.3384E+00	2.0656E-01	1.9957E+00	2.2375E-01	1.7140E+00
28	1.4338E-01	4.1375E+00	1.8054E-01	2.3945E+00	1.9395E-01	2.0435E+00	2.0988E-01	1.7550E+00
29	1.3599E-01	4.2335E+00	1.7011E-01	2.4493E+00	1.8249E-01	2.0903E+00	1.9727E-01	1.7951E+00
30	1.2920E-01	4.3275E+00	1.6059E-01	2.5028E+00	1.7204E-01	2.1358E+00	1.8578E-01	1.8342E+00
31	1.2294E-01	4.4197E+00	1.5186E-01	2.5550E+00	1.6249E-01	2.1803E+00	1.7528E-01	1.8724E+00
32	1.1714E-01	4.5102E+00	1.4385E-01	2.6059E+00	1.5372E-01	2.2236E+00	1.6566E-01	1.9095E+00
33	1.1176E-01	4.5991E+00	1.3647E-01	2.6555E+00	1.4566E-01	2.2658E+00	1.5683E-01	1.9457E+00
34	1.0675E-01	4.6864E+00	1.2966E-01	2.7038E+00	1.3823E-01	2.3069E+00	1.4870E-01	1.9808E+00
35	1.0208E-01	4.7722E+00	1.2335E-01	2.7509E+00	1.3136E-01	2.3469E+00	1.4119E-01	2.0151E+00
36	9.7712E-02	4.8567E+00	1.1749E-01	2.7969E+00	1.2500E-01	2.3859E+00	1.3425E-01	2.0484E+00
37	9.3625E-02	4.9398E+00	1.1205E-01	2.8417E+00	1.1910E-01	2.4238E+00	1.2782E-01	2.0808E+00
38	8.9795E-02	5.0217E+00	1.0698E-01	2.8855E+00	1.1361E-01	2.4608E+00	1.2184E-01	2.1124E+00
39	8.6203E-02	5.1024E+00	1.0224E-01	2.9282E+00	1.0850E-01	2.4969E+00	1.1629E-01	2.1432E+00
40	8.2829E-02	5.1820E+00	9.7819E-02	2.9700E+00	1.0372E-01	2.5321E+00	1.1111E-01	2.1731E+00
41	7.9660E-02	5.2604E+00	9.3678E-02	3.0108E+00	9.9262E-02	2.5665E+00	1.0627E-01	2.2024E+00
42	7.6678E-02	5.3377E+00	8.9796E-02	3.0508E+00	9.5086E-02	2.6001E+00	1.0175E-01	2.2310E+00
43	7.3873E-02	5.4141E+00	8.6151E-02	3.0899E+00	9.1171E-02	2.6330E+00	9.7514E-02	2.2589E+00
44	7.1230E-02	5.4893E+00	8.2727E-02	3.1283E+00	8.7495E-02	2.6652E+00	9.3542E-02	2.2861E+00
45	6.8740E-02	5.5637E+00	7.9504E-02	3.1659E+00	8.4041E-02	2.6967E+00	8.9812E-02	2.3128E+00
46	6.6392E-02	5.6370E+00	7.6470E-02	3.2028E+00	8.0789E-02	2.7276E+00	8.6304E-02	2.3390E+00
47	6.4177E-02	5.7094E+00	7.3608E-02	3.2390E+00	7.7726E-02	2.7578E+00	8.3001E-02	2.3646E+00
48	6.2086E-02	5.7810E+00	7.0907E-02	3.2745E+00	7.4837E-02	2.7875E+00	7.9887E-02	2.3898E+00
49	6.0111E-02	5.8516E+00	6.8356E-02	3.3095E+00	7.2109E-02	2.8167E+00	7.6948E-02	2.4144E+00
50	5.8244E-02	5.9213E+00	6.5943E-02	3.3438E+00	6.9531E-02	2.8454E+00	7.4171E-02	2.4386E+00
51	5.6479E-02	5.9902E+00	6.3659E-02	3.3777E+00	6.7091E-02	2.8736E+00	7.1545E-02	2.4625E+00
52	5.4808E-02	6.0583E+00	6.1496E-02	3.4109E+00	6.4781E-02	2.9013E+00	6.9059E-02	2.4859E+00
53	5.3227E-02	6.1255E+00	5.9445E-02	3.4436E+00	6.2591E-02	2.9286E+00	6.6702E-02	2.5089E+00
54	5.1729E-02	6.1920E+00	5.7498E-02	3.4759E+00	6.0512E-02	2.9555E+00	6.4467E-02	2.5316E+00
55	5.0310E-02	6.2577E+00	5.5649E-02	3.5076E+00	5.8540E-02	2.9819E+00	6.2344E-02	2.5539E+00
56	4.8964E-02	6.3226E+00	5.3892E-02	3.5390E+00	5.6664E-02	3.0080E+00	6.0327E-02	2.5759E+00
57	4.7687E-02	6.3868E+00	5.2221E-02	3.5698E+00	5.4880E-02	3.0337E+00	5.8408E-02	2.5976E+00
58	4.6476E-02	6.4502E+00	5.0629E-02	3.6003E+00	5.3182E-02	3.0591E+00	5.6582E-02	2.6190E+00
59	4.5325E-02	6.5129E+00	4.9113E-02	3.6303E+00	5.1564E-02	3.0840E+00	5.4842E-02	2.6401E+00
60	4.4232E-02	6.5749E+00	4.7667E-02	3.6599E+00	5.0022E-02	3.1087E+00	5.3183E-02	2.6609E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Ag; $Z = 47$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	7.2512E+00	3.6073E-01	8.5834E+00	2.3973E-01	9.0713E+00	2.1025E-01	9.6770E+00	1.8469E-01
1	6.3204E+00	4.0822E-01	7.5642E+00	2.6885E-01	8.0112E+00	2.3535E-01	8.5668E+00	2.0627E-01
2	4.7638E+00	5.2076E-01	5.8368E+00	3.3689E-01	6.2073E+00	2.9393E-01	6.6619E+00	2.5684E-01
3	3.5410E+00	6.5960E-01	4.4518E+00	4.1956E-01	4.7550E+00	3.6496E-01	5.1200E+00	3.1817E-01
4	2.6597E+00	8.1524E-01	3.4295E+00	5.1091E-01	3.6787E+00	4.4324E-01	3.9737E+00	3.8562E-01
5	2.0247E+00	9.8793E-01	2.6712E+00	6.1076E-01	2.8766E+00	5.2857E-01	3.1163E+00	4.5901E-01
6	1.5697E+00	1.1759E+00	2.1083E+00	7.1810E-01	2.2778E+00	6.2008E-01	2.4737E+00	5.3756E-01
7	1.2456E+00	1.3739E+00	1.6910E+00	8.3052E-01	1.8312E+00	7.1576E-01	1.9923E+00	6.1959E-01
8	1.0142E+00	1.5747E+00	1.3811E+00	9.4472E-01	1.4975E+00	8.1290E-01	1.6309E+00	7.0281E-01
9	8.4656E-01	1.7712E+00	1.1492E+00	1.0573E+00	1.2465E+00	9.0865E-01	1.3581E+00	7.8485E-01
10	7.2158E-01	1.9580E+00	9.7315E-01	1.1652E+00	1.0553E+00	1.0006E+00	1.1497E+00	8.6368E-01
11	6.2474E-01	2.1328E+00	8.3665E-01	1.2668E+00	9.0683E-01	1.0871E+00	9.8775E-01	9.3789E-01
12	5.4819E-01	2.2959E+00	7.2964E-01	1.3616E+00	7.9042E-01	1.1680E+00	8.6069E-01	1.0072E+00
13	4.8548E-01	2.4486E+00	6.4346E-01	1.4497E+00	6.9681E-01	1.2430E+00	7.5862E-01	1.0715E+00
14	4.3286E-01	2.5924E+00	5.7247E-01	1.5318E+00	6.1988E-01	1.3128E+00	6.7485E-01	1.1313E+00
15	3.8827E-01	2.7292E+00	5.1313E-01	1.6091E+00	5.5570E-01	1.3784E+00	6.0504E-01	1.1874E+00
16	3.5020E-01	2.8606E+00	4.6285E-01	1.6825E+00	5.0137E-01	1.4406E+00	5.4600E-01	1.2405E+00
17	3.1752E-01	2.9876E+00	4.1977E-01	1.7529E+00	4.5482E-01	1.5002E+00	4.9542E-01	1.2914E+00
18	2.8938E-01	3.1111E+00	3.8252E-01	1.8211E+00	4.1455E-01	1.5579E+00	4.5162E-01	1.3405E+00
19	2.6507E-01	3.2315E+00	3.5008E-01	1.8876E+00	3.7942E-01	1.6141E+00	4.1339E-01	1.3885E+00
20	2.4399E-01	3.3492E+00	3.2165E-01	1.9527E+00	3.4858E-01	1.6693E+00	3.7976E-01	1.4356E+00
21	2.2564E-01	3.4644E+00	2.9661E-01	2.0168E+00	3.2134E-01	1.7235E+00	3.5002E-01	1.4819E+00
22	2.0958E-01	3.5771E+00	2.7446E-01	2.0799E+00	2.9719E-01	1.7770E+00	3.2358E-01	1.5275E+00
23	1.9545E-01	3.6875E+00	2.5476E-01	2.1421E+00	2.7566E-01	1.8297E+00	2.9999E-01	1.5726E+00
24	1.8295E-01	3.7954E+00	2.3719E-01	2.2033E+00	2.5642E-01	1.8817E+00	2.7886E-01	1.6171E+00
25	1.7181E-01	3.9011E+00	2.2144E-01	2.2634E+00	2.3914E-01	1.9329E+00	2.5986E-01	1.6609E+00
26	1.6183E-01	4.0045E+00	2.0728E-01	2.3225E+00	2.2358E-01	1.9832E+00	2.4274E-01	1.7040E+00
27	1.5282E-01	4.1057E+00	1.9449E-01	2.3805E+00	2.0952E-01	2.0325E+00	2.2726E-01	1.7463E+00
28	1.4465E-01	4.2048E+00	1.8290E-01	2.4372E+00	1.9678E-01	2.0809E+00	2.1322E-01	1.7878E+00
29	1.3719E-01	4.3018E+00	1.7235E-01	2.4927E+00	1.8519E-01	2.1283E+00	2.0046E-01	1.8285E+00
30	1.3035E-01	4.3969E+00	1.6273E-01	2.5470E+00	1.7462E-01	2.1746E+00	1.8882E-01	1.8682E+00
31	1.2405E-01	4.4903E+00	1.5393E-01	2.6000E+00	1.6495E-01	2.2198E+00	1.7818E-01	1.9070E+00
32	1.1822E-01	4.5819E+00	1.4584E-01	2.6518E+00	1.5608E-01	2.2639E+00	1.6843E-01	1.9448E+00
33	1.1282E-01	4.6718E+00	1.3839E-01	2.7023E+00	1.4792E-01	2.3069E+00	1.5947E-01	1.9817E+00
34	1.0779E-01	4.7603E+00	1.3151E-01	2.7515E+00	1.4040E-01	2.3488E+00	1.5122E-01	2.0176E+00
35	1.0310E-01	4.8473E+00	1.2514E-01	2.7996E+00	1.3345E-01	2.3897E+00	1.4361E-01	2.0526E+00
36	9.8715E-02	4.9329E+00	1.1922E-01	2.8465E+00	1.2701E-01	2.4295E+00	1.3656E-01	2.0867E+00
37	9.4614E-02	5.0172E+00	1.1372E-01	2.8923E+00	1.2103E-01	2.4683E+00	1.3003E-01	2.1199E+00
38	9.0769E-02	5.1003E+00	1.0860E-01	2.9370E+00	1.1547E-01	2.5062E+00	1.2397E-01	2.1523E+00
39	8.7161E-02	5.1822E+00	1.0381E-01	2.9807E+00	1.1029E-01	2.5431E+00	1.1833E-01	2.1838E+00
40	8.3772E-02	5.2630E+00	9.9342E-02	3.0234E+00	1.0545E-01	2.5792E+00	1.1307E-01	2.2146E+00
41	8.0586E-02	5.3426E+00	9.5154E-02	3.0652E+00	1.0093E-01	2.6144E+00	1.0816E-01	2.2445E+00
42	7.7587E-02	5.4212E+00	9.1226E-02	3.1060E+00	9.6696E-02	2.6488E+00	1.0356E-01	2.2738E+00
43	7.4764E-02	5.4988E+00	8.7538E-02	3.1460E+00	9.2725E-02	2.6825E+00	9.9258E-02	2.3024E+00
44	7.2103E-02	5.5754E+00	8.4070E-02	3.1853E+00	8.8996E-02	2.7154E+00	9.5221E-02	2.3304E+00
45	6.9595E-02	5.6511E+00	8.0807E-02	3.2237E+00	8.5491E-02	2.7477E+00	9.1429E-02	2.3578E+00
46	6.7228E-02	5.7258E+00	7.7731E-02	3.2614E+00	8.2191E-02	2.7793E+00	8.7863E-02	2.3846E+00
47	6.4994E-02	5.7996E+00	7.4831E-02	3.2985E+00	7.9081E-02	2.8103E+00	8.4504E-02	2.4108E+00
48	6.2885E-02	5.8724E+00	7.2092E-02	3.3348E+00	7.6146E-02	2.8407E+00	8.1338E-02	2.4365E+00
49	6.0891E-02	5.9444E+00	6.9504E-02	3.3705E+00	7.3375E-02	2.8705E+00	7.8349E-02	2.4618E+00
50	5.9006E-02	6.0156E+00	6.7056E-02	3.4057E+00	7.0755E-02	2.8998E+00	7.5525E-02	2.4866E+00
51	5.7223E-02	6.0859E+00	6.4738E-02	3.4402E+00	6.8276E-02	2.9287E+00	7.2853E-02	2.5109E+00
52	5.5536E-02	6.1554E+00	6.2541E-02	3.4742E+00	6.5928E-02	2.9570E+00	7.0323E-02	2.5349E+00
53	5.3938E-02	6.2241E+00	6.0459E-02	3.5076E+00	6.3702E-02	2.9849E+00	6.7926E-02	2.5584E+00
54	5.2424E-02	6.2920E+00	5.8481E-02	3.5406E+00	6.1589E-02	3.0124E+00	6.5651E-02	2.5816E+00
55	5.0990E-02	6.3591E+00	5.6604E-02	3.5730E+00	5.9583E-02	3.0394E+00	6.3492E-02	2.6044E+00
56	4.9629E-02	6.4255E+00	5.4818E-02	3.6050E+00	5.7676E-02	3.0660E+00	6.1439E-02	2.6269E+00
57	4.8339E-02	6.4911E+00	5.3120E-02	3.6365E+00	5.5862E-02	3.0923E+00	5.9487E-02	2.6490E+00
58	4.7115E-02	6.5560E+00	5.1502E-02	3.6676E+00	5.4135E-02	3.1181E+00	5.7628E-02	2.6708E+00
59	4.5952E-02	6.6202E+00	4.9961E-02	3.6983E+00	5.2490E-02	3.1436E+00	5.5858E-02	2.6923E+00
60	4.4848E-02	6.6837E+00	4.8492E-02	3.7285E+00	5.0921E-02	3.1688E+00	5.4169E-02	2.7136E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Cd; $Z = 48$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	7.7381E+00	3.5275E-01	9.1431E+00	2.3538E-01	9.6614E+00	2.0666E-01	1.0307E+01	1.8169E-01
1	6.7020E+00	4.0107E-01	8.0107E+00	2.6521E-01	8.4836E+00	2.3241E-01	9.0722E+00	2.0389E-01
2	4.9257E+00	5.2316E-01	6.0413E+00	3.3924E-01	6.4268E+00	2.9621E-01	6.8996E+00	2.5902E-01
3	3.5790E+00	6.7652E-01	4.5124E+00	4.3044E-01	4.8230E+00	3.7458E-01	5.1962E+00	3.2669E-01
4	2.6683E+00	8.4097E-01	3.4516E+00	5.2688E-01	3.7053E+00	4.5723E-01	4.0051E+00	3.9794E-01
5	2.0338E+00	1.0157E+00	2.6916E+00	6.2807E-01	2.9009E+00	5.4374E-01	3.1449E+00	4.7237E-01
6	1.5817E+00	1.2022E+00	2.1319E+00	7.3481E-01	2.3053E+00	6.3480E-01	2.5056E+00	5.5058E-01
7	1.2576E+00	1.3981E+00	1.7150E+00	8.4628E-01	1.8591E+00	7.2973E-01	2.0245E+00	6.3200E-01
8	1.0244E+00	1.5982E+00	1.4029E+00	9.6015E-01	1.5230E+00	8.2663E-01	1.6605E+00	7.1506E-01
9	8.5473E-01	1.7959E+00	1.1677E+00	1.0734E+00	1.2683E+00	9.2306E-01	1.3835E+00	7.9771E-01
10	7.2829E-01	1.9857E+00	9.8841E-01	1.1833E+00	1.0733E+00	1.0166E+00	1.1707E+00	8.7795E-01
11	6.3062E-01	2.1645E+00	8.4911E-01	1.2875E+00	9.2150E-01	1.1055E+00	1.0049E+00	9.5420E-01
12	5.5368E-01	2.3320E+00	7.3986E-01	1.3854E+00	8.0237E-01	1.1890E+00	8.7457E-01	1.0259E+00
13	4.9079E-01	2.4888E+00	6.5199E-01	1.4766E+00	7.0666E-01	1.2668E+00	7.6999E-01	1.0926E+00
14	4.3803E-01	2.6364E+00	5.7976E-01	1.5617E+00	6.2818E-01	1.3392E+00	6.8434E-01	1.1547E+00
15	3.9325E-01	2.7764E+00	5.1949E-01	1.6414E+00	5.6284E-01	1.4070E+00	6.1315E-01	1.2127E+00
16	3.5490E-01	2.9104E+00	4.6849E-01	1.7168E+00	5.0765E-01	1.4710E+00	5.5309E-01	1.2674E+00
17	3.2188E-01	3.0396E+00	4.2484E-01	1.7888E+00	4.6044E-01	1.5321E+00	5.0174E-01	1.3196E+00
18	2.9335E-01	3.1649E+00	3.8712E-01	1.8582E+00	4.1965E-01	1.5908E+00	4.5738E-01	1.3697E+00
19	2.6864E-01	3.2870E+00	3.5428E-01	1.9256E+00	3.8411E-01	1.6478E+00	4.1870E-01	1.4183E+00
20	2.4716E-01	3.4061E+00	3.2552E-01	1.9914E+00	3.5293E-01	1.7035E+00	3.8471E-01	1.4658E+00
21	2.2843E-01	3.5225E+00	3.0019E-01	2.0560E+00	3.2541E-01	1.7581E+00	3.5467E-01	1.5124E+00
22	2.1204E-01	3.6364E+00	2.7777E-01	2.1195E+00	3.0099E-01	1.8119E+00	3.2798E-01	1.5583E+00
23	1.9762E-01	3.7479E+00	2.5785E-01	2.1820E+00	2.7925E-01	1.8649E+00	3.0416E-01	1.6036E+00
24	1.8487E-01	3.8569E+00	2.4007E-01	2.2435E+00	2.5980E-01	1.9171E+00	2.8282E-01	1.6483E+00
25	1.7352E-01	3.9637E+00	2.2415E-01	2.3040E+00	2.4234E-01	1.9686E+00	2.6363E-01	1.6923E+00
26	1.6337E-01	4.0681E+00	2.0983E-01	2.3635E+00	2.2662E-01	2.0192E+00	2.4633E-01	1.7357E+00
27	1.5423E-01	4.1704E+00	1.9690E-01	2.4220E+00	2.1241E-01	2.0690E+00	2.3068E-01	1.7783E+00
28	1.4595E-01	4.2705E+00	1.8519E-01	2.4793E+00	1.9952E-01	2.1178E+00	2.1648E-01	1.8203E+00
29	1.3840E-01	4.3686E+00	1.7454E-01	2.5355E+00	1.8781E-01	2.1657E+00	2.0356E-01	1.8614E+00
30	1.3150E-01	4.4648E+00	1.6482E-01	2.5904E+00	1.7712E-01	2.2126E+00	1.9178E-01	1.9016E+00
31	1.2515E-01	4.5592E+00	1.5593E-01	2.6442E+00	1.6734E-01	2.2585E+00	1.8101E-01	1.9410E+00
32	1.1928E-01	4.6519E+00	1.4776E-01	2.6967E+00	1.5837E-01	2.3033E+00	1.7113E-01	1.9795E+00
33	1.1385E-01	4.7429E+00	1.4024E-01	2.7480E+00	1.5012E-01	2.3471E+00	1.6205E-01	2.0170E+00
34	1.0879E-01	4.8325E+00	1.3329E-01	2.7982E+00	1.4251E-01	2.3898E+00	1.5369E-01	2.0537E+00
35	1.0408E-01	4.9205E+00	1.2686E-01	2.8471E+00	1.3548E-01	2.4314E+00	1.4597E-01	2.0894E+00
36	9.9683E-02	5.0073E+00	1.2090E-01	2.8949E+00	1.2897E-01	2.4721E+00	1.3883E-01	2.1242E+00
37	9.5565E-02	5.0927E+00	1.1534E-01	2.9416E+00	1.2292E-01	2.5117E+00	1.3221E-01	2.1582E+00
38	9.1705E-02	5.1769E+00	1.1017E-01	2.9873E+00	1.1729E-01	2.5504E+00	1.2606E-01	2.1913E+00
39	8.8082E-02	5.2600E+00	1.0534E-01	3.0319E+00	1.1204E-01	2.5882E+00	1.2033E-01	2.2236E+00
40	8.4677E-02	5.3419E+00	1.0082E-01	3.0755E+00	1.0714E-01	2.6251E+00	1.1500E-01	2.2550E+00
41	8.1475E-02	5.4227E+00	9.6590E-02	3.1181E+00	1.0257E-01	2.6611E+00	1.1001E-01	2.2858E+00
42	7.8460E-02	5.5025E+00	9.2619E-02	3.1599E+00	9.8275E-02	2.6963E+00	1.0535E-01	2.3158E+00
43	7.5620E-02	5.5813E+00	8.8890E-02	3.2008E+00	9.4251E-02	2.7308E+00	1.0098E-01	2.3451E+00
44	7.2942E-02	5.6592E+00	8.5383E-02	3.2409E+00	9.0471E-02	2.7645E+00	9.6878E-02	2.3737E+00
45	7.0417E-02	5.7361E+00	8.2080E-02	3.2802E+00	8.6916E-02	2.7975E+00	9.3026E-02	2.4018E+00
46	6.8033E-02	5.8121E+00	7.8967E-02	3.3187E+00	8.3569E-02	2.8298E+00	8.9404E-02	2.4292E+00
47	6.5781E-02	5.8872E+00	7.6030E-02	3.3566E+00	8.0414E-02	2.8616E+00	8.5991E-02	2.4561E+00
48	6.3654E-02	5.9614E+00	7.3255E-02	3.3937E+00	7.7437E-02	2.8927E+00	8.2773E-02	2.4824E+00
49	6.1643E-02	6.0347E+00	7.0632E-02	3.4302E+00	7.4624E-02	2.9232E+00	7.9736E-02	2.5082E+00
50	5.9741E-02	6.1072E+00	6.8150E-02	3.4661E+00	7.1965E-02	2.9532E+00	7.6865E-02	2.5336E+00
51	5.7942E-02	6.1789E+00	6.5800E-02	3.5014E+00	6.9447E-02	2.9826E+00	7.4149E-02	2.5585E+00
52	5.6238E-02	6.2498E+00	6.3572E-02	3.5361E+00	6.7062E-02	3.0116E+00	7.1577E-02	2.5830E+00
53	5.4625E-02	6.3199E+00	6.1458E-02	3.5703E+00	6.4801E-02	3.0401E+00	6.9139E-02	2.6071E+00
54	5.3096E-02	6.3893E+00	5.9452E-02	3.6039E+00	6.2654E-02	3.0682E+00	6.6826E-02	2.6307E+00
55	5.1647E-02	6.4578E+00	5.7545E-02	3.6371E+00	6.0616E-02	3.0958E+00	6.4630E-02	2.6540E+00
56	5.0273E-02	6.5256E+00	5.5733E-02	3.6697E+00	5.8678E-02	3.1230E+00	6.2542E-02	2.6770E+00
57	4.8970E-02	6.5927E+00	5.4008E-02	3.7019E+00	5.6834E-02	3.1497E+00	6.0557E-02	2.6996E+00
58	4.7733E-02	6.6591E+00	5.2365E-02	3.7336E+00	5.5079E-02	3.1762E+00	5.8666E-02	2.7219E+00
59	4.6559E-02	6.7247E+00	5.0800E-02	3.7649E+00	5.3406E-02	3.2022E+00	5.6865E-02	2.7438E+00
60	4.5444E-02	6.7896E+00	4.9307E-02	3.7958E+00	5.1811E-02	3.2279E+00	5.5148E-02	2.7655E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

In; Z = 49

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	8.8299E+00	3.2999E-01	1.0367E+01	2.2127E-01	1.0945E+01	1.9451E-01	1.1670E+01	1.7117E-01
1	7.3855E+00	3.8743E-01	8.7935E+00	2.5697E-01	9.3076E+00	2.2539E-01	9.9503E+00	1.9789E-01
2	5.1550E+00	5.2904E-01	6.3239E+00	3.4300E-01	6.7286E+00	2.9960E-01	7.2249E+00	2.6209E-01
3	3.6353E+00	7.0107E-01	4.5945E+00	4.4515E-01	4.9136E+00	3.8737E-01	5.2966E+00	3.3790E-01
4	2.6811E+00	8.7715E-01	3.4778E+00	5.4827E-01	3.7362E+00	4.7576E-01	4.0411E+00	4.1410E-01
5	2.0422E+00	1.0560E+00	2.7099E+00	6.5193E-01	2.9228E+00	5.6441E-01	3.1708E+00	4.9040E-01
6	1.5921E+00	1.2419E+00	2.1522E+00	7.5861E-01	2.3293E+00	6.5547E-01	2.5335E+00	5.6865E-01
7	1.2685E+00	1.4358E+00	1.7366E+00	8.6913E-01	1.8844E+00	7.4966E-01	2.0537E+00	6.4948E-01
8	1.0341E+00	1.6345E+00	1.4234E+00	9.8234E-01	1.5471E+00	8.4605E-01	1.6883E+00	7.3213E-01
9	8.6262E-01	1.8326E+00	1.1857E+00	1.0959E+00	1.2895E+00	9.4271E-01	1.4081E+00	8.1501E-01
10	7.3473E-01	2.0246E+00	1.0035E+00	1.2070E+00	1.0912E+00	1.0374E+00	1.1916E+00	8.9626E-01
11	6.3621E-01	2.2067E+00	8.6159E-01	1.3135E+00	9.3632E-01	1.1283E+00	1.0222E+00	9.7420E-01
12	5.5886E-01	2.3782E+00	7.5019E-01	1.4141E+00	8.1454E-01	1.2142E+00	8.8877E-01	1.0480E+00
13	4.9582E-01	2.5390E+00	6.6066E-01	1.5084E+00	7.1675E-01	1.2947E+00	7.8168E-01	1.1171E+00
14	4.4298E-01	2.6902E+00	5.8718E-01	1.5963E+00	6.3668E-01	1.3697E+00	6.9412E-01	1.1815E+00
15	3.9809E-01	2.8335E+00	5.2597E-01	1.6787E+00	5.7015E-01	1.4398E+00	6.2148E-01	1.2416E+00
16	3.5955E-01	2.9703E+00	4.7424E-01	1.7563E+00	5.1405E-01	1.5058E+00	5.6032E-01	1.2981E+00
17	3.2626E-01	3.1019E+00	4.2999E-01	1.8302E+00	4.6614E-01	1.5684E+00	5.0816E-01	1.3516E+00
18	2.9740E-01	3.2292E+00	3.9179E-01	1.9010E+00	4.2480E-01	1.6284E+00	4.6317E-01	1.4029E+00
19	2.7232E-01	3.3530E+00	3.5854E-01	1.9694E+00	3.8882E-01	1.6864E+00	4.2400E-01	1.4523E+00
20	2.5047E-01	3.4736E+00	3.2942E-01	2.0360E+00	3.5727E-01	1.7427E+00	3.8963E-01	1.5004E+00
21	2.3139E-01	3.5914E+00	3.0378E-01	2.1012E+00	3.2944E-01	1.7979E+00	3.5927E-01	1.5474E+00
22	2.1466E-01	3.7066E+00	2.8109E-01	2.1651E+00	3.0476E-01	1.8520E+00	3.3230E-01	1.5936E+00
23	1.9994E-01	3.8193E+00	2.6093E-01	2.2280E+00	2.8278E-01	1.9053E+00	3.0824E-01	1.6391E+00
24	1.8692E-01	3.9295E+00	2.4294E-01	2.2899E+00	2.6313E-01	1.9578E+00	2.8668E-01	1.6840E+00
25	1.7535E-01	4.0374E+00	2.2683E-01	2.3508E+00	2.4548E-01	2.0095E+00	2.6730E-01	1.7282E+00
26	1.6501E-01	4.1429E+00	2.1234E-01	2.4107E+00	2.2959E-01	2.0605E+00	2.4982E-01	1.7719E+00
27	1.5571E-01	4.2463E+00	1.9927E-01	2.4696E+00	2.1522E-01	2.1106E+00	2.3400E-01	1.8148E+00
28	1.4730E-01	4.3475E+00	1.8743E-01	2.5274E+00	2.0220E-01	2.1599E+00	2.1964E-01	1.8571E+00
29	1.3966E-01	4.4467E+00	1.7666E-01	2.5841E+00	1.9036E-01	2.2083E+00	2.0658E-01	1.8986E+00
30	1.3267E-01	4.5439E+00	1.6685E-01	2.6397E+00	1.7955E-01	2.2557E+00	1.9466E-01	1.9393E+00
31	1.2626E-01	4.6394E+00	1.5787E-01	2.6942E+00	1.6967E-01	2.3021E+00	1.8376E-01	1.9792E+00
32	1.2034E-01	4.7331E+00	1.4962E-01	2.7475E+00	1.6060E-01	2.3476E+00	1.7376E-01	2.0183E+00
33	1.1487E-01	4.8252E+00	1.4203E-01	2.7995E+00	1.5226E-01	2.3920E+00	1.6457E-01	2.0564E+00
34	1.0978E-01	4.9157E+00	1.3502E-01	2.8505E+00	1.4457E-01	2.4355E+00	1.5611E-01	2.0937E+00
35	1.0505E-01	5.0048E+00	1.2854E-01	2.9003E+00	1.3746E-01	2.4779E+00	1.4829E-01	2.1301E+00
36	1.0063E-01	5.0926E+00	1.2251E-01	2.9489E+00	1.3087E-01	2.5193E+00	1.4105E-01	2.1656E+00
37	9.6487E-02	5.1791E+00	1.1691E-01	2.9965E+00	1.2475E-01	2.5598E+00	1.3434E-01	2.2003E+00
38	9.2609E-02	5.2644E+00	1.1169E-01	3.0430E+00	1.1906E-01	2.5993E+00	1.2811E-01	2.2341E+00
39	8.8969E-02	5.3485E+00	1.0682E-01	3.0885E+00	1.1375E-01	2.6378E+00	1.2230E-01	2.2671E+00
40	8.5548E-02	5.4315E+00	1.0226E-01	3.1330E+00	1.0880E-01	2.6755E+00	1.1689E-01	2.2993E+00
41	8.2329E-02	5.5135E+00	9.7984E-02	3.1765E+00	1.0416E-01	2.7123E+00	1.1184E-01	2.3308E+00
42	7.9298E-02	5.5944E+00	9.3974E-02	3.2191E+00	9.9820E-02	2.7483E+00	1.0710E-01	2.3615E+00
43	7.6442E-02	5.6744E+00	9.0207E-02	3.2609E+00	9.5745E-02	2.7836E+00	1.0267E-01	2.3915E+00
44	7.3748E-02	5.7534E+00	8.6662E-02	3.3018E+00	9.1917E-02	2.8180E+00	9.8511E-02	2.4208E+00
45	7.1206E-02	5.8315E+00	8.3323E-02	3.3419E+00	8.8316E-02	2.8518E+00	9.4602E-02	2.4495E+00
46	6.8805E-02	5.9087E+00	8.0174E-02	3.3813E+00	8.4924E-02	2.8849E+00	9.0924E-02	2.4776E+00
47	6.6537E-02	5.9850E+00	7.7203E-02	3.4199E+00	8.1726E-02	2.9173E+00	8.7460E-02	2.5051E+00
48	6.4393E-02	6.0605E+00	7.4394E-02	3.4579E+00	7.8707E-02	2.9491E+00	8.4192E-02	2.5321E+00
49	6.2366E-02	6.1352E+00	7.1739E-02	3.4952E+00	7.5855E-02	2.9803E+00	8.1107E-02	2.5585E+00
50	6.0448E-02	6.2090E+00	6.9225E-02	3.5318E+00	7.3157E-02	3.0110E+00	7.8191E-02	2.5845E+00
51	5.8633E-02	6.2820E+00	6.6843E-02	3.5679E+00	7.0602E-02	3.0411E+00	7.5431E-02	2.6099E+00
52	5.6913E-02	6.3543E+00	6.4585E-02	3.6033E+00	6.8182E-02	3.0707E+00	7.2818E-02	2.6349E+00
53	5.5285E-02	6.4257E+00	6.2442E-02	3.6382E+00	6.5886E-02	3.0998E+00	7.0341E-02	2.6595E+00
54	5.3742E-02	6.4965E+00	6.0408E-02	3.6725E+00	6.3707E-02	3.1284E+00	6.7990E-02	2.6837E+00
55	5.2279E-02	6.5664E+00	5.8474E-02	3.7064E+00	6.1637E-02	3.1566E+00	6.5758E-02	2.7076E+00
56	5.0892E-02	6.6356E+00	5.6635E-02	3.7397E+00	5.9669E-02	3.1844E+00	6.3636E-02	2.7310E+00
57	4.9576E-02	6.7042E+00	5.4884E-02	3.7726E+00	5.7796E-02	3.2118E+00	6.1617E-02	2.7541E+00
58	4.8328E-02	6.7719E+00	5.3217E-02	3.8050E+00	5.6012E-02	3.2387E+00	5.9695E-02	2.7768E+00
59	4.7143E-02	6.8390E+00	5.1628E-02	3.8369E+00	5.4313E-02	3.2653E+00	5.7864E-02	2.7992E+00
60	4.6018E-02	6.9054E+00	5.0113E-02	3.8684E+00	5.2692E-02	3.2915E+00	5.6118E-02	2.8213E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Sn; $Z = 50$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	9.1786E+00	3.3340E-01	1.0780E+01	2.2360E-01	1.1382E+01	1.9664E-01	1.2139E+01	1.7311E-01
1	7.7393E+00	3.8759E-01	9.2128E+00	2.5743E-01	9.7520E+00	2.2594E-01	1.0427E+01	1.9848E-01
2	5.3724E+00	5.2997E-01	6.5939E+00	3.4428E-01	7.0175E+00	3.0092E-01	7.5367E+00	2.6341E-01
3	3.7159E+00	7.1361E-01	4.7069E+00	4.5338E-01	5.0366E+00	3.9471E-01	5.4318E+00	3.4446E-01
4	2.7051E+00	9.0281E-01	3.5185E+00	5.6406E-01	3.7826E+00	4.8957E-01	4.0938E+00	4.2625E-01
5	2.0528E+00	1.0891E+00	2.7304E+00	6.7207E-01	2.9471E+00	5.8197E-01	3.1993E+00	5.0580E-01
6	1.6019E+00	1.2768E+00	2.1705E+00	7.7998E-01	2.3508E+00	6.7413E-01	2.5587E+00	5.8503E-01
7	1.2786E+00	1.4695E+00	1.7557E+00	8.9007E-01	1.9067E+00	7.6799E-01	2.0796E+00	6.6562E-01
8	1.0433E+00	1.6666E+00	1.4421E+00	1.0025E+00	1.5690E+00	8.6377E-01	1.7138E+00	7.4778E-01
9	8.7022E-01	1.8643E+00	1.2027E+00	1.1158E+00	1.3096E+00	9.6027E-01	1.4316E+00	8.3055E-01
10	7.4090E-01	2.0575E+00	1.0181E+00	1.2277E+00	1.1086E+00	1.0556E+00	1.2120E+00	9.1237E-01
11	6.4147E-01	2.2422E+00	8.7398E-01	1.3358E+00	9.5107E-01	1.1479E+00	1.0395E+00	9.9159E-01
12	5.6366E-01	2.4172E+00	7.6054E-01	1.4388E+00	8.2683E-01	1.2359E+00	9.0317E-01	1.0672E+00
13	5.0046E-01	2.5817E+00	6.6939E-01	1.5358E+00	7.2701E-01	1.3188E+00	7.9365E-01	1.1385E+00
14	4.4761E-01	2.7365E+00	5.9468E-01	1.6266E+00	6.4536E-01	1.3964E+00	7.0416E-01	1.2051E+00
15	4.0268E-01	2.8830E+00	5.3252E-01	1.7117E+00	5.7761E-01	1.4689E+00	6.3002E-01	1.2673E+00
16	3.6405E-01	3.0227E+00	4.8006E-01	1.7917E+00	5.2057E-01	1.5371E+00	5.6772E-01	1.3257E+00
17	3.3058E-01	3.1567E+00	4.3522E-01	1.8675E+00	4.7194E-01	1.6015E+00	5.1469E-01	1.3809E+00
18	3.0147E-01	3.2862E+00	3.9653E-01	1.9399E+00	4.3002E-01	1.6629E+00	4.6903E-01	1.4334E+00
19	2.7609E-01	3.4118E+00	3.6286E-01	2.0096E+00	3.9357E-01	1.7220E+00	4.2933E-01	1.4838E+00
20	2.5390E-01	3.5341E+00	3.3338E-01	2.0772E+00	3.6163E-01	1.7792E+00	3.9453E-01	1.5326E+00
21	2.3448E-01	3.6534E+00	3.0742E-01	2.1431E+00	3.3348E-01	1.8349E+00	3.6383E-01	1.5802E+00
22	2.1743E-01	3.7700E+00	2.8444E-01	2.2076E+00	3.0852E-01	1.8896E+00	3.3657E-01	1.6268E+00
23	2.0240E-01	3.8840E+00	2.6403E-01	2.2710E+00	2.8629E-01	1.9432E+00	3.1226E-01	1.6726E+00
24	1.8911E-01	3.9955E+00	2.4581E-01	2.3333E+00	2.6641E-01	1.9960E+00	2.9048E-01	1.7177E+00
25	1.7730E-01	4.1045E+00	2.2950E-01	2.3946E+00	2.4857E-01	2.0480E+00	2.7090E-01	1.7622E+00
26	1.6676E-01	4.2113E+00	2.1484E-01	2.4548E+00	2.3250E-01	2.0993E+00	2.5323E-01	1.8060E+00
27	1.5728E-01	4.3157E+00	2.0161E-01	2.5142E+00	2.1798E-01	2.1497E+00	2.3725E-01	1.8493E+00
28	1.4873E-01	4.4181E+00	1.8963E-01	2.5724E+00	2.0482E-01	2.1994E+00	2.2273E-01	1.8918E+00
29	1.4097E-01	4.5183E+00	1.7875E-01	2.6297E+00	1.9284E-01	2.2482E+00	2.0953E-01	1.9337E+00
30	1.3389E-01	4.6167E+00	1.6883E-01	2.6858E+00	1.8192E-01	2.2961E+00	1.9748E-01	1.9748E+00
31	1.2740E-01	4.7131E+00	1.5976E-01	2.7409E+00	1.7193E-01	2.3431E+00	1.8645E-01	2.0152E+00
32	1.2142E-01	4.8078E+00	1.5144E-01	2.7948E+00	1.6277E-01	2.3891E+00	1.7633E-01	2.0547E+00
33	1.1590E-01	4.9009E+00	1.4377E-01	2.8476E+00	1.5434E-01	2.4342E+00	1.6703E-01	2.0934E+00
34	1.1077E-01	4.9925E+00	1.3670E-01	2.8993E+00	1.4657E-01	2.4783E+00	1.5847E-01	2.1313E+00
35	1.0600E-01	5.0826E+00	1.3015E-01	2.9499E+00	1.3938E-01	2.5214E+00	1.5055E-01	2.1683E+00
36	1.0155E-01	5.1714E+00	1.2408E-01	2.9993E+00	1.3272E-01	2.5635E+00	1.4322E-01	2.2045E+00
37	9.7390E-02	5.2589E+00	1.1843E-01	3.0477E+00	1.2654E-01	2.6047E+00	1.3643E-01	2.2399E+00
38	9.3491E-02	5.3452E+00	1.1317E-01	3.0951E+00	1.2078E-01	2.6450E+00	1.3011E-01	2.2744E+00
39	8.9832E-02	5.4303E+00	1.0825E-01	3.1414E+00	1.1542E-01	2.6843E+00	1.2423E-01	2.3080E+00
40	8.6393E-02	5.5144E+00	1.0365E-01	3.1867E+00	1.1041E-01	2.7228E+00	1.1875E-01	2.3410E+00
41	8.3157E-02	5.5974E+00	9.9337E-02	3.2311E+00	1.0572E-01	2.7604E+00	1.1363E-01	2.3731E+00
42	8.0110E-02	5.6795E+00	9.5291E-02	3.2745E+00	1.0133E-01	2.7972E+00	1.0883E-01	2.4045E+00
43	7.7237E-02	5.7605E+00	9.1487E-02	3.3171E+00	9.7207E-02	2.8331E+00	1.0434E-01	2.4352E+00
44	7.4526E-02	5.8407E+00	8.7908E-02	3.3589E+00	9.3333E-02	2.8684E+00	1.0012E-01	2.4652E+00
45	7.1967E-02	5.9199E+00	8.4535E-02	3.3998E+00	8.9688E-02	2.9029E+00	9.6154E-02	2.4945E+00
46	6.9551E-02	5.9983E+00	8.1353E-02	3.4400E+00	8.6253E-02	2.9367E+00	9.2424E-02	2.5233E+00
47	6.7267E-02	6.0758E+00	7.8349E-02	3.4794E+00	8.3014E-02	2.9698E+00	8.8909E-02	2.5514E+00
48	6.5107E-02	6.1525E+00	7.5509E-02	3.5182E+00	7.9956E-02	3.0023E+00	8.5593E-02	2.5790E+00
49	6.3063E-02	6.2284E+00	7.2823E-02	3.5562E+00	7.7065E-02	3.0342E+00	8.2461E-02	2.6061E+00
50	6.1130E-02	6.3035E+00	7.0279E-02	3.5936E+00	7.4330E-02	3.0655E+00	7.9501E-02	2.6326E+00
51	5.9299E-02	6.3778E+00	6.7868E-02	3.6304E+00	7.1741E-02	3.0963E+00	7.6700E-02	2.6586E+00
52	5.7565E-02	6.4514E+00	6.5581E-02	3.6666E+00	6.9286E-02	3.1265E+00	7.4046E-02	2.6842E+00
53	5.5922E-02	6.5242E+00	6.3410E-02	3.7022E+00	6.6957E-02	3.1562E+00	7.1530E-02	2.7094E+00
54	5.4365E-02	6.5962E+00	6.1348E-02	3.7373E+00	6.4746E-02	3.1855E+00	6.9143E-02	2.7341E+00
55	5.2889E-02	6.6676E+00	5.9388E-02	3.7718E+00	6.2646E-02	3.2143E+00	6.6875E-02	2.7584E+00
56	5.1489E-02	6.7382E+00	5.7524E-02	3.8058E+00	6.0648E-02	3.2426E+00	6.4719E-02	2.7823E+00
57	5.0162E-02	6.8081E+00	5.5749E-02	3.8394E+00	5.8747E-02	3.2706E+00	6.2668E-02	2.8059E+00
58	4.8902E-02	6.8773E+00	5.4058E-02	3.8724E+00	5.6936E-02	3.2981E+00	6.0715E-02	2.8291E+00
59	4.7706E-02	6.9458E+00	5.2446E-02	3.9050E+00	5.5211E-02	3.3252E+00	5.8855E-02	2.8519E+00
60	4.6571E-02	7.0136E+00	5.0908E-02	3.9372E+00	5.3565E-02	3.3519E+00	5.7080E-02	2.8745E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Sb; Z = 51

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	9.2392E+00	3.4422E-01	1.0879E+01	2.3076E-01	1.1493E+01	2.0299E-01	1.2263E+01	1.7877E-01
1	7.9140E+00	3.9358E-01	9.4351E+00	2.6168E-01	9.9910E+00	2.2979E-01	1.0686E+01	2.0197E-01
2	5.5606E+00	5.3038E-01	6.8317E+00	3.4546E-01	7.2727E+00	3.0219E-01	7.8130E+00	2.6472E-01
3	3.8093E+00	7.1939E-01	4.8361E+00	4.5798E-01	5.1775E+00	3.9897E-01	5.5863E+00	3.4839E-01
4	2.7389E+00	9.2084E-01	3.5723E+00	5.7575E-01	3.8431E+00	4.9992E-01	4.1618E+00	4.3545E-01
5	2.0668E+00	1.1169E+00	2.7552E+00	6.8939E-01	2.9759E+00	5.9716E-01	3.2326E+00	5.1918E-01
6	1.6121E+00	1.3087E+00	2.1883E+00	7.9986E-01	2.3717E+00	6.9153E-01	2.5831E+00	6.0035E-01
7	1.2883E+00	1.5015E+00	1.7729E+00	9.1023E-01	1.9269E+00	7.8570E-01	2.1031E+00	6.8123E-01
8	1.0521E+00	1.6972E+00	1.4592E+00	1.0220E+00	1.5890E+00	8.8098E-01	1.7371E+00	7.6301E-01
9	8.7762E-01	1.8939E+00	1.2186E+00	1.1348E+00	1.3284E+00	9.7709E-01	1.4536E+00	8.4547E-01
10	7.4689E-01	2.0876E+00	1.0323E+00	1.2469E+00	1.1254E+00	1.0726E+00	1.2318E+00	9.2750E-01
11	6.4648E-01	2.2743E+00	8.8612E-01	1.3562E+00	9.6556E-01	1.1659E+00	1.0566E+00	1.0076E+00
12	5.6814E-01	2.4521E+00	7.7083E-01	1.4612E+00	8.3910E-01	1.2557E+00	9.1763E-01	1.0847E+00
13	5.0474E-01	2.6200E+00	6.7813E-01	1.5606E+00	7.3737E-01	1.3407E+00	8.0580E-01	1.1579E+00
14	4.5189E-01	2.7782E+00	6.0222E-01	1.6541E+00	6.5416E-01	1.4207E+00	7.1440E-01	1.2266E+00
15	4.0700E-01	2.9279E+00	5.3913E-01	1.7418E+00	5.8519E-01	1.4956E+00	6.3876E-01	1.2910E+00
16	3.6835E-01	3.0704E+00	4.8593E-01	1.8242E+00	5.2720E-01	1.5660E+00	5.7529E-01	1.3514E+00
17	3.3479E-01	3.2070E+00	4.4051E-01	1.9022E+00	4.7782E-01	1.6323E+00	5.2134E-01	1.4082E+00
18	3.0550E-01	3.3387E+00	4.0132E-01	1.9764E+00	4.3531E-01	1.6954E+00	4.7496E-01	1.4622E+00
19	2.7987E-01	3.4663E+00	3.6724E-01	2.0476E+00	3.9837E-01	1.7557E+00	4.3470E-01	1.5138E+00
20	2.5740E-01	3.5903E+00	3.3739E-01	2.1163E+00	3.6603E-01	1.8139E+00	3.9945E-01	1.5635E+00
21	2.3767E-01	3.7112E+00	3.1109E-01	2.1831E+00	3.3753E-01	1.8705E+00	3.6837E-01	1.6117E+00
22	2.2031E-01	3.8293E+00	2.8783E-01	2.2483E+00	3.1227E-01	1.9257E+00	3.4081E-01	1.6588E+00
23	2.0499E-01	3.9447E+00	2.6715E-01	2.3122E+00	2.8978E-01	1.9798E+00	3.1623E-01	1.7050E+00
24	1.9143E-01	4.0575E+00	2.4870E-01	2.3750E+00	2.6968E-01	2.0329E+00	2.9422E-01	1.7504E+00
25	1.7937E-01	4.1678E+00	2.3218E-01	2.4367E+00	2.5164E-01	2.0853E+00	2.7443E-01	1.7951E+00
26	1.6861E-01	4.2758E+00	2.1733E-01	2.4974E+00	2.3539E-01	2.1368E+00	2.5658E-01	1.8392E+00
27	1.5895E-01	4.3815E+00	2.0394E-01	2.5571E+00	2.2070E-01	2.1876E+00	2.4042E-01	1.8827E+00
28	1.5025E-01	4.4849E+00	1.9182E-01	2.6158E+00	2.0739E-01	2.2376E+00	2.2576E-01	1.9255E+00
29	1.4235E-01	4.5863E+00	1.8081E-01	2.6735E+00	1.9528E-01	2.2868E+00	2.1241E-01	1.9677E+00
30	1.3516E-01	4.6857E+00	1.7079E-01	2.7302E+00	1.8424E-01	2.3351E+00	2.0022E-01	2.0092E+00
31	1.2858E-01	4.7832E+00	1.6162E-01	2.7858E+00	1.7415E-01	2.3826E+00	1.8907E-01	2.0499E+00
32	1.2253E-01	4.8790E+00	1.5321E-01	2.8404E+00	1.6488E-01	2.4291E+00	1.7884E-01	2.0899E+00
33	1.1695E-01	4.9731E+00	1.4547E-01	2.8938E+00	1.5637E-01	2.4748E+00	1.6944E-01	2.1291E+00
34	1.1177E-01	5.0657E+00	1.3833E-01	2.9462E+00	1.4851E-01	2.5195E+00	1.6077E-01	2.1676E+00
35	1.0696E-01	5.1568E+00	1.3173E-01	2.9975E+00	1.4125E-01	2.5632E+00	1.5276E-01	2.2052E+00
36	1.0247E-01	5.2465E+00	1.2560E-01	3.0477E+00	1.3452E-01	2.6061E+00	1.4535E-01	2.2420E+00
37	9.8285E-02	5.3350E+00	1.1990E-01	3.0968E+00	1.2828E-01	2.6479E+00	1.3847E-01	2.2779E+00
38	9.4360E-02	5.4223E+00	1.1460E-01	3.1450E+00	1.2246E-01	2.6889E+00	1.3208E-01	2.3131E+00
39	9.0678E-02	5.5084E+00	1.0964E-01	3.1921E+00	1.1704E-01	2.7290E+00	1.2612E-01	2.3474E+00
40	8.7219E-02	5.5935E+00	1.0500E-01	3.2382E+00	1.1198E-01	2.7682E+00	1.2057E-01	2.3810E+00
41	8.3964E-02	5.6775E+00	1.0065E-01	3.2834E+00	1.0724E-01	2.8065E+00	1.1538E-01	2.4138E+00
42	8.098E-02	5.7605E+00	9.6569E-02	3.3277E+00	1.0280E-01	2.8440E+00	1.1053E-01	2.4459E+00
43	7.8008E-02	5.8426E+00	9.2732E-02	3.3711E+00	9.8635E-02	2.8808E+00	1.0597E-01	2.4772E+00
44	7.5281E-02	5.9239E+00	8.9119E-02	3.4137E+00	9.4718E-02	2.9167E+00	1.0170E-01	2.5079E+00
45	7.2705E-02	6.0042E+00	8.5715E-02	3.4554E+00	9.1031E-02	2.9519E+00	9.7682E-02	2.5379E+00
46	7.0272E-02	6.0837E+00	8.2502E-02	3.4964E+00	8.7556E-02	2.9864E+00	9.3900E-02	2.5673E+00
47	6.7971E-02	6.1623E+00	7.9468E-02	3.5366E+00	8.4278E-02	3.0203E+00	9.0336E-02	2.5961E+00
48	6.5796E-02	6.2402E+00	7.6598E-02	3.5761E+00	8.1182E-02	3.0535E+00	8.6974E-02	2.6243E+00
49	6.3737E-02	6.3173E+00	7.3883E-02	3.6149E+00	7.8255E-02	3.0861E+00	8.3798E-02	2.6519E+00
50	6.1788E-02	6.3936E+00	7.1310E-02	3.6531E+00	7.5485E-02	3.1180E+00	8.0795E-02	2.6790E+00
51	5.9942E-02	6.4692E+00	6.8872E-02	3.6906E+00	7.2861E-02	3.1495E+00	7.7953E-02	2.7057E+00
52	5.8193E-02	6.5440E+00	6.6558E-02	3.7275E+00	7.0374E-02	3.1803E+00	7.5260E-02	2.7318E+00
53	5.6536E-02	6.6181E+00	6.4361E-02	3.7638E+00	6.8013E-02	3.2107E+00	7.2707E-02	2.7575E+00
54	5.4966E-02	6.6914E+00	6.2273E-02	3.7996E+00	6.5772E-02	3.2406E+00	7.0283E-02	2.7827E+00
55	5.3477E-02	6.7641E+00	6.0288E-02	3.8349E+00	6.3641E-02	3.2700E+00	6.7981E-02	2.8076E+00
56	5.2064E-02	6.8361E+00	5.8399E-02	3.8695E+00	6.1615E-02	3.2989E+00	6.5792E-02	2.8320E+00
57	5.0725E-02	6.9073E+00	5.6600E-02	3.9038E+00	5.9686E-02	3.3274E+00	6.3709E-02	2.8561E+00
58	4.9454E-02	6.9779E+00	5.4886E-02	3.9375E+00	5.7849E-02	3.3555E+00	6.1726E-02	2.8797E+00
59	4.8248E-02	7.0479E+00	5.3252E-02	3.9707E+00	5.6098E-02	3.3831E+00	5.9836E-02	2.9031E+00
60	4.7103E-02	7.1171E+00	5.1693E-02	4.0035E+00	5.4428E-02	3.4104E+00	5.8033E-02	2.9261E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Te; $Z = 52$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	9.1728E+00	3.5733E-01	1.0839E+01	2.3954E-01	1.1459E+01	2.1079E-01	1.2233E+01	1.8571E-01
1	7.9735E+00	4.0253E-01	9.5306E+00	2.6793E-01	1.0098E+01	2.3540E-01	1.0805E+01	2.0702E-01
2	5.7059E+00	5.3203E-01	7.0211E+00	3.4755E-01	7.4772E+00	3.0427E-01	8.0354E+00	2.6674E-01
3	3.9052E+00	7.2120E-01	4.9692E+00	4.6048E-01	5.3228E+00	4.0147E-01	5.7457E+00	3.5083E-01
4	2.7806E+00	9.3204E-01	3.6376E+00	5.8376E-01	3.9160E+00	5.0718E-01	4.2433E+00	4.4202E-01
5	2.0847E+00	1.1388E+00	2.7858E+00	7.0358E-01	3.0111E+00	6.0971E-01	3.2729E+00	5.3032E-01
6	1.6234E+00	1.3370E+00	2.2071E+00	8.1787E-01	2.3937E+00	7.0738E-01	2.6086E+00	6.1435E-01
7	1.2981E+00	1.5316E+00	1.7891E+00	9.2953E-01	1.9458E+00	8.0269E-01	2.1252E+00	6.9626E-01
8	1.0609E+00	1.7266E+00	1.4749E+00	1.0411E+00	1.6074E+00	8.9786E-01	1.7585E+00	7.7798E-01
9	8.8498E-01	1.9223E+00	1.2335E+00	1.1534E+00	1.3460E+00	9.9353E-01	1.4741E+00	8.6009E-01
10	7.5280E-01	2.1158E+00	1.0457E+00	1.2653E+00	1.1415E+00	1.0890E+00	1.2506E+00	9.4206E-01
11	6.5134E-01	2.3037E+00	8.9789E-01	1.3753E+00	9.7970E-01	1.1829E+00	1.0732E+00	1.0227E+00
12	5.7234E-01	2.4839E+00	7.8094E-01	1.4817E+00	8.5125E-01	1.2739E+00	9.3198E-01	1.1009E+00
13	5.0869E-01	2.6546E+00	6.8681E-01	1.5832E+00	7.4772E-01	1.3608E+00	8.1801E-01	1.1757E+00
14	4.5581E-01	2.8160E+00	6.0973E-01	1.6791E+00	6.6303E-01	1.4429E+00	7.2479E-01	1.2464E+00
15	4.1099E-01	2.9687E+00	5.4573E-01	1.7694E+00	5.9285E-01	1.5201E+00	6.4765E-01	1.3128E+00
16	3.7239E-01	3.1141E+00	4.9182E-01	1.8543E+00	5.3391E-01	1.5927E+00	5.8298E-01	1.3752E+00
17	3.3881E-01	3.2532E+00	4.4582E-01	1.9345E+00	4.8377E-01	1.6611E+00	5.2810E-01	1.4339E+00
18	3.0942E-01	3.3872E+00	4.0616E-01	2.0106E+00	4.4065E-01	1.7259E+00	4.8098E-01	1.4894E+00
19	2.8361E-01	3.5168E+00	3.7166E-01	2.0834E+00	4.0322E-01	1.7877E+00	4.4012E-01	1.5423E+00
20	2.6092E-01	3.6427E+00	3.4144E-01	2.1535E+00	3.7046E-01	1.8471E+00	4.0440E-01	1.5930E+00
21	2.4092E-01	3.7653E+00	3.1482E-01	2.2213E+00	3.4160E-01	1.9046E+00	3.7293E-01	1.6421E+00
22	2.2328E-01	3.8849E+00	2.9126E-01	2.2874E+00	3.1604E-01	1.9605E+00	3.4504E-01	1.6898E+00
23	2.0768E-01	4.0018E+00	2.7031E-01	2.3520E+00	2.9328E-01	2.0151E+00	3.2018E-01	1.7364E+00
24	1.9385E-01	4.1160E+00	2.5162E-01	2.4153E+00	2.7294E-01	2.0687E+00	2.9792E-01	1.7822E+00
25	1.8156E-01	4.2277E+00	2.3488E-01	2.4774E+00	2.5469E-01	2.1214E+00	2.7792E-01	1.8272E+00
26	1.7057E-01	4.3369E+00	2.1984E-01	2.5386E+00	2.3824E-01	2.1733E+00	2.5988E-01	1.8715E+00
27	1.6072E-01	4.4439E+00	2.0628E-01	2.5987E+00	2.2339E-01	2.2244E+00	2.4355E-01	1.9153E+00
28	1.5185E-01	4.5486E+00	1.9400E-01	2.6579E+00	2.0993E-01	2.2747E+00	2.2872E-01	1.9583E+00
29	1.4381E-01	4.6511E+00	1.8286E-01	2.7160E+00	1.9769E-01	2.3242E+00	2.1523E-01	2.0008E+00
30	1.3650E-01	4.7516E+00	1.7272E-01	2.7732E+00	1.8652E-01	2.3730E+00	2.0291E-01	2.0426E+00
31	1.2982E-01	4.8502E+00	1.6345E-01	2.8293E+00	1.7631E-01	2.4209E+00	1.9164E-01	2.0837E+00
32	1.2368E-01	4.9471E+00	1.5495E-01	2.8844E+00	1.6695E-01	2.4679E+00	1.8130E-01	2.1241E+00
33	1.1802E-01	5.0422E+00	1.4713E-01	2.9385E+00	1.5835E-01	2.5141E+00	1.7178E-01	2.1638E+00
34	1.1279E-01	5.1357E+00	1.3993E-01	2.9915E+00	1.5041E-01	2.5593E+00	1.6302E-01	2.2027E+00
35	1.0793E-01	5.2278E+00	1.3326E-01	3.0434E+00	1.4308E-01	2.6037E+00	1.5492E-01	2.2408E+00
36	1.0340E-01	5.3185E+00	1.2708E-01	3.0943E+00	1.3628E-01	2.6471E+00	1.4742E-01	2.2782E+00
37	9.9179E-02	5.4079E+00	1.2134E-01	3.1442E+00	1.2997E-01	2.6897E+00	1.4047E-01	2.3147E+00
38	9.5224E-02	5.4962E+00	1.1598E-01	3.1931E+00	1.2410E-01	2.7313E+00	1.3400E-01	2.3505E+00
39	9.1516E-02	5.5832E+00	1.1098E-01	3.2410E+00	1.1863E-01	2.7721E+00	1.2797E-01	2.3854E+00
40	8.8033E-02	5.6692E+00	1.0631E-01	3.2878E+00	1.1351E-01	2.8120E+00	1.2236E-01	2.4197E+00
41	8.4756E-02	5.7542E+00	1.0192E-01	3.3338E+00	1.0873E-01	2.8510E+00	1.1710E-01	2.4531E+00
42	8.1670E-02	5.8383E+00	9.7809E-02	3.3789E+00	1.0424E-01	2.8893E+00	1.1219E-01	2.4858E+00
43	7.8761E-02	5.9214E+00	9.3940E-02	3.4231E+00	1.0003E-01	2.9267E+00	1.0758E-01	2.5178E+00
44	7.6016E-02	6.0036E+00	9.0297E-02	3.4664E+00	9.6070E-02	2.9634E+00	1.0325E-01	2.5492E+00
45	7.3423E-02	6.0850E+00	8.6862E-02	3.5089E+00	9.2343E-02	2.9993E+00	9.9183E-02	2.5798E+00
46	7.0972E-02	6.1655E+00	8.3621E-02	3.5507E+00	8.8831E-02	3.0345E+00	9.5352E-02	2.6098E+00
47	6.8655E-02	6.2453E+00	8.0558E-02	3.5917E+00	8.5515E-02	3.0691E+00	9.1742E-02	2.6392E+00
48	6.6463E-02	6.3242E+00	7.7661E-02	3.6319E+00	8.2384E-02	3.1029E+00	8.8335E-02	2.6681E+00
49	6.4388E-02	6.4024E+00	7.4918E-02	3.6715E+00	7.9422E-02	3.1362E+00	8.5116E-02	2.6963E+00
50	6.2424E-02	6.4799E+00	7.2319E-02	3.7104E+00	7.6619E-02	3.1688E+00	8.2072E-02	2.7240E+00
51	6.0563E-02	6.5567E+00	6.9854E-02	3.7487E+00	7.3963E-02	3.2009E+00	7.9190E-02	2.7512E+00
52	5.8800E-02	6.6327E+00	6.7515E-02	3.7863E+00	7.1444E-02	3.2324E+00	7.6459E-02	2.7779E+00
53	5.7129E-02	6.7080E+00	6.5293E-02	3.8233E+00	6.9053E-02	3.2634E+00	7.3869E-02	2.8041E+00
54	5.5545E-02	6.7827E+00	6.3181E-02	3.8598E+00	6.6782E-02	3.2939E+00	7.1410E-02	2.8299E+00
55	5.4042E-02	6.8566E+00	6.1172E-02	3.8958E+00	6.4623E-02	3.3239E+00	6.9074E-02	2.8553E+00
56	5.2618E-02	6.9299E+00	5.9260E-02	3.9311E+00	6.2569E-02	3.3534E+00	6.6853E-02	2.8802E+00
57	5.1266E-02	7.0025E+00	5.7438E-02	3.9660E+00	6.0614E-02	3.3825E+00	6.4740E-02	2.9048E+00
58	4.9984E-02	7.0745E+00	5.5702E-02	4.0004E+00	5.8751E-02	3.4111E+00	6.2726E-02	2.9290E+00
59	4.8768E-02	7.1458E+00	5.4046E-02	4.0343E+00	5.6975E-02	3.4393E+00	6.0808E-02	2.9528E+00
60	4.7614E-02	7.2165E+00	5.2466E-02	4.0677E+00	5.5280E-02	3.4672E+00	5.8978E-02	2.9762E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

I; Z = 53

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	9.0369E+00	3.7139E-01	1.0721E+01	2.4909E-01	1.1343E+01	2.1928E-01	1.2118E+01	1.9328E-01
1	7.9578E+00	4.1306E-01	9.5424E+00	2.7532E-01	1.0117E+01	2.4203E-01	1.0832E+01	2.1296E-01
2	5.8096E+00	5.3506E-01	7.1635E+00	3.5060E-01	7.6325E+00	3.0719E-01	8.2057E+00	2.6950E-01
3	3.9965E+00	7.2104E-01	5.0976E+00	4.6199E-01	5.4633E+00	4.0314E-01	5.9001E+00	3.5257E-01
4	2.8274E+00	9.3788E-01	3.7108E+00	5.8889E-01	3.9976E+00	5.1199E-01	4.3344E+00	4.4651E-01
5	2.1062E+00	1.1550E+00	2.8223E+00	7.1468E-01	3.0529E+00	6.1965E-01	3.3205E+00	5.3924E-01
6	1.6360E+00	1.3612E+00	2.2280E+00	8.3374E-01	2.4179E+00	7.2142E-01	2.6367E+00	6.2682E-01
7	1.3083E+00	1.5594E+00	1.8051E+00	9.4775E-01	1.9644E+00	8.1879E-01	2.1468E+00	7.1053E-01
8	1.0698E+00	1.7548E+00	1.4895E+00	1.0598E+00	1.6245E+00	9.1439E-01	1.7784E+00	7.9267E-01
9	8.9245E-01	1.9497E+00	1.2474E+00	1.1717E+00	1.3623E+00	1.0098E+00	1.4931E+00	8.7456E-01
10	7.5879E-01	2.1428E+00	1.0585E+00	1.2833E+00	1.1566E+00	1.1050E+00	1.2684E+00	9.5633E-01
11	6.5614E-01	2.3314E+00	9.0926E-01	1.3935E+00	9.9331E-01	1.1991E+00	1.0893E+00	1.0372E+00
12	5.7636E-01	2.5132E+00	7.9084E-01	1.5009E+00	8.6315E-01	1.2910E+00	9.4609E-01	1.1162E+00
13	5.1234E-01	2.6864E+00	6.9537E-01	1.6041E+00	7.5801E-01	1.3793E+00	8.3019E-01	1.1922E+00
14	4.5940E-01	2.8506E+00	6.1719E-01	1.7021E+00	6.7190E-01	1.4634E+00	7.3525E-01	1.2646E+00
15	4.1465E-01	3.0062E+00	5.5231E-01	1.7948E+00	6.0056E-01	1.5428E+00	6.5666E-01	1.3329E+00
16	3.7151E-01	3.1544E+00	4.9770E-01	1.8821E+00	5.4067E-01	1.6175E+00	5.9080E-01	1.3973E+00
17	3.4261E-01	3.2960E+00	4.5114E-01	1.9646E+00	4.8978E-01	1.6880E+00	5.3496E-01	1.4578E+00
18	3.1319E-01	3.4323E+00	4.1101E-01	2.0427E+00	4.4605E-01	1.7546E+00	4.8707E-01	1.5150E+00
19	2.8727E-01	3.5640E+00	3.7611E-01	2.1173E+00	4.0811E-01	1.8180E+00	4.4561E-01	1.5693E+00
20	2.6440E-01	3.6917E+00	3.4554E-01	2.1888E+00	3.7493E-01	1.8787E+00	4.0939E-01	1.6213E+00
21	2.4419E-01	3.8161E+00	3.1859E-01	2.2579E+00	3.4571E-01	1.9373E+00	3.7751E-01	1.6713E+00
22	2.2630E-01	3.9373E+00	2.9474E-01	2.3249E+00	3.1983E-01	1.9940E+00	3.4927E-01	1.7197E+00
23	2.1045E-01	4.0557E+00	2.7352E-01	2.3903E+00	2.9680E-01	2.0494E+00	3.2412E-01	1.7670E+00
24	1.9638E-01	4.1714E+00	2.5458E-01	2.4542E+00	2.7621E-01	2.1035E+00	3.0161E-01	1.8132E+00
25	1.8384E-01	4.2845E+00	2.3762E-01	2.5169E+00	2.5773E-01	2.1567E+00	2.8138E-01	1.8585E+00
26	1.7264E-01	4.3951E+00	2.2237E-01	2.5786E+00	2.4110E-01	2.2089E+00	2.6314E-01	1.9032E+00
27	1.6259E-01	4.5033E+00	2.0863E-01	2.6391E+00	2.2606E-01	2.2603E+00	2.4663E-01	1.9471E+00
28	1.5354E-01	4.6093E+00	1.9619E-01	2.6987E+00	2.1244E-01	2.3110E+00	2.3164E-01	1.9905E+00
29	1.4535E-01	4.7130E+00	1.8491E-01	2.7573E+00	2.0006E-01	2.3608E+00	2.1800E-01	2.0332E+00
30	1.3791E-01	4.8147E+00	1.7464E-01	2.8149E+00	1.8877E-01	2.4099E+00	2.0555E-01	2.0753E+00
31	1.3111E-01	4.9145E+00	1.6526E-01	2.8716E+00	1.7845E-01	2.4582E+00	1.9415E-01	2.1167E+00
32	1.2488E-01	5.0124E+00	1.5667E-01	2.9272E+00	1.6899E-01	2.5057E+00	1.8370E-01	2.1575E+00
33	1.1915E-01	5.1085E+00	1.4877E-01	2.9818E+00	1.6029E-01	2.5523E+00	1.7408E-01	2.1976E+00
34	1.1384E-01	5.2031E+00	1.4149E-01	3.0354E+00	1.5227E-01	2.5981E+00	1.6522E-01	2.2369E+00
35	1.0893E-01	5.2962E+00	1.3476E-01	3.0880E+00	1.4486E-01	2.6430E+00	1.5703E-01	2.2755E+00
36	1.0435E-01	5.3878E+00	1.2852E-01	3.1395E+00	1.3800E-01	2.6870E+00	1.4945E-01	2.3134E+00
37	1.0008E-01	5.4782E+00	1.2273E-01	3.1901E+00	1.3162E-01	2.7301E+00	1.4241E-01	2.3505E+00
38	9.6094E-02	5.5673E+00	1.1733E-01	3.2396E+00	1.2569E-01	2.7724E+00	1.3588E-01	2.3868E+00
39	9.2354E-02	5.6553E+00	1.1229E-01	3.2882E+00	1.2017E-01	2.8138E+00	1.2979E-01	2.4223E+00
40	8.8843E-02	5.7423E+00	1.0758E-01	3.3359E+00	1.1500E-01	2.8544E+00	1.2410E-01	2.4572E+00
41	8.5541E-02	5.8282E+00	1.0316E-01	3.3826E+00	1.1017E-01	2.8941E+00	1.1879E-01	2.4912E+00
42	8.2432E-02	5.9131E+00	9.9012E-02	3.4284E+00	1.0564E-01	2.9330E+00	1.1382E-01	2.5246E+00
43	7.9502E-02	5.9972E+00	9.5113E-02	3.4733E+00	1.0139E-01	2.9712E+00	1.0915E-01	2.5572E+00
44	7.6736E-02	6.0804E+00	9.1440E-02	3.5174E+00	9.7390E-02	3.0085E+00	1.0477E-01	2.5892E+00
45	7.4124E-02	6.1627E+00	8.7978E-02	3.5607E+00	9.3626E-02	3.0452E+00	1.0066E-01	2.6205E+00
46	7.1656E-02	6.2443E+00	8.4709E-02	3.6032E+00	9.0076E-02	3.0811E+00	9.6779E-02	2.6511E+00
47	6.9321E-02	6.3251E+00	8.1619E-02	3.6449E+00	8.6726E-02	3.1163E+00	9.3123E-02	2.6811E+00
48	6.7112E-02	6.4051E+00	7.8696E-02	3.6859E+00	8.3560E-02	3.1508E+00	8.9673E-02	2.7105E+00
49	6.5021E-02	6.4844E+00	7.5928E-02	3.7262E+00	8.0566E-02	3.1848E+00	8.6413E-02	2.7394E+00
50	6.3041E-02	6.5630E+00	7.3304E-02	3.7659E+00	7.7731E-02	3.2181E+00	8.3329E-02	2.7677E+00
51	6.1164E-02	6.6409E+00	7.0815E-02	3.8049E+00	7.5044E-02	3.2508E+00	8.0409E-02	2.7954E+00
52	5.9386E-02	6.7181E+00	6.8452E-02	3.8432E+00	7.2495E-02	3.2829E+00	7.7642E-02	2.8227E+00
53	5.7701E-02	6.7946E+00	6.6206E-02	3.8810E+00	7.0075E-02	3.3145E+00	7.5016E-02	2.8495E+00
54	5.6103E-02	6.8705E+00	6.4071E-02	3.9181E+00	6.7776E-02	3.3456E+00	7.2524E-02	2.8758E+00
55	5.4587E-02	6.9457E+00	6.2039E-02	3.9548E+00	6.5590E-02	3.3762E+00	7.0155E-02	2.9017E+00
56	5.3150E-02	7.0202E+00	6.0105E-02	3.9908E+00	6.3510E-02	3.4063E+00	6.7903E-02	2.9272E+00
57	5.1787E-02	7.0942E+00	5.8262E-02	4.0264E+00	6.1528E-02	3.4360E+00	6.5759E-02	2.9522E+00
58	5.0494E-02	7.1674E+00	5.6504E-02	4.0614E+00	5.9641E-02	3.4652E+00	6.3716E-02	2.9769E+00
59	4.9267E-02	7.2401E+00	5.4828E-02	4.0960E+00	5.7840E-02	3.4940E+00	6.1770E-02	3.0012E+00
60	4.8104E-02	7.3122E+00	5.3228E-02	4.1301E+00	5.6123E-02	3.5224E+00	5.9913E-02	3.0251E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Xe; $Z = 54$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	8.8612E+00	3.8581E-01	1.0559E+01	2.5901E-01	1.1181E+01	2.2811E-01	1.1952E+01	2.0116E-01
1	7.8913E+00	4.2448E-01	9.4973E+00	2.8340E-01	1.0077E+01	2.4927E-01	1.0795E+01	2.1946E-01
2	5.8763E+00	5.3932E-01	7.2637E+00	3.5450E-01	7.7435E+00	3.1086E-01	8.3291E+00	2.7293E-01
3	4.0788E+00	7.2011E-01	5.2157E+00	4.6316E-01	5.5931E+00	4.0455E-01	6.0431E+00	3.5410E-01
4	2.8766E+00	9.3973E-01	3.7883E+00	5.9189E-01	4.0841E+00	5.1501E-01	4.4309E+00	4.4947E-01
5	2.1306E+00	1.1658E+00	2.8642E+00	7.2290E-01	3.1006E+00	6.2716E-01	3.3746E+00	5.4609E-01
6	1.6501E+00	1.3809E+00	2.2515E+00	8.4724E-01	2.4451E+00	7.3347E-01	2.6680E+00	6.3760E-01
7	1.3190E+00	1.5843E+00	1.8215E+00	9.6456E-01	1.9834E+00	8.3371E-01	2.1688E+00	7.2381E-01
8	1.0790E+00	1.7815E+00	1.5036E+00	1.0779E+00	1.6409E+00	9.3043E-01	1.7974E+00	8.0695E-01
9	9.0018E-01	1.9761E+00	1.2605E+00	1.1897E+00	1.3776E+00	1.0259E+00	1.5110E+00	8.8891E-01
10	7.6498E-01	2.1688E+00	1.0706E+00	1.3010E+00	1.1710E+00	1.1208E+00	1.2852E+00	9.7046E-01
11	6.6103E-01	2.3576E+00	9.2015E-01	1.4112E+00	1.0063E+00	1.2150E+00	1.1047E+00	1.0514E+00
12	5.8032E-01	2.5406E+00	8.0044E-01	1.5192E+00	8.7473E-01	1.3073E+00	9.5984E-01	1.1308E+00
13	5.1580E-01	2.7158E+00	7.0376E-01	1.6236E+00	7.6814E-01	1.3967E+00	8.4223E-01	1.2078E+00
14	4.6270E-01	2.8825E+00	6.2454E-01	1.7235E+00	6.8072E-01	1.4824E+00	7.4570E-01	1.2816E+00
15	4.1799E-01	3.0409E+00	5.5882E-01	1.8183E+00	6.0826E-01	1.5637E+00	6.6571E-01	1.3517E+00
16	3.7959E-01	3.1916E+00	5.0353E-01	1.9079E+00	5.4746E-01	1.6406E+00	5.9869E-01	1.4179E+00
17	3.4614E-01	3.3358E+00	4.5644E-01	1.9926E+00	4.9582E-01	1.7131E+00	5.4190E-01	1.4803E+00
18	3.1675E-01	3.4743E+00	4.1586E-01	2.0728E+00	4.5148E-01	1.7816E+00	4.9325E-01	1.5392E+00
19	2.9079E-01	3.6080E+00	3.8057E-01	2.1492E+00	4.1304E-01	1.8467E+00	4.5115E-01	1.5950E+00
20	2.6781E-01	3.7376E+00	3.4966E-01	2.2224E+00	3.7943E-01	1.9089E+00	4.1442E-01	1.6483E+00
21	2.4743E-01	3.8637E+00	3.2240E-01	2.2928E+00	3.4985E-01	1.9686E+00	3.8211E-01	1.6994E+00
22	2.2934E-01	3.9866E+00	2.9825E-01	2.3609E+00	3.2365E-01	2.0264E+00	3.5352E-01	1.7487E+00
23	2.1327E-01	4.1066E+00	2.7677E-01	2.4272E+00	3.0033E-01	2.0825E+00	3.2806E-01	1.7966E+00
24	1.9896E-01	4.2238E+00	2.5758E-01	2.4919E+00	2.7949E-01	2.1373E+00	3.0528E-01	1.8434E+00
25	1.8620E-01	4.3383E+00	2.4039E-01	2.5552E+00	2.6079E-01	2.1909E+00	2.8482E-01	1.8892E+00
26	1.7479E-01	4.4504E+00	2.2494E-01	2.6174E+00	2.4395E-01	2.2436E+00	2.6637E-01	1.9341E+00
27	1.6455E-01	4.5600E+00	2.1100E-01	2.6785E+00	2.2873E-01	2.2954E+00	2.4968E-01	1.9784E+00
28	1.5532E-01	4.6672E+00	1.9840E-01	2.7385E+00	2.1495E-01	2.3464E+00	2.3453E-01	2.0220E+00
29	1.4697E-01	4.7723E+00	1.8697E-01	2.7975E+00	2.0242E-01	2.3966E+00	2.2074E-01	2.0650E+00
30	1.3939E-01	4.8752E+00	1.7657E-01	2.8556E+00	1.9100E-01	2.4460E+00	2.0814E-01	2.1074E+00
31	1.3248E-01	4.9761E+00	1.6707E-01	2.9127E+00	1.8056E-01	2.4947E+00	1.9662E-01	2.1491E+00
32	1.2614E-01	5.0752E+00	1.5838E-01	2.9688E+00	1.7099E-01	2.5425E+00	1.8606E-01	2.1902E+00
33	1.2032E-01	5.1724E+00	1.5039E-01	3.0240E+00	1.6219E-01	2.5896E+00	1.7633E-01	2.2306E+00
34	1.1494E-01	5.2680E+00	1.4303E-01	3.0781E+00	1.5409E-01	2.6358E+00	1.6737E-01	2.2703E+00
35	1.0996E-01	5.3621E+00	1.3623E-01	3.1313E+00	1.4660E-01	2.6812E+00	1.5910E-01	2.3094E+00
36	1.0532E-01	5.4547E+00	1.2994E-01	3.1834E+00	1.3967E-01	2.7258E+00	1.5143E-01	2.3477E+00
37	1.0101E-01	5.5460E+00	1.2409E-01	3.2346E+00	1.3323E-01	2.7695E+00	1.4432E-01	2.3853E+00
38	9.6976E-02	5.6361E+00	1.1864E-01	3.2848E+00	1.2725E-01	2.8124E+00	1.3771E-01	2.4221E+00
39	9.3200E-02	5.7250E+00	1.1356E-01	3.3341E+00	1.2167E-01	2.8544E+00	1.3156E-01	2.4583E+00
40	8.9656E-02	5.8128E+00	1.0881E-01	3.3824E+00	1.1646E-01	2.8956E+00	1.2581E-01	2.4936E+00
41	8.6326E-02	5.8996E+00	1.0436E-01	3.4299E+00	1.1158E-01	2.9360E+00	1.2044E-01	2.5283E+00
42	8.3191E-02	5.9855E+00	1.0018E-01	3.4764E+00	1.0701E-01	2.9756E+00	1.1541E-01	2.5622E+00
43	8.0236E-02	6.0704E+00	9.6251E-02	3.5220E+00	1.0272E-01	3.0143E+00	1.1069E-01	2.5955E+00
44	7.7448E-02	6.1546E+00	9.2551E-02	3.5669E+00	9.8678E-02	3.0524E+00	1.0627E-01	2.6280E+00
45	7.4816E-02	6.2378E+00	8.9061E-02	3.6109E+00	9.4877E-02	3.0897E+00	1.0210E-01	2.6599E+00
46	7.2327E-02	6.3204E+00	8.5767E-02	3.6541E+00	9.1293E-02	3.1262E+00	9.8178E-02	2.6912E+00
47	6.9974E-02	6.4021E+00	8.2652E-02	3.6966E+00	8.7909E-02	3.1621E+00	9.4480E-02	2.7218E+00
48	6.7747E-02	6.4831E+00	7.9704E-02	3.7383E+00	8.4711E-02	3.1973E+00	9.0988E-02	2.7518E+00
49	6.5638E-02	6.5635E+00	7.6912E-02	3.7793E+00	8.1686E-02	3.2319E+00	8.7688E-02	2.7813E+00
50	6.3641E-02	6.6431E+00	7.4265E-02	3.8197E+00	7.8820E-02	3.2659E+00	8.4566E-02	2.8101E+00
51	6.1749E-02	6.7221E+00	7.1753E-02	3.8594E+00	7.6104E-02	3.2992E+00	8.1610E-02	2.8385E+00
52	5.9955E-02	6.8004E+00	6.9367E-02	3.8984E+00	7.3527E-02	3.3320E+00	7.8807E-02	2.8663E+00
53	5.8255E-02	6.8781E+00	6.7099E-02	3.9369E+00	7.1079E-02	3.3642E+00	7.6148E-02	2.8937E+00
54	5.6643E-02	6.9551E+00	6.4942E-02	3.9747E+00	6.8753E-02	3.3959E+00	7.3622E-02	2.9205E+00
55	5.5114E-02	7.0315E+00	6.2889E-02	4.0120E+00	6.6541E-02	3.4271E+00	7.1222E-02	2.9469E+00
56	5.3663E-02	7.1073E+00	6.0934E-02	4.0488E+00	6.4435E-02	3.4578E+00	6.8939E-02	2.9729E+00
57	5.2288E-02	7.1825E+00	5.9070E-02	4.0850E+00	6.2429E-02	3.4881E+00	6.6766E-02	2.9985E+00
58	5.0984E-02	7.2571E+00	5.7293E-02	4.1207E+00	6.0517E-02	3.5179E+00	6.4695E-02	3.0236E+00
59	4.9746E-02	7.3311E+00	5.5597E-02	4.1559E+00	5.8694E-02	3.5472E+00	6.2721E-02	3.0484E+00
60	4.8573E-02	7.4045E+00	5.3977E-02	4.1907E+00	5.6954E-02	3.5761E+00	6.0838E-02	3.0728E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Cs; $Z = 55$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.4193E+01	2.7595E-01	1.6416E+01	1.8841E-01	1.7294E+01	1.6648E-01	1.8423E+01	1.4715E-01
1	9.7690E+00	3.8976E-01	1.1616E+01	2.6003E-01	1.2299E+01	2.2878E-01	1.3156E+01	2.0146E-01
2	6.0528E+00	5.8607E-01	7.4903E+00	3.7997E-01	7.9876E+00	3.3251E-01	8.5940E+00	2.9152E-01
3	4.1291E+00	7.8092E-01	5.2915E+00	4.9684E-01	5.6776E+00	4.3325E-01	6.1375E+00	3.7880E-01
4	2.9194E+00	9.9977E-01	3.8546E+00	6.2538E-01	4.1582E+00	5.4362E-01	4.5138E+00	4.7413E-01
5	2.1575E+00	1.2297E+00	2.9089E+00	7.5881E-01	3.1512E+00	6.5788E-01	3.4320E+00	5.7261E-01
6	1.6666E+00	1.4523E+00	2.2786E+00	8.8763E-01	2.4762E+00	7.6806E-01	2.7036E+00	6.6747E-01
7	1.3311E+00	1.6619E+00	1.8397E+00	1.0088E+00	2.0043E+00	8.7162E-01	2.1929E+00	7.5659E-01
8	1.0890E+00	1.8620E+00	1.5182E+00	1.1241E+00	1.6576E+00	9.7013E-01	1.8168E+00	8.4129E-01
9	9.0852E-01	2.0574E+00	1.2734E+00	1.2365E+00	1.3926E+00	1.0661E+00	1.5284E+00	9.2375E-01
10	7.7178E-01	2.2501E+00	1.0823E+00	1.3479E+00	1.1847E+00	1.1611E+00	1.3012E+00	1.0054E+00
11	6.6628E-01	2.4389E+00	9.3080E-01	1.4579E+00	1.0190E+00	1.2551E+00	1.1196E+00	1.0862E+00
12	5.8456E-01	2.6229E+00	8.0986E-01	1.5663E+00	8.8602E-01	1.3478E+00	9.7320E-01	1.1660E+00
13	5.1937E-01	2.7998E+00	7.1203E-01	1.6717E+00	7.7810E-01	1.4381E+00	8.5407E-01	1.2437E+00
14	4.6594E-01	2.9686E+00	6.3182E-01	1.7730E+00	6.8947E-01	1.5250E+00	7.5609E-01	1.3186E+00
15	4.2116E-01	3.1293E+00	5.6527E-01	1.8696E+00	6.1594E-01	1.6080E+00	6.7480E-01	1.3901E+00
16	3.8282E-01	3.2826E+00	5.0933E-01	1.9613E+00	5.5425E-01	1.6867E+00	6.0665E-01	1.4580E+00
17	3.4946E-01	3.4290E+00	4.6170E-01	2.0482E+00	5.0188E-01	1.7612E+00	5.4892E-01	1.5222E+00
18	3.2013E-01	3.5698E+00	4.2069E-01	2.1305E+00	4.5694E-01	1.8316E+00	4.9949E-01	1.5828E+00
19	2.9417E-01	3.7055E+00	3.8504E-01	2.2088E+00	4.1800E-01	1.8985E+00	4.5676E-01	1.6403E+00
20	2.7112E-01	3.8370E+00	3.5379E-01	2.2836E+00	3.8397E-01	1.9622E+00	4.1950E-01	1.6949E+00
21	2.5062E-01	3.9649E+00	3.2624E-01	2.3554E+00	3.5402E-01	2.0233E+00	3.8676E-01	1.7472E+00
22	2.3237E-01	4.0894E+00	3.0181E-01	2.4248E+00	3.2750E-01	2.0821E+00	3.5779E-01	1.7975E+00
23	2.1611E-01	4.2109E+00	2.8006E-01	2.4921E+00	3.0390E-01	2.1392E+00	3.3202E-01	1.8463E+00
24	2.0160E-01	4.3297E+00	2.6063E-01	2.5577E+00	2.8280E-01	2.1947E+00	3.0897E-01	1.8936E+00
25	1.8863E-01	4.4457E+00	2.4321E-01	2.6217E+00	2.6387E-01	2.2489E+00	2.8826E-01	1.9399E+00
26	1.7702E-01	4.5592E+00	2.2754E-01	2.6845E+00	2.4682E-01	2.3021E+00	2.6960E-01	1.9853E+00
27	1.6658E-01	4.6702E+00	2.1342E-01	2.7461E+00	2.3141E-01	2.3543E+00	2.5271E-01	2.0299E+00
28	1.5718E-01	4.7788E+00	2.0064E-01	2.8066E+00	2.1746E-01	2.4057E+00	2.3739E-01	2.0738E+00
29	1.4868E-01	4.8852E+00	1.8905E-01	2.8662E+00	2.0477E-01	2.4562E+00	2.2344E-01	2.1171E+00
30	1.4095E-01	4.9894E+00	1.7851E-01	2.9247E+00	1.9321E-01	2.5060E+00	2.1071E-01	2.1598E+00
31	1.3391E-01	5.0915E+00	1.6889E-01	2.9823E+00	1.8265E-01	2.5550E+00	1.9906E-01	2.2018E+00
32	1.2746E-01	5.1917E+00	1.6008E-01	3.0389E+00	1.7297E-01	2.6033E+00	1.8837E-01	2.2432E+00
33	1.2154E-01	5.2901E+00	1.5200E-01	3.0945E+00	1.6407E-01	2.6507E+00	1.7855E-01	2.2839E+00
34	1.1608E-01	5.3868E+00	1.4456E-01	3.1492E+00	1.5588E-01	2.6974E+00	1.6949E-01	2.3240E+00
35	1.1102E-01	5.4818E+00	1.3769E-01	3.2029E+00	1.4832E-01	2.7433E+00	1.6112E-01	2.3635E+00
36	1.0633E-01	5.5754E+00	1.3133E-01	3.2556E+00	1.4131E-01	2.7883E+00	1.5338E-01	2.4022E+00
37	1.0196E-01	5.6677E+00	1.2542E-01	3.3074E+00	1.3481E-01	2.8326E+00	1.4619E-01	2.4402E+00
38	9.7878E-02	5.7587E+00	1.1993E-01	3.3582E+00	1.2877E-01	2.8760E+00	1.3951E-01	2.4776E+00
39	9.4060E-02	5.8485E+00	1.1481E-01	3.4081E+00	1.2313E-01	2.9186E+00	1.3329E-01	2.5142E+00
40	9.0479E-02	5.9372E+00	1.1001E-01	3.4571E+00	1.1787E-01	2.9604E+00	1.2748E-01	2.5501E+00
41	8.7115E-02	6.0249E+00	1.0553E-01	3.5052E+00	1.1295E-01	3.0014E+00	1.2205E-01	2.5853E+00
42	8.3949E-02	6.1116E+00	1.0132E-01	3.5524E+00	1.0834E-01	3.0415E+00	1.1697E-01	2.6198E+00
43	8.0967E-02	6.1974E+00	9.7357E-02	3.5987E+00	1.0401E-01	3.0810E+00	1.1220E-01	2.6536E+00
44	7.8154E-02	6.2824E+00	9.3629E-02	3.6442E+00	9.9933E-02	3.1196E+00	1.0773E-01	2.6868E+00
45	7.5498E-02	6.3666E+00	9.0113E-02	3.6890E+00	9.6096E-02	3.1576E+00	1.0352E-01	2.7192E+00
46	7.2988E-02	6.4500E+00	8.6793E-02	3.7329E+00	9.2479E-02	3.1948E+00	9.9550E-02	2.7511E+00
47	7.0614E-02	6.5327E+00	8.3654E-02	3.7761E+00	8.9063E-02	3.2313E+00	9.5809E-02	2.7823E+00
48	6.8367E-02	6.6147E+00	8.0684E-02	3.8185E+00	8.5835E-02	3.2672E+00	9.2278E-02	2.8129E+00
49	6.6239E-02	6.6960E+00	7.7869E-02	3.8602E+00	8.2780E-02	3.3024E+00	8.8941E-02	2.8429E+00
50	6.4224E-02	6.7766E+00	7.5200E-02	3.9013E+00	7.9886E-02	3.3370E+00	8.5782E-02	2.8724E+00
51	6.2315E-02	6.8566E+00	7.2666E-02	3.9416E+00	7.7141E-02	3.3710E+00	8.2790E-02	2.9013E+00
52	6.0505E-02	6.9360E+00	7.0258E-02	3.9814E+00	7.4537E-02	3.4044E+00	7.9953E-02	2.9297E+00
53	5.8789E-02	7.0148E+00	6.7970E-02	4.0205E+00	7.2063E-02	3.4372E+00	7.7261E-02	2.9576E+00
54	5.7162E-02	7.0929E+00	6.5792E-02	4.0591E+00	6.9711E-02	3.4695E+00	7.4704E-02	2.9850E+00
55	5.5618E-02	7.1705E+00	6.3719E-02	4.0971E+00	6.7474E-02	3.5013E+00	7.2274E-02	3.0119E+00
56	5.4155E-02	7.2475E+00	6.1744E-02	4.1345E+00	6.5344E-02	3.5326E+00	6.9962E-02	3.0384E+00
57	5.2767E-02	7.3239E+00	5.9861E-02	4.1714E+00	6.3314E-02	3.5634E+00	6.7759E-02	3.0645E+00
58	5.1450E-02	7.3997E+00	5.8064E-02	4.2077E+00	6.1380E-02	3.5938E+00	6.5662E-02	3.0902E+00
59	5.0202E-02	7.4749E+00	5.6350E-02	4.2436E+00	5.9534E-02	3.6237E+00	6.3661E-02	3.1154E+00
60	4.9019E-02	7.5496E+00	5.4712E-02	4.2790E+00	5.7771E-02	3.6532E+00	6.1751E-02	3.1403E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Ba; $Z = 56$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.5858E+01	2.7398E-01	1.8280E+01	1.8580E-01	1.9247E+01	1.6404E-01	2.0496E+01	1.4490E-01
1	1.1064E+01	3.7833E-01	1.3088E+01	2.5185E-01	1.3845E+01	2.2156E-01	1.4802E+01	1.9511E-01
2	6.3513E+00	6.0578E-01	7.8595E+00	3.9070E-01	8.3821E+00	3.4167E-01	9.0196E+00	2.9944E-01
3	4.1858E+00	8.2674E-01	5.3728E+00	5.2269E-01	5.7677E+00	4.5539E-01	6.2377E+00	3.9794E-01
4	2.9561E+00	1.0484E+00	3.9108E+00	6.5308E-01	4.2213E+00	5.6739E-01	4.5847E+00	4.9472E-01
5	2.1843E+00	1.2793E+00	2.9529E+00	7.8723E-01	3.2012E+00	6.8232E-01	3.4886E+00	5.9382E-01
6	1.6841E+00	1.5068E+00	2.3084E+00	9.1908E-01	2.5104E+00	7.9513E-01	2.7428E+00	6.9097E-01
7	1.3437E+00	1.7226E+00	1.8597E+00	1.0441E+00	2.0274E+00	9.0205E-01	2.2195E+00	7.8301E-01
8	1.0994E+00	1.9272E+00	1.5331E+00	1.1624E+00	1.6748E+00	1.0032E+00	1.8366E+00	8.7000E-01
9	9.1745E-01	2.1246E+00	1.2860E+00	1.2764E+00	1.4071E+00	1.1005E+00	1.5451E+00	9.5366E-01
10	7.7912E-01	2.3179E+00	1.0937E+00	1.3881E+00	1.1978E+00	1.1959E+00	1.3165E+00	1.0357E+00
11	6.7215E-01	2.5071E+00	9.4098E-01	1.4982E+00	1.0309E+00	1.2899E+00	1.1335E+00	1.1165E+00
12	5.8911E-01	2.6915E+00	8.1899E-01	1.6066E+00	8.9688E-01	1.3827E+00	9.8601E-01	1.1963E+00
13	5.2303E-01	2.8695E+00	7.2013E-01	1.7124E+00	7.8783E-01	1.4733E+00	8.6562E-01	1.2744E+00
14	4.6913E-01	3.0401E+00	6.3898E-01	1.8148E+00	6.9808E-01	1.5612E+00	7.6634E-01	1.3501E+00
15	4.2417E-01	3.2030E+00	5.7163E-01	1.9130E+00	6.2356E-01	1.6456E+00	6.8383E-01	1.4229E+00
16	3.8583E-01	3.3585E+00	5.1505E-01	2.0066E+00	5.6101E-01	1.7260E+00	6.1462E-01	1.4923E+00
17	3.5254E-01	3.5072E+00	4.6691E-01	2.0955E+00	5.0793E-01	1.8023E+00	5.5597E-01	1.5582E+00
18	3.2329E-01	3.6501E+00	4.2548E-01	2.1798E+00	4.6240E-01	1.8746E+00	5.0578E-01	1.6205E+00
19	2.9737E-01	3.7878E+00	3.8947E-01	2.2600E+00	4.2297E-01	1.9432E+00	4.6242E-01	1.6795E+00
20	2.7430E-01	3.9212E+00	3.5792E-01	2.3365E+00	3.8853E-01	2.0086E+00	4.2463E-01	1.7357E+00
21	2.5373E-01	4.0508E+00	3.3008E-01	2.4099E+00	3.5822E-01	2.0710E+00	3.9144E-01	1.7892E+00
22	2.3536E-01	4.1770E+00	3.0538E-01	2.4806E+00	3.3138E-01	2.1311E+00	3.6209E-01	1.8407E+00
23	2.1894E-01	4.3001E+00	2.8339E-01	2.5490E+00	3.0749E-01	2.1892E+00	3.3599E-01	1.8903E+00
24	2.0426E-01	4.4203E+00	2.6372E-01	2.6156E+00	2.8614E-01	2.2455E+00	3.1266E-01	1.9384E+00
25	1.9110E-01	4.5379E+00	2.4607E-01	2.6804E+00	2.6697E-01	2.3005E+00	2.9171E-01	1.9853E+00
26	1.7930E-01	4.6528E+00	2.3020E-01	2.7439E+00	2.4971E-01	2.3542E+00	2.7282E-01	2.0312E+00
27	1.6869E-01	4.7653E+00	2.1587E-01	2.8061E+00	2.3411E-01	2.4069E+00	2.5574E-01	2.0762E+00
28	1.5912E-01	4.8753E+00	2.0292E-01	2.8672E+00	2.1997E-01	2.4587E+00	2.4024E-01	2.1205E+00
29	1.5045E-01	4.9830E+00	1.9117E-01	2.9272E+00	2.0713E-01	2.5097E+00	2.2613E-01	2.1640E+00
30	1.4258E-01	5.0885E+00	1.8048E-01	2.9862E+00	1.9543E-01	2.5598E+00	2.1325E-01	2.2069E+00
31	1.3541E-01	5.1919E+00	1.7072E-01	3.0443E+00	1.8474E-01	2.6092E+00	2.0147E-01	2.2492E+00
32	1.2885E-01	5.2933E+00	1.6180E-01	3.1014E+00	1.7494E-01	2.6578E+00	1.9067E-01	2.2909E+00
33	1.2283E-01	5.3928E+00	1.5362E-01	3.1575E+00	1.6594E-01	2.7056E+00	1.8073E-01	2.3320E+00
34	1.1727E-01	5.4906E+00	1.4609E-01	3.2127E+00	1.5766E-01	2.7527E+00	1.7157E-01	2.3724E+00
35	1.1214E-01	5.5868E+00	1.3914E-01	3.2669E+00	1.5001E-01	2.7990E+00	1.6312E-01	2.4122E+00
36	1.0738E-01	5.6814E+00	1.3271E-01	3.3202E+00	1.4293E-01	2.8445E+00	1.5529E-01	2.4513E+00
37	1.0294E-01	5.7746E+00	1.2674E-01	3.3725E+00	1.3636E-01	2.8893E+00	1.4802E-01	2.4898E+00
38	9.8810E-02	5.8665E+00	1.2120E-01	3.4239E+00	1.3026E-01	2.9332E+00	1.4127E-01	2.5276E+00
39	9.4944E-02	5.9572E+00	1.1602E-01	3.4744E+00	1.2457E-01	2.9763E+00	1.3498E-01	2.5647E+00
40	9.1321E-02	6.0468E+00	1.1119E-01	3.5240E+00	1.1926E-01	3.0187E+00	1.2912E-01	2.6011E+00
41	8.7919E-02	6.1354E+00	1.0667E-01	3.5728E+00	1.1429E-01	3.0602E+00	1.2363E-01	2.6368E+00
42	8.4720E-02	6.2230E+00	1.0243E-01	3.6206E+00	1.0964E-01	3.1010E+00	1.1850E-01	2.6718E+00
43	8.1706E-02	6.3096E+00	9.8435E-02	3.6676E+00	1.0527E-01	3.1410E+00	1.1368E-01	2.7062E+00
44	7.8865E-02	6.3955E+00	9.4678E-02	3.7138E+00	1.0116E-01	3.1803E+00	1.0916E-01	2.7399E+00
45	7.6182E-02	6.4805E+00	9.1136E-02	3.7592E+00	9.7286E-02	3.2188E+00	1.0490E-01	2.7729E+00
46	7.3648E-02	6.5648E+00	8.7792E-02	3.8038E+00	9.3637E-02	3.2567E+00	1.0089E-01	2.8053E+00
47	7.1251E-02	6.6484E+00	8.4630E-02	3.8476E+00	9.0190E-02	3.2938E+00	9.7114E-02	2.8371E+00
48	6.8982E-02	6.7312E+00	8.1637E-02	3.8907E+00	8.6932E-02	3.3303E+00	9.3544E-02	2.8683E+00
49	6.6834E-02	6.8135E+00	7.8801E-02	3.9331E+00	8.3849E-02	3.3661E+00	9.0170E-02	2.8989E+00
50	6.4800E-02	6.8951E+00	7.6110E-02	3.9748E+00	8.0927E-02	3.4014E+00	8.6976E-02	2.9289E+00
51	6.2872E-02	6.9760E+00	7.3556E-02	4.0159E+00	7.8156E-02	3.4360E+00	8.3950E-02	2.9584E+00
52	6.1044E-02	7.0564E+00	7.1128E-02	4.0563E+00	7.5526E-02	3.4700E+00	8.1081E-02	2.9873E+00
53	5.9311E-02	7.1362E+00	6.8820E-02	4.0961E+00	7.3027E-02	3.5034E+00	7.8357E-02	3.0157E+00
54	5.7668E-02	7.2154E+00	6.6623E-02	4.1354E+00	7.0651E-02	3.5363E+00	7.5770E-02	3.0437E+00
55	5.6109E-02	7.2941E+00	6.4531E-02	4.1740E+00	6.8390E-02	3.5687E+00	7.3310E-02	3.0712E+00
56	5.4631E-02	7.3722E+00	6.2537E-02	4.2121E+00	6.6237E-02	3.6006E+00	7.0969E-02	3.0982E+00
57	5.3230E-02	7.4498E+00	6.0635E-02	4.2496E+00	6.4185E-02	3.6320E+00	6.8740E-02	3.1248E+00
58	5.1901E-02	7.5268E+00	5.8821E-02	4.2866E+00	6.2228E-02	3.6629E+00	6.6615E-02	3.1509E+00
59	5.0641E-02	7.6033E+00	5.7089E-02	4.3231E+00	6.0361E-02	3.6934E+00	6.4589E-02	3.1767E+00
60	4.9446E-02	7.6792E+00	5.5433E-02	4.3591E+00	5.8577E-02	3.7234E+00	6.2655E-02	3.2021E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

La; Z = 57

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	1.5321E+01	2.9216E-01	1.7751E+01	1.9782E-01	1.8708E+01	1.7466E-01	1.9937E+01	1.5431E-01
1	1.1194E+01	3.8584E-01	1.3274E+01	2.5709E-01	1.4049E+01	2.2628E-01	1.5026E+01	1.9938E-01
2	6.5722E+00	6.0440E-01	8.1428E+00	3.9079E-01	8.6868E+00	3.4202E-01	9.3500E+00	2.9995E-01
3	4.2776E+00	8.3544E-01	5.5016E+00	5.2875E-01	5.9089E+00	4.6091E-01	6.3933E+00	4.0296E-01
4	3.0013E+00	1.0653E+00	3.9788E+00	6.6396E-01	4.2974E+00	5.7709E-01	4.6699E+00	5.0339E-01
5	2.2117E+00	1.3012E+00	2.9961E+00	8.0123E-01	3.2503E+00	6.9474E-01	3.5443E+00	6.0486E-01
6	1.7023E+00	1.5342E+00	2.3368E+00	9.3642E-01	2.5431E+00	8.1045E-01	2.7803E+00	7.0456E-01
7	1.3573E+00	1.7554E+00	1.8791E+00	1.0650E+00	2.0499E+00	9.2042E-01	2.2455E+00	7.9926E-01
8	1.1107E+00	1.9639E+00	1.5478E+00	1.1861E+00	1.6918E+00	1.0240E+00	1.8563E+00	8.8841E-01
9	9.2702E-01	2.1634E+00	1.2982E+00	1.3017E+00	1.4212E+00	1.1228E+00	1.5616E+00	9.7338E-01
10	7.8706E-01	2.3572E+00	1.1045E+00	1.4139E+00	1.2105E+00	1.2187E+00	1.3313E+00	1.0559E+00
11	6.7891E-01	2.5466E+00	9.5105E-01	1.5242E+00	1.0428E+00	1.3130E+00	1.1475E+00	1.1369E+00
12	5.9430E-01	2.7314E+00	8.2784E-01	1.6328E+00	9.0753E-01	1.4059E+00	9.9868E-01	1.2168E+00
13	5.2700E-01	2.9103E+00	7.2781E-01	1.7392E+00	7.9721E-01	1.4970E+00	8.7690E-01	1.2953E+00
14	4.7236E-01	3.0823E+00	6.4573E-01	1.8425E+00	7.0641E-01	1.5857E+00	7.7640E-01	1.3718E+00
15	4.2697E-01	3.2470E+00	5.7760E-01	1.9421E+00	6.3095E-01	1.6712E+00	6.9276E-01	1.4456E+00
16	3.8842E-01	3.4045E+00	5.2039E-01	2.0374E+00	5.6758E-01	1.7532E+00	6.2253E-01	1.5164E+00
17	3.5508E-01	3.5553E+00	4.7176E-01	2.1282E+00	5.1382E-01	1.8313E+00	5.6300E-01	1.5838E+00
18	3.2581E-01	3.7002E+00	4.2995E-01	2.2146E+00	4.6774E-01	1.9055E+00	5.1207E-01	1.6478E+00
19	2.9986E-01	3.8400E+00	3.9362E-01	2.2968E+00	4.2784E-01	1.9759E+00	4.6809E-01	1.7085E+00
20	2.7673E-01	3.9753E+00	3.6178E-01	2.3752E+00	3.9300E-01	2.0429E+00	4.2978E-01	1.7662E+00
21	2.5606E-01	4.1068E+00	3.3369E-01	2.4502E+00	3.6234E-01	2.1070E+00	3.9615E-01	1.8211E+00
22	2.3756E-01	4.2349E+00	3.0876E-01	2.5225E+00	3.3520E-01	2.1684E+00	3.6643E-01	1.8737E+00
23	2.2099E-01	4.3599E+00	2.8655E-01	2.5923E+00	3.1105E-01	2.2276E+00	3.4002E-01	1.9244E+00
24	2.0615E-01	4.4820E+00	2.6668E-01	2.6600E+00	2.8947E-01	2.2851E+00	3.1641E-01	1.9735E+00
25	1.9282E-01	4.6015E+00	2.4885E-01	2.7259E+00	2.7009E-01	2.3409E+00	2.9522E-01	2.0212E+00
26	1.8086E-01	4.7184E+00	2.3279E-01	2.7903E+00	2.5262E-01	2.3954E+00	2.7612E-01	2.0677E+00
27	1.7009E-01	4.8329E+00	2.1828E-01	2.8533E+00	2.3684E-01	2.4487E+00	2.5884E-01	2.1131E+00
28	1.6037E-01	4.9449E+00	2.0516E-01	2.9151E+00	2.2254E-01	2.5010E+00	2.4316E-01	2.1578E+00
29	1.5159E-01	5.0546E+00	1.9327E-01	2.9758E+00	2.0955E-01	2.5525E+00	2.2889E-01	2.2018E+00
30	1.4362E-01	5.1621E+00	1.8246E-01	3.0355E+00	1.9772E-01	2.6031E+00	2.1588E-01	2.2451E+00
31	1.3636E-01	5.2674E+00	1.7260E-01	3.0941E+00	1.8691E-01	2.6529E+00	2.0398E-01	2.2877E+00
32	1.2973E-01	5.3707E+00	1.6357E-01	3.1518E+00	1.7701E-01	2.7020E+00	1.9306E-01	2.3297E+00
33	1.2366E-01	5.4721E+00	1.5530E-01	3.2085E+00	1.6791E-01	2.7503E+00	1.8302E-01	2.3711E+00
34	1.1808E-01	5.5717E+00	1.4769E-01	3.2643E+00	1.5954E-01	2.7978E+00	1.7376E-01	2.4119E+00
35	1.1292E-01	5.6695E+00	1.4067E-01	3.3191E+00	1.5182E-01	2.8445E+00	1.6522E-01	2.4520E+00
36	1.0815E-01	5.7657E+00	1.3419E-01	3.3730E+00	1.4468E-01	2.8905E+00	1.5732E-01	2.4915E+00
37	1.0371E-01	5.8604E+00	1.2819E-01	3.4259E+00	1.3806E-01	2.9357E+00	1.4999E-01	2.5304E+00
38	9.9585E-02	5.9538E+00	1.2261E-01	3.4780E+00	1.3191E-01	2.9802E+00	1.4317E-01	2.5686E+00
39	9.5737E-02	6.0459E+00	1.1740E-01	3.5291E+00	1.2617E-01	3.0238E+00	1.3682E-01	2.6062E+00
40	9.2139E-02	6.1368E+00	1.1254E-01	3.5794E+00	1.2082E-01	3.0667E+00	1.3090E-01	2.6430E+00
41	8.8765E-02	6.2265E+00	1.0799E-01	3.6287E+00	1.1581E-01	3.1088E+00	1.2537E-01	2.6792E+00
42	8.5593E-02	6.3019E+00	1.0373E-01	3.6772E+00	1.1112E-01	3.1502E+00	1.2018E-01	2.7148E+00
43	8.2607E-02	1.1973E-01	9.9723E-02	3.7248E+00	1.0673E-01	3.1907E+00	1.1533E-01	2.7497E+00
44	7.9795E-02	2.0651E-01	9.5953E-02	3.7716E+00	1.0259E-01	3.2306E+00	1.1077E-01	2.7839E+00
45	7.7145E-02	2.9241E-01	9.2398E-02	3.8176E+00	9.8693E-02	3.2697E+00	1.0647E-01	2.8174E+00
46	7.4643E-02	3.7747E-01	8.9039E-02	3.8629E+00	9.5016E-02	3.3081E+00	1.0243E-01	2.8503E+00
47	7.2278E-02	4.6173E-01	8.5864E-02	3.9073E+00	9.1544E-02	3.3458E+00	9.8608E-02	2.8826E+00
48	7.0037E-02	5.4525E-01	8.2860E-02	3.9511E+00	8.8264E-02	3.3829E+00	9.5005E-02	2.9143E+00
49	6.7912E-02	6.2806E-01	8.0015E-02	3.9940E+00	8.5162E-02	3.4193E+00	9.1601E-02	2.9454E+00
50	6.5899E-02	7.1017E-01	7.7315E-02	4.0363E+00	8.2221E-02	3.4550E+00	8.8379E-02	2.9760E+00
51	6.3991E-02	7.9159E-01	7.4749E-02	4.0780E+00	7.9430E-02	3.4901E+00	8.5324E-02	3.0059E+00
52	6.2180E-02	8.7234E-01	7.2310E-02	4.1189E+00	7.6778E-02	3.5247E+00	8.2424E-02	3.0354E+00
53	6.0461E-02	9.5245E-01	6.9989E-02	4.1593E+00	7.4258E-02	3.5587E+00	7.9671E-02	3.0643E+00
54	5.8828E-02	1.0319E+00	6.7780E-02	4.1991E+00	7.1861E-02	3.5921E+00	7.7055E-02	3.0927E+00
55	5.7274E-02	1.1109E+00	6.5677E-02	4.2382E+00	6.9582E-02	3.6250E+00	7.4570E-02	3.1207E+00
56	5.5797E-02	1.1892E+00	6.3671E-02	4.2768E+00	6.7412E-02	3.6573E+00	7.2207E-02	3.1481E+00
57	5.4393E-02	1.2670E+00	6.1757E-02	4.3148E+00	6.5342E-02	3.6892E+00	6.9953E-02	3.1751E+00
58	5.3059E-02	1.3441E+00	5.9929E-02	4.3522E+00	6.3365E-02	3.7205E+00	6.7803E-02	3.2017E+00
59	5.1789E-02	1.4207E+00	5.8183E-02	4.3892E+00	6.1478E-02	3.7515E+00	6.5751E-02	3.2279E+00
60	5.0582E-02	1.4968E+00	5.6514E-02	4.4257E+00	5.9676E-02	3.7819E+00	6.3794E-02	3.2537E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Ce; $Z = 58$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.4874E+01	2.9574E-01	1.7273E+01	2.0146E-01	1.8215E+01	1.7813E-01	1.9420E+01	1.5758E-01
1	1.0952E+01	3.8819E-01	1.3017E+01	2.6018E-01	1.3785E+01	2.2932E-01	1.4750E+01	2.0229E-01
2	6.4941E+00	6.0425E-01	8.0664E+00	3.9278E-01	8.6108E+00	3.4419E-01	9.2733E+00	3.0218E-01
3	4.2539E+00	8.3296E-01	5.4869E+00	5.2972E-01	5.8972E+00	4.6227E-01	6.3846E+00	4.0455E-01
4	2.9989E+00	1.0601E+00	3.9892E+00	6.6363E-01	4.3121E+00	5.7740E-01	4.6891E+00	5.0412E-01
5	2.2156E+00	1.2941E+00	3.0143E+00	7.9999E-01	3.2730E+00	6.9433E-01	3.5719E+00	6.0502E-01
6	1.7069E+00	1.5271E+00	2.3549E+00	9.3532E-01	2.5654E+00	8.1020E-01	2.8071E+00	7.0490E-01
7	1.3618E+00	1.7499E+00	1.8949E+00	1.0649E+00	2.0692E+00	9.2114E-01	2.2688E+00	8.0045E-01
8	1.1152E+00	1.9606E+00	1.5613E+00	1.1875E+00	1.7083E+00	1.0260E+00	1.8761E+00	8.9073E-01
9	9.3151E-01	2.1618E+00	1.3101E+00	1.3044E+00	1.4357E+00	1.1259E+00	1.5788E+00	9.7674E-01
10	7.9124E-01	2.3569E+00	1.1151E+00	1.4176E+00	1.2233E+00	1.2227E+00	1.3467E+00	1.0600E+00
11	6.8260E-01	2.5474E+00	9.6054E-01	1.5287E+00	1.0543E+00	1.3177E+00	1.1613E+00	1.1417E+00
12	5.9746E-01	2.7333E+00	8.3631E-01	1.6380E+00	9.1786E-01	1.4112E+00	1.0111E+00	1.2222E+00
13	5.2973E-01	2.9137E+00	7.3536E-01	1.7452E+00	8.0645E-01	1.5030E+00	8.8800E-01	1.3013E+00
14	4.7483E-01	3.0874E+00	6.5245E-01	1.8496E+00	7.1464E-01	1.5927E+00	7.8631E-01	1.3786E+00
15	4.2933E-01	3.2540E+00	5.8363E-01	1.9505E+00	6.3828E-01	1.6794E+00	7.0158E-01	1.4535E+00
16	3.980E-01	3.4136E+00	5.2584E-01	2.0473E+00	5.7415E-01	1.7628E+00	6.3038E-01	1.5255E+00
17	3.5754E-01	3.5664E+00	4.7674E-01	2.1399E+00	5.1975E-01	1.8424E+00	5.7002E-01	1.5943E+00
18	3.2837E-01	3.7133E+00	4.3454E-01	2.2280E+00	4.7312E-01	1.9183E+00	5.1837E-01	1.6599E+00
19	3.0251E-01	3.8549E+00	3.9790E-01	2.3120E+00	4.3276E-01	1.9904E+00	4.7379E-01	1.7220E+00
20	2.7943E-01	3.9920E+00	3.6579E-01	2.3921E+00	3.9753E-01	2.0590E+00	4.3497E-01	1.7811E+00
21	2.5876E-01	4.1252E+00	3.3744E-01	2.4687E+00	3.6653E-01	2.1244E+00	4.0090E-01	1.8374E+00
22	2.4022E-01	4.2549E+00	3.1228E-01	2.5424E+00	3.3909E-01	2.1872E+00	3.7080E-01	1.8913E+00
23	2.2358E-01	4.3815E+00	2.8985E-01	2.6135E+00	3.1467E-01	2.2477E+00	3.4406E-01	1.9431E+00
24	2.0863E-01	4.5051E+00	2.6977E-01	2.6823E+00	2.9283E-01	2.3061E+00	3.2016E-01	1.9930E+00
25	1.9518E-01	4.6260E+00	2.5173E-01	2.7493E+00	2.7322E-01	2.3629E+00	2.9871E-01	2.0415E+00
26	1.8308E-01	4.7444E+00	2.3548E-01	2.8146E+00	2.5555E-01	2.4181E+00	2.7938E-01	2.0887E+00
27	1.7217E-01	4.8604E+00	2.2079E-01	2.8784E+00	2.3958E-01	2.4722E+00	2.6189E-01	2.1348E+00
28	1.6232E-01	4.9739E+00	2.0750E-01	2.9409E+00	2.2510E-01	2.5251E+00	2.4602E-01	2.1800E+00
29	1.5339E-01	5.0850E+00	1.9544E-01	3.0023E+00	2.1194E-01	2.5771E+00	2.3159E-01	2.2243E+00
30	1.4529E-01	5.1939E+00	1.8447E-01	3.0626E+00	1.9996E-01	2.6282E+00	2.1842E-01	2.2680E+00
31	1.3791E-01	5.3006E+00	1.7448E-01	3.1218E+00	1.8902E-01	2.6785E+00	2.0638E-01	2.3110E+00
32	1.3117E-01	5.4052E+00	1.6533E-01	3.1800E+00	1.7899E-01	2.7279E+00	1.9533E-01	2.3534E+00
33	1.2500E-01	5.5079E+00	1.5694E-01	3.2373E+00	1.6978E-01	2.7766E+00	1.8518E-01	2.3951E+00
34	1.1932E-01	5.6088E+00	1.4923E-01	3.2936E+00	1.6131E-01	2.8246E+00	1.7581E-01	2.4362E+00
35	1.1408E-01	5.7079E+00	1.4213E-01	3.3489E+00	1.5349E-01	2.8718E+00	1.6717E-01	2.4767E+00
36	1.0923E-01	5.8053E+00	1.3557E-01	3.4034E+00	1.4627E-01	2.9182E+00	1.5918E-01	2.5166E+00
37	1.0473E-01	5.9012E+00	1.2950E-01	3.4569E+00	1.3958E-01	2.9639E+00	1.5177E-01	2.5559E+00
38	1.0054E-01	5.9956E+00	1.2385E-01	3.5095E+00	1.3336E-01	3.0088E+00	1.4489E-01	2.5945E+00
39	9.6640E-02	6.0887E+00	1.1859E-01	3.5612E+00	1.2757E-01	3.0530E+00	1.3847E-01	2.6325E+00
40	9.2993E-02	6.1807E+00	1.1368E-01	3.6121E+00	1.2216E-01	3.0963E+00	1.3249E-01	2.6698E+00
41	8.9575E-02	6.2714E+00	1.0909E-01	3.6620E+00	1.1710E-01	3.1390E+00	1.2689E-01	2.7064E+00
42	8.6364E-02	6.3688E+00	1.0479E-01	3.7111E+00	1.1237E-01	3.1809E+00	1.2166E-01	2.7425E+00
43	8.3343E-02	6.4656E+00	1.0076E-01	3.7594E+00	1.0794E-01	3.2220E+00	1.1675E-01	2.7778E+00
44	8.0499E-02	6.5629E+00	9.6957E-02	3.8068E+00	1.0376E-01	3.2624E+00	1.1215E-01	2.8126E+00
45	7.7819E-02	6.6614E+00	9.3374E-02	3.8535E+00	9.9834E-02	3.3021E+00	1.0781E-01	2.8466E+00
46	7.5291E-02	6.7613E+00	8.9991E-02	3.8993E+00	9.6126E-02	3.3411E+00	1.0372E-01	2.8801E+00
47	7.2901E-02	6.8624E+00	8.6793E-02	3.9445E+00	9.2624E-02	3.3794E+00	9.9866E-02	2.9129E+00
48	7.0638E-02	6.9680E+00	8.3767E-02	3.9889E+00	8.9316E-02	3.4171E+00	9.6227E-02	2.9451E+00
49	6.8493E-02	7.0757E+00	8.0901E-02	4.0325E+00	8.6187E-02	3.4541E+00	9.2789E-02	2.9768E+00
50	6.6460E-02	7.1866E+00	7.8181E-02	4.0754E+00	8.3221E-02	3.4904E+00	8.9534E-02	3.0079E+00
51	6.4534E-02	7.3007E+00	7.5598E-02	4.1177E+00	8.0405E-02	3.5261E+00	8.6447E-02	3.0384E+00
52	6.2706E-02	7.4183E+00	7.3141E-02	4.1594E+00	7.7730E-02	3.5613E+00	8.3517E-02	3.0684E+00
53	6.0972E-02	7.5395E+00	7.0803E-02	4.2004E+00	7.5187E-02	3.5958E+00	8.0735E-02	3.0978E+00
54	5.9324E-02	7.6641E+00	6.8577E-02	4.2408E+00	7.2769E-02	3.6299E+00	7.8091E-02	3.1267E+00
55	5.7756E-02	7.7922E+00	6.6456E-02	4.2806E+00	7.0468E-02	3.6633E+00	7.5580E-02	3.1552E+00
56	5.6267E-02	7.9234E+00	6.4435E-02	4.3198E+00	6.8277E-02	3.6962E+00	7.3189E-02	3.1832E+00
57	5.4851E-02	8.0581E+00	6.2505E-02	4.3584E+00	6.6187E-02	3.7287E+00	7.0910E-02	3.2107E+00
58	5.3505E-02	8.1962E+00	6.0661E-02	4.3966E+00	6.4190E-02	3.7606E+00	6.8736E-02	3.2378E+00
59	5.2226E-02	8.3380E+00	5.8900E-02	4.4342E+00	6.2284E-02	3.7921E+00	6.6661E-02	3.2645E+00
60	5.1009E-02	8.4847E+00	5.7216E-02	4.4713E+00	6.0464E-02	3.8231E+00	6.4681E-02	3.2908E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Pr; $Z = 59$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.4512E+01	2.8608E-01	1.6848E+01	1.9741E-01	1.7769E+01	1.7504E-01	1.8948E+01	1.5520E-01
1	1.0419E+01	3.8583E-01	1.2410E+01	2.6125E-01	1.3151E+01	2.3077E-01	1.4080E+01	2.0395E-01
2	6.1589E+00	6.0624E-01	7.6787E+00	3.9703E-01	8.2049E+00	3.4850E-01	8.8434E+00	3.0641E-01
3	4.1269E+00	8.2224E-01	5.3415E+00	5.2700E-01	5.7461E+00	4.6069E-01	6.2256E+00	4.0375E-01
4	2.9543E+00	1.0364E+00	3.9465E+00	6.5387E-01	4.2698E+00	5.6988E-01	4.6468E+00	4.9826E-01
5	2.1988E+00	1.2621E+00	3.0085E+00	7.8570E-01	3.2703E+00	6.8300E-01	3.5721E+00	5.9594E-01
6	1.6997E+00	1.4905E+00	2.3617E+00	9.1849E-01	2.5761E+00	7.9675E-01	2.8218E+00	6.9402E-01
7	1.3584E+00	1.7116E+00	1.9055E+00	1.0471E+00	2.0838E+00	9.0681E-01	2.2874E+00	7.8886E-01
8	1.1138E+00	1.9222E+00	1.5725E+00	1.1696E+00	1.7231E+00	1.0117E+00	1.8947E+00	8.7921E-01
9	9.3138E-01	2.1243E+00	1.3207E+00	1.2872E+00	1.4495E+00	1.1123E+00	1.5960E+00	9.6578E-01
10	7.9190E-01	2.3206E+00	1.1248E+00	1.4015E+00	1.2359E+00	1.2100E+00	1.3621E+00	1.0498E+00
11	6.8371E-01	2.5126E+00	9.6933E-01	1.5136E+00	1.0656E+00	1.3059E+00	1.1751E+00	1.1324E+00
12	5.9879E-01	2.7001E+00	8.4423E-01	1.6241E+00	9.2788E-01	1.4005E+00	1.0234E+00	1.2138E+00
13	5.3117E-01	2.8822E+00	7.4246E-01	1.7325E+00	8.1538E-01	1.4934E+00	8.9893E-01	1.2939E+00
14	4.7635E-01	3.0578E+00	6.5883E-01	1.8382E+00	7.2262E-01	1.5842E+00	7.9603E-01	1.3722E+00
15	4.3096E-01	3.2264E+00	5.8939E-01	1.9405E+00	6.4543E-01	1.6722E+00	7.1025E-01	1.4483E+00
16	3.9258E-01	3.3880E+00	5.3109E-01	2.0389E+00	5.8058E-01	1.7569E+00	6.3813E-01	1.5215E+00
17	3.5949E-01	3.5428E+00	4.8156E-01	2.1331E+00	5.2557E-01	1.8381E+00	5.7698E-01	1.5917E+00
18	3.3047E-01	3.6916E+00	4.3902E-01	2.2229E+00	4.7843E-01	1.9155E+00	5.2465E-01	1.6586E+00
19	3.0474E-01	3.8350E+00	4.0208E-01	2.3086E+00	4.3763E-01	1.9891E+00	4.7949E-01	1.7222E+00
20	2.8175E-01	3.9739E+00	3.6971E-01	2.3903E+00	4.0203E-01	2.0593E+00	4.4017E-01	1.7827E+00
21	2.6113E-01	4.1087E+00	3.4113E-01	2.4685E+00	3.7070E-01	2.1262E+00	4.0567E-01	1.8403E+00
22	2.4260E-01	4.2401E+00	3.1576E-01	2.5436E+00	3.4297E-01	2.1903E+00	3.7520E-01	1.8954E+00
23	2.2594E-01	4.3681E+00	2.9312E-01	2.6160E+00	3.1829E-01	2.2519E+00	3.4813E-01	1.9483E+00
24	2.1093E-01	4.4933E+00	2.7285E-01	2.6861E+00	2.9621E-01	2.3115E+00	3.2395E-01	1.9993E+00
25	1.9740E-01	4.6157E+00	2.5462E-01	2.7541E+00	2.7639E-01	2.3693E+00	3.0224E-01	2.0486E+00
26	1.8520E-01	4.7356E+00	2.3818E-01	2.8204E+00	2.5851E-01	2.4254E+00	2.8268E-01	2.0966E+00
27	1.7418E-01	4.8530E+00	2.2332E-01	2.8851E+00	2.4234E-01	2.4802E+00	2.6498E-01	2.1433E+00
28	1.6421E-01	4.9680E+00	2.0986E-01	2.9484E+00	2.2768E-01	2.5338E+00	2.4892E-01	2.1891E+00
29	1.5518E-01	5.0806E+00	1.9764E-01	3.0105E+00	2.1436E-01	2.5864E+00	2.3431E-01	2.2340E+00
30	1.4697E-01	5.1909E+00	1.8653E-01	3.0715E+00	2.0223E-01	2.6381E+00	2.2099E-01	2.2782E+00
31	1.3948E-01	5.2990E+00	1.7640E-01	3.1313E+00	1.9115E-01	2.6889E+00	2.0880E-01	2.3216E+00
32	1.3264E-01	5.4050E+00	1.6713E-01	3.1902E+00	1.8100E-01	2.7388E+00	1.9762E-01	2.3644E+00
33	1.2637E-01	5.5091E+00	1.5863E-01	3.2480E+00	1.7168E-01	2.7880E+00	1.8734E-01	2.4065E+00
34	1.2061E-01	5.6113E+00	1.5081E-01	3.3049E+00	1.6310E-01	2.8364E+00	1.7787E-01	2.4480E+00
35	1.1529E-01	5.7116E+00	1.4362E-01	3.3609E+00	1.5519E-01	2.8841E+00	1.6913E-01	2.4888E+00
36	1.1037E-01	5.8103E+00	1.3698E-01	3.4159E+00	1.4788E-01	2.9310E+00	1.6105E-01	2.5291E+00
37	1.0580E-01	5.9074E+00	1.3083E-01	3.4700E+00	1.4111E-01	2.9771E+00	1.5356E-01	2.5688E+00
38	1.0155E-01	6.0030E+00	1.2512E-01	3.5232E+00	1.3483E-01	3.0225E+00	1.4660E-01	2.6078E+00
39	9.7589E-02	6.0973E+00	1.1981E-01	3.5755E+00	1.2897E-01	3.0672E+00	1.4011E-01	2.6462E+00
40	9.3893E-02	6.1903E+00	1.1484E-01	3.6269E+00	1.2350E-01	3.1111E+00	1.3406E-01	2.6839E+00
41	9.0430E-02	6.2821E+00	1.1021E-01	3.6775E+00	1.1840E-01	3.1542E+00	1.2841E-01	2.7210E+00
42	8.7177E-02	6.3759E+00	1.0587E-01	3.7272E+00	1.1362E-01	3.1966E+00	1.2312E-01	2.7575E+00
43	8.4116E-02	6.4726E+00	1.0179E-01	3.7761E+00	1.0914E-01	3.2383E+00	1.1817E-01	2.7934E+00
44	8.1236E-02	6.5799E+00	9.7961E-02	3.8241E+00	1.0493E-01	3.2793E+00	1.1351E-01	2.8286E+00
45	7.8525E-02	6.6881E+00	9.4348E-02	3.8714E+00	1.0097E-01	3.3195E+00	1.0913E-01	2.8631E+00
46	7.5968E-02	6.7978E+00	9.0937E-02	3.9179E+00	9.7224E-02	3.3591E+00	1.0500E-01	2.8971E+00
47	7.3551E-02	6.9094E+00	8.7714E-02	3.9637E+00	9.3691E-02	3.3980E+00	1.0111E-01	2.9304E+00
48	7.1263E-02	7.0237E+00	8.4665E-02	4.0087E+00	9.0354E-02	3.4362E+00	9.7433E-02	2.9632E+00
49	6.9094E-02	7.1407E+00	8.1778E-02	4.0530E+00	8.7198E-02	3.4738E+00	9.3961E-02	2.9954E+00
50	6.7039E-02	7.2602E+00	7.9039E-02	4.0965E+00	8.4207E-02	3.5107E+00	9.0674E-02	3.0270E+00
51	6.5092E-02	7.3822E+00	7.6436E-02	4.1395E+00	8.1368E-02	3.5470E+00	8.7556E-02	3.0580E+00
52	6.3246E-02	7.5067E+00	7.3960E-02	4.1818E+00	7.8669E-02	3.5827E+00	8.4596E-02	3.0885E+00
53	6.1494E-02	7.6337E+00	7.1604E-02	4.2235E+00	7.6102E-02	3.6179E+00	8.1784E-02	3.1185E+00
54	5.9829E-02	7.7632E+00	6.9361E-02	4.2645E+00	7.3662E-02	3.6525E+00	7.9113E-02	3.1479E+00
55	5.8246E-02	7.8952E+00	6.7225E-02	4.3050E+00	7.1341E-02	3.6865E+00	7.6575E-02	3.1769E+00
56	5.6741E-02	8.0307E+00	6.5187E-02	4.3448E+00	6.9130E-02	3.7200E+00	7.4160E-02	3.2054E+00
57	5.5312E-02	8.1692E+00	6.3242E-02	4.3840E+00	6.7020E-02	3.7530E+00	7.1856E-02	3.2334E+00
58	5.3954E-02	8.3107E+00	6.1383E-02	4.4228E+00	6.5005E-02	3.7855E+00	6.9658E-02	3.2610E+00
59	5.2662E-02	8.4552E+00	5.9607E-02	4.4611E+00	6.3079E-02	3.8175E+00	6.7559E-02	3.2882E+00
60	5.1435E-02	8.6027E+00	5.7908E-02	4.4988E+00	6.1241E-02	3.8491E+00	6.5556E-02	3.3150E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Nd; $Z = 60$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.4119E+01	2.8873E-01	1.6423E+01	2.0045E-01	1.7330E+01	1.7798E-01	1.8487E+01	1.5802E-01
1	1.0206E+01	3.8730E-01	1.2180E+01	2.6378E-01	1.2914E+01	2.3333E-01	1.3832E+01	2.0647E-01
2	6.0770E+00	6.0589E-01	7.5938E+00	3.9891E-01	8.1191E+00	3.5059E-01	8.7556E+00	3.0858E-01
3	4.0922E+00	8.2028E-01	5.3104E+00	5.2825E-01	5.7165E+00	4.6231E-01	6.1973E+00	4.0556E-01
4	2.9430E+00	1.0317E+00	3.9433E+00	6.5384E-01	4.2696E+00	5.7046E-01	4.6496E+00	4.9923E-01
5	2.1968E+00	1.2549E+00	3.0173E+00	7.8447E-01	3.2827E+00	6.8261E-01	3.5884E+00	5.9612E-01
6	1.7004E+00	1.4824E+00	2.3737E+00	9.1683E-01	2.5919E+00	7.9603E-01	2.8414E+00	6.9396E-01
7	1.3600E+00	1.7040E+00	1.9174E+00	1.0458E+00	2.0991E+00	9.0649E-01	2.3062E+00	7.8917E-01
8	1.1160E+00	1.9158E+00	1.5834E+00	1.1693E+00	1.7370E+00	1.0122E+00	1.9117E+00	8.8024E-01
9	9.3389E-01	2.1191E+00	1.3307E+00	1.2878E+00	1.4620E+00	1.1136E+00	1.6113E+00	9.6756E-01
10	7.9448E-01	2.3165E+00	1.1340E+00	1.4028E+00	1.2473E+00	1.2120E+00	1.3761E+00	1.0523E+00
11	6.8613E-01	2.5094E+00	9.7772E-01	1.5156E+00	1.0760E+00	1.3085E+00	1.1878E+00	1.1354E+00
12	6.0093E-01	2.6978E+00	8.5185E-01	1.6267E+00	9.3737E-01	1.4036E+00	1.0349E+00	1.2173E+00
13	5.3305E-01	2.8810E+00	7.4934E-01	1.7358E+00	8.2397E-01	1.4972E+00	9.0940E-01	1.2979E+00
14	4.7806E-01	3.0581E+00	6.6503E-01	1.8424E+00	7.3036E-01	1.5887E+00	8.0546E-01	1.3769E+00
15	4.3262E-01	3.2284E+00	5.9499E-01	1.9458E+00	6.5239E-01	1.6777E+00	7.1872E-01	1.4538E+00
16	3.9429E-01	3.3918E+00	5.3618E-01	2.0456E+00	5.8686E-01	1.7637E+00	6.4574E-01	1.5282E+00
17	3.6131E-01	3.5485E+00	4.8624E-01	2.1413E+00	5.3126E-01	1.8462E+00	5.8382E-01	1.5996E+00
18	3.3244E-01	3.6990E+00	4.4336E-01	2.2327E+00	4.8362E-01	1.9251E+00	5.3083E-01	1.6679E+00
19	3.0684E-01	3.8442E+00	4.0614E-01	2.3200E+00	4.4241E-01	2.0003E+00	4.8510E-01	1.7329E+00
20	2.8396E-01	3.9848E+00	3.7353E-01	2.4034E+00	4.0644E-01	2.0719E+00	4.4530E-01	1.7948E+00
21	2.6342E-01	4.1212E+00	3.4475E-01	2.4831E+00	3.7480E-01	2.1403E+00	4.1038E-01	1.8537E+00
22	2.4492E-01	4.2540E+00	3.1918E-01	2.5597E+00	3.4679E-01	2.2058E+00	3.7955E-01	1.9100E+00
23	2.2824E-01	4.3836E+00	2.9636E-01	2.6334E+00	3.2186E-01	2.2687E+00	3.5216E-01	1.9641E+00
24	2.1319E-01	4.5101E+00	2.7590E-01	2.7047E+00	2.9956E-01	2.3294E+00	3.2769E-01	2.0161E+00
25	1.9959E-01	4.6340E+00	2.5749E-01	2.7739E+00	2.7952E-01	2.3882E+00	3.0573E-01	2.0664E+00
26	1.8731E-01	4.7553E+00	2.4088E-01	2.8412E+00	2.6144E-01	2.4452E+00	2.8594E-01	2.1152E+00
27	1.7619E-01	4.8741E+00	2.2584E-01	2.9068E+00	2.4508E-01	2.5008E+00	2.6803E-01	2.1627E+00
28	1.6612E-01	4.9906E+00	2.1222E-01	2.9709E+00	2.3025E-01	2.5551E+00	2.5178E-01	2.2090E+00
29	1.5697E-01	5.1046E+00	1.9985E-01	3.0338E+00	2.1677E-01	2.6084E+00	2.3700E-01	2.2545E+00
30	1.4865E-01	5.2163E+00	1.8859E-01	3.0954E+00	2.0449E-01	2.6606E+00	2.2352E-01	2.2991E+00
31	1.4106E-01	5.3258E+00	1.7832E-01	3.1559E+00	1.9327E-01	2.7119E+00	2.1119E-01	2.3430E+00
32	1.3412E-01	5.4332E+00	1.6892E-01	3.2154E+00	1.8299E-01	2.7624E+00	1.9988E-01	2.3861E+00
33	1.2776E-01	5.5387E+00	1.6031E-01	3.2738E+00	1.7355E-01	2.8120E+00	1.8948E-01	2.4286E+00
34	1.2191E-01	5.6421E+00	1.5239E-01	3.3313E+00	1.6486E-01	2.8609E+00	1.7990E-01	2.4704E+00
35	1.1651E-01	5.7438E+00	1.4510E-01	3.3878E+00	1.5686E-01	2.9090E+00	1.7106E-01	2.5117E+00
36	1.1151E-01	5.8437E+00	1.3837E-01	3.4434E+00	1.4946E-01	2.9563E+00	1.6288E-01	2.5523E+00
37	1.0687E-01	5.9420E+00	1.3215E-01	3.4980E+00	1.4262E-01	3.0029E+00	1.5531E-01	2.5924E+00
38	1.0256E-01	6.0387E+00	1.2637E-01	3.5517E+00	1.3626E-01	3.0488E+00	1.4827E-01	2.6318E+00
39	9.8547E-02	6.1341E+00	1.2099E-01	3.6046E+00	1.3034E-01	3.0939E+00	1.4172E-01	2.6705E+00
40	9.4797E-02	6.2282E+00	1.1598E-01	3.6566E+00	1.2481E-01	3.1383E+00	1.3560E-01	2.7087E+00
41	9.1286E-02	6.3780E+00	1.1129E-01	3.7078E+00	1.1966E-01	3.1819E+00	1.2989E-01	2.7462E+00
42	8.7989E-02	6.4957E+00	1.0691E-01	3.7581E+00	1.1483E-01	3.2248E+00	1.2455E-01	2.7831E+00
43	8.4888E-02	6.6204E+00	1.0280E-01	3.8075E+00	1.1031E-01	3.2670E+00	1.1954E-01	2.8194E+00
44	8.1972E-02	6.7533E+00	9.8933E-02	3.8562E+00	1.0606E-01	3.3085E+00	1.1484E-01	2.8551E+00
45	7.9227E-02	6.8970E+00	9.5290E-02	3.9041E+00	1.0206E-01	3.3493E+00	1.1042E-01	2.8902E+00
46	7.6637E-02	7.0460E+00	9.1852E-02	3.9512E+00	9.8288E-02	3.3894E+00	1.0625E-01	2.9246E+00
47	7.4192E-02	7.1999E+00	8.8603E-02	3.9976E+00	9.4726E-02	3.4289E+00	1.0232E-01	2.9584E+00
48	7.1876E-02	7.3595E+00	8.5532E-02	4.0432E+00	9.1361E-02	3.4676E+00	9.8609E-02	2.9917E+00
49	6.9682E-02	7.5243E+00	8.2624E-02	4.0881E+00	8.8179E-02	3.5057E+00	9.5104E-02	3.0243E+00
50	6.7604E-02	7.6943E+00	7.9865E-02	4.1323E+00	8.5163E-02	3.5432E+00	9.1785E-02	3.0564E+00
51	6.5635E-02	7.8693E+00	7.7243E-02	4.1758E+00	8.2299E-02	3.5801E+00	8.8637E-02	3.0880E+00
52	6.3769E-02	8.0493E+00	7.4750E-02	4.2188E+00	7.9579E-02	3.6164E+00	8.5648E-02	3.1190E+00
53	6.1997E-02	8.2343E+00	7.2378E-02	4.2611E+00	7.6991E-02	3.6521E+00	8.2809E-02	3.1495E+00
54	6.0314E-02	8.4243E+00	7.0119E-02	4.3028E+00	7.4530E-02	3.6873E+00	8.0112E-02	3.1795E+00
55	5.8714E-02	8.6193E+00	6.7967E-02	4.3438E+00	7.2190E-02	3.7219E+00	7.7548E-02	3.2090E+00
56	5.7194E-02	8.8193E+00	6.5914E-02	4.3843E+00	6.9959E-02	3.7559E+00	7.5108E-02	3.2380E+00
57	5.5751E-02	9.0243E+00	6.3954E-02	4.4242E+00	6.7830E-02	3.7895E+00	7.2781E-02	3.2665E+00
58	5.4378E-02	9.2343E+00	6.2081E-02	4.4636E+00	6.5797E-02	3.8225E+00	7.0560E-02	3.2946E+00
59	5.3074E-02	9.4493E+00	6.0291E-02	4.5024E+00	6.3854E-02	3.8551E+00	6.8439E-02	3.3222E+00
60	5.1835E-02	9.6693E+00	5.8579E-02	4.5408E+00	6.1998E-02	3.8872E+00	6.6415E-02	3.3495E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Pm; $Z = 61$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.3747E+01	2.9104E-01	1.6020E+01	2.0326E-01	1.6912E+01	1.8074E-01	1.8049E+01	1.6067E-01
1	9.9991E+00	3.8845E-01	1.1955E+01	2.6611E-01	1.2682E+01	2.3572E-01	1.3590E+01	2.0884E-01
2	5.9933E+00	6.0533E-01	7.5052E+00	4.0065E-01	8.0292E+00	3.5255E-01	8.6632E+00	3.1065E-01
3	4.0542E+00	8.1824E-01	5.2740E+00	5.2945E-01	5.6811E+00	4.6388E-01	6.1626E+00	4.0735E-01
4	2.9286E+00	1.0271E+00	3.9353E+00	6.5381E-01	4.2640E+00	5.7105E-01	4.6465E+00	5.0021E-01
5	2.1926E+00	1.2476E+00	3.0226E+00	7.8317E-01	3.2912E+00	6.8216E-01	3.6002E+00	5.9626E-01
6	1.6997E+00	1.4737E+00	2.3834E+00	9.1492E-01	2.6049E+00	7.9511E-01	2.8580E+00	6.9372E-01
7	1.3605E+00	1.6955E+00	1.9276E+00	1.0441E+00	2.1125E+00	9.0576E-01	2.3231E+00	7.8913E-01
8	1.1172E+00	1.9083E+00	1.5932E+00	1.1682E+00	1.7496E+00	1.0121E+00	1.9274E+00	8.8076E-01
9	9.3559E-01	2.1126E+00	1.3398E+00	1.2875E+00	1.4737E+00	1.1142E+00	1.6257E+00	9.6874E-01
10	7.9641E-01	2.3109E+00	1.1425E+00	1.4033E+00	1.2580E+00	1.2133E+00	1.3893E+00	1.0541E+00
11	6.8802E-01	2.5045E+00	9.8556E-01	1.5167E+00	1.0859E+00	1.3103E+00	1.1999E+00	1.1377E+00
12	6.0264E-01	2.6938E+00	8.5904E-01	1.6283E+00	9.4643E-01	1.4059E+00	1.0460E+00	1.2200E+00
13	5.3456E-01	2.8781E+00	7.5588E-01	1.7380E+00	8.3222E-01	1.5000E+00	9.1951E-01	1.3011E+00
14	4.7944E-01	3.0565E+00	6.7095E-01	1.8454E+00	7.3782E-01	1.5923E+00	8.1463E-01	1.3808E+00
15	4.3397E-01	3.2283E+00	6.0036E-01	1.9499E+00	6.5913E-01	1.6822E+00	7.2699E-01	1.4585E+00
16	3.9570E-01	3.3934E+00	5.4107E-01	2.0509E+00	5.9296E-01	1.7693E+00	6.5319E-01	1.5338E+00
17	3.6283E-01	3.5519E+00	4.9075E-01	2.1479E+00	5.3681E-01	1.8531E+00	5.9055E-01	1.6064E+00
18	3.3412E-01	3.7042E+00	4.4755E-01	2.2409E+00	4.8870E-01	1.9333E+00	5.3693E-01	1.6759E+00
19	3.0867E-01	3.8511E+00	4.1007E-01	2.3298E+00	4.4708E-01	2.0100E+00	4.9065E-01	1.7423E+00
20	2.8593E-01	3.9932E+00	3.7725E-01	2.4147E+00	4.1077E-01	2.0831E+00	4.5037E-01	1.8055E+00
21	2.6548E-01	4.1312E+00	3.4827E-01	2.4960E+00	3.7884E-01	2.1529E+00	4.1505E-01	1.8658E+00
22	2.4704E-01	4.2655E+00	3.2253E-01	2.5740E+00	3.5057E-01	2.2198E+00	3.8387E-01	1.9234E+00
23	2.3039E-01	4.3964E+00	2.9954E-01	2.6492E+00	3.2540E-01	2.2840E+00	3.5616E-01	1.9786E+00
24	2.1532E-01	4.5244E+00	2.7891E-01	2.7217E+00	3.0288E-01	2.3459E+00	3.3142E-01	2.0317E+00
25	2.0168E-01	4.6497E+00	2.6034E-01	2.7920E+00	2.8263E-01	2.4057E+00	3.0921E-01	2.0830E+00
26	1.8933E-01	4.7723E+00	2.4356E-01	2.8603E+00	2.6436E-01	2.4637E+00	2.8919E-01	2.1326E+00
27	1.7814E-01	4.8926E+00	2.2837E-01	2.9269E+00	2.4783E-01	2.5201E+00	2.7108E-01	2.1809E+00
28	1.6798E-01	5.0104E+00	2.1459E-01	2.9919E+00	2.3282E-01	2.5752E+00	2.5464E-01	2.2279E+00
29	1.5874E-01	5.1258E+00	2.0207E-01	3.0555E+00	2.1918E-01	2.6291E+00	2.3969E-01	2.2739E+00
30	1.5033E-01	5.2389E+00	1.9067E-01	3.1179E+00	2.0675E-01	2.6819E+00	2.2605E-01	2.3191E+00
31	1.4264E-01	5.3498E+00	1.8026E-01	3.1790E+00	1.9539E-01	2.7338E+00	2.1358E-01	2.3634E+00
32	1.3561E-01	5.4586E+00	1.7074E-01	3.2392E+00	1.8499E-01	2.7848E+00	2.0213E-01	2.4070E+00
33	1.2916E-01	5.5654E+00	1.6200E-01	3.2982E+00	1.7543E-01	2.8349E+00	1.9161E-01	2.4499E+00
34	1.2323E-01	5.6702E+00	1.5398E-01	3.3563E+00	1.6663E-01	2.8842E+00	1.8192E-01	2.4921E+00
35	1.1775E-01	5.7731E+00	1.4659E-01	3.4134E+00	1.5853E-01	2.9328E+00	1.7297E-01	2.5337E+00
36	1.1268E-01	5.8743E+00	1.3977E-01	3.4695E+00	1.5105E-01	2.9806E+00	1.6471E-01	2.5747E+00
37	1.0798E-01	5.9738E+00	1.3347E-01	3.5247E+00	1.4412E-01	3.0276E+00	1.5705E-01	2.6151E+00
38	1.0360E-01	6.0718E+00	1.2762E-01	3.5790E+00	1.3769E-01	3.0740E+00	1.4993E-01	2.6548E+00
39	9.9530E-02	6.1683E+00	1.2218E-01	3.6324E+00	1.3170E-01	3.1195E+00	1.4330E-01	2.6940E+00
40	9.5728E-02	6.2635E+00	1.1711E-01	3.6850E+00	1.2612E-01	3.1644E+00	1.3712E-01	2.7325E+00
41	9.2167E-02	7.4180E-02	1.1237E-01	3.7367E+00	1.2091E-01	3.2085E+00	1.3135E-01	2.7705E+00
42	8.8824E-02	1.6693E-01	1.0795E-01	3.7876E+00	1.1603E-01	3.2519E+00	1.2595E-01	2.8078E+00
43	8.5682E-02	2.5860E-01	1.0380E-01	3.8376E+00	1.1147E-01	3.2946E+00	1.2090E-01	2.8445E+00
44	8.2727E-02	3.4927E-01	9.9893E-02	3.8869E+00	1.0718E-01	3.3366E+00	1.1615E-01	2.8807E+00
45	7.9945E-02	4.3899E-01	9.6218E-02	3.9353E+00	1.0314E-01	3.3779E+00	1.1169E-01	2.9162E+00
46	7.7323E-02	5.2783E-01	9.2752E-02	3.9830E+00	9.9334E-02	3.4186E+00	1.0748E-01	2.9511E+00
47	7.4845E-02	6.1585E-01	8.9478E-02	4.0300E+00	9.5740E-02	3.4585E+00	1.0351E-01	2.9854E+00
48	7.2500E-02	7.0313E-01	8.6383E-02	4.0762E+00	9.2347E-02	3.4978E+00	9.9763E-02	3.0191E+00
49	7.0279E-02	7.8972E-01	8.3452E-02	4.1217E+00	8.9139E-02	3.5365E+00	9.6224E-02	3.0523E+00
50	6.8176E-02	8.7564E-01	8.0673E-02	4.1666E+00	8.6098E-02	3.5745E+00	9.2874E-02	3.0849E+00
51	6.6184E-02	9.6091E-01	7.8033E-02	4.2107E+00	8.3211E-02	3.6119E+00	8.9696E-02	3.1169E+00
52	6.4295E-02	1.0456E+00	7.5522E-02	4.2543E+00	8.0468E-02	3.6488E+00	8.6680E-02	3.1484E+00
53	6.2502E-02	1.1296E+00	7.3133E-02	4.2972E+00	7.7860E-02	3.6851E+00	8.3815E-02	3.1794E+00
54	6.0799E-02	1.2132E+00	7.0858E-02	4.3395E+00	7.5380E-02	3.7208E+00	8.1091E-02	3.2099E+00
55	5.9181E-02	1.2963E+00	6.8691E-02	4.3811E+00	7.3019E-02	3.7559E+00	7.8503E-02	3.2399E+00
56	5.7644E-02	1.3789E+00	6.6624E-02	4.4222E+00	7.0770E-02	3.7905E+00	7.6040E-02	3.2694E+00
57	5.6184E-02	1.4610E+00	6.4649E-02	4.4627E+00	6.8623E-02	3.8246E+00	7.3689E-02	3.2984E+00
58	5.4796E-02	1.5426E+00	6.2762E-02	4.5027E+00	6.6572E-02	3.8582E+00	7.1446E-02	3.3270E+00
59	5.3478E-02	1.6238E+00	6.0959E-02	4.5422E+00	6.4613E-02	3.8914E+00	6.9304E-02	3.3551E+00
60	5.2225E-02	1.7046E+00	5.9234E-02	4.5811E+00	6.2740E-02	3.9240E+00	6.7259E-02	3.3828E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Sm; $Z = 62$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.3395E+01	2.9309E-01	1.5635E+01	2.0589E-01	1.6514E+01	1.8334E-01	1.7631E+01	1.6319E-01
1	9.7992E+00	3.8936E-01	1.1735E+01	2.6827E-01	1.2455E+01	2.3797E-01	1.3352E+01	2.1109E-01
2	5.9092E+00	6.0457E-01	7.4147E+00	4.0225E-01	7.9369E+00	3.5441E-01	8.5680E+00	3.1262E-01
3	4.0140E+00	8.1613E-01	5.2337E+00	5.3059E-01	5.6414E+00	4.6541E-01	6.1230E+00	4.0909E-01
4	2.9118E+00	1.0224E+00	3.9232E+00	6.5380E-01	4.2540E+00	5.7164E-01	4.6385E+00	5.0120E-01
5	2.1866E+00	1.2402E+00	3.0246E+00	7.8186E-01	3.2961E+00	6.8171E-01	3.6082E+00	5.9639E-01
6	1.6976E+00	1.4648E+00	2.3907E+00	9.1286E-01	2.6154E+00	7.9406E-01	2.8719E+00	6.9338E-01
7	1.3600E+00	1.6864E+00	1.9363E+00	1.0420E+00	2.1243E+00	9.0473E-01	2.3381E+00	7.8883E-01
8	1.1175E+00	1.8998E+00	1.6019E+00	1.1667E+00	1.7611E+00	1.0115E+00	1.9418E+00	8.8088E-01
9	9.3658E-01	2.1051E+00	1.3481E+00	1.2866E+00	1.4844E+00	1.1142E+00	1.6392E+00	9.6943E-01
10	7.9774E-01	2.3041E+00	1.1503E+00	1.4030E+00	1.2681E+00	1.2139E+00	1.4017E+00	1.0553E+00
11	6.8943E-01	2.4984E+00	9.9286E-01	1.5170E+00	1.0952E+00	1.3115E+00	1.2115E+00	1.1394E+00
12	6.0396E-01	2.6884E+00	8.6579E-01	1.6291E+00	9.5504E-01	1.4075E+00	1.0566E+00	1.2221E+00
13	5.3574E-01	2.8737E+00	7.6206E-01	1.7394E+00	8.4010E-01	1.5022E+00	9.2925E-01	1.3037E+00
14	4.8052E-01	3.0533E+00	6.7658E-01	1.8475E+00	7.4500E-01	1.5950E+00	8.2350E-01	1.3839E+00
15	4.3502E-01	3.2265E+00	6.0549E-01	1.9529E+00	6.6565E-01	1.6858E+00	7.3503E-01	1.4624E+00
16	3.9681E-01	3.3932E+00	5.4576E-01	2.0550E+00	5.9889E-01	1.7738E+00	6.6047E-01	1.5386E+00
17	3.6407E-01	3.5533E+00	4.9508E-01	2.1534E+00	5.4221E-01	1.8588E+00	5.9714E-01	1.6122E+00
18	3.3551E-01	3.7073E+00	4.5158E-01	2.2478E+00	4.9365E-01	1.9404E+00	5.4292E-01	1.6829E+00
19	3.1024E-01	3.8558E+00	4.1387E-01	2.3382E+00	4.5165E-01	2.0184E+00	4.9612E-01	1.7506E+00
20	2.8764E-01	3.9995E+00	3.8085E-01	2.4246E+00	4.1502E-01	2.0930E+00	4.5539E-01	1.8151E+00
21	2.6732E-01	4.1389E+00	3.5169E-01	2.5074E+00	3.8281E-01	2.1642E+00	4.1968E-01	1.8767E+00
22	2.4897E-01	4.2746E+00	3.2579E-01	2.5868E+00	3.5429E-01	2.2324E+00	3.8815E-01	1.9356E+00
23	2.3236E-01	4.4070E+00	3.0265E-01	2.6633E+00	3.2890E-01	2.2979E+00	3.6014E-01	1.9920E+00
24	2.1731E-01	4.5363E+00	2.8188E-01	2.7371E+00	3.0617E-01	2.3610E+00	3.3513E-01	2.0462E+00
25	2.0365E-01	4.6629E+00	2.6316E-01	2.8086E+00	2.8573E-01	2.4219E+00	3.1268E-01	2.0984E+00
26	1.9126E-01	4.7870E+00	2.4623E-01	2.8779E+00	2.6727E-01	2.4808E+00	2.9244E-01	2.1490E+00
27	1.8001E-01	4.9085E+00	2.3089E-01	2.9455E+00	2.5057E-01	2.5382E+00	2.7413E-01	2.1980E+00
28	1.6978E-01	5.0277E+00	2.1696E-01	3.0114E+00	2.3540E-01	2.5940E+00	2.5750E-01	2.2457E+00
29	1.6047E-01	5.1445E+00	2.0430E-01	3.0758E+00	2.2161E-01	2.6487E+00	2.4238E-01	2.2924E+00
30	1.5197E-01	5.2590E+00	1.9276E-01	3.1390E+00	2.0903E-01	2.7022E+00	2.2858E-01	2.3381E+00
31	1.4421E-01	5.3712E+00	1.8222E-01	3.2009E+00	1.9753E-01	2.7547E+00	2.1596E-01	2.3830E+00
32	1.3709E-01	5.4814E+00	1.7257E-01	3.2616E+00	1.8699E-01	2.8062E+00	2.0438E-01	2.4270E+00
33	1.3057E-01	5.5895E+00	1.6372E-01	3.3213E+00	1.7732E-01	2.8568E+00	1.9374E-01	2.4703E+00
34	1.2456E-01	5.6957E+00	1.5558E-01	3.3800E+00	1.6841E-01	2.9066E+00	1.8393E-01	2.5129E+00
35	1.1901E-01	5.7999E+00	1.4810E-01	3.4377E+00	1.6021E-01	2.9556E+00	1.7488E-01	2.5549E+00
36	1.1387E-01	5.9023E+00	1.4119E-01	3.4944E+00	1.5263E-01	3.0039E+00	1.6652E-01	2.5962E+00
37	1.0910E-01	6.0031E+00	1.3480E-01	3.5501E+00	1.4562E-01	3.0514E+00	1.5877E-01	2.6370E+00
38	1.0467E-01	6.1023E+00	1.2888E-01	3.6050E+00	1.3911E-01	3.0982E+00	1.5157E-01	2.6772E+00
39	1.0054E-01	6.1999E+00	1.2337E-01	3.6590E+00	1.3305E-01	3.1442E+00	1.4487E-01	2.7167E+00
40	9.6681E-02	1.3042E-02	1.1824E-01	3.7122E+00	1.2741E-01	3.1895E+00	1.3863E-01	2.7556E+00
41	9.3071E-02	1.0804E-01	1.1345E-01	3.7644E+00	1.2214E-01	3.2341E+00	1.3280E-01	2.7939E+00
42	8.9682E-02	2.0184E-01	1.0898E-01	3.8159E+00	1.1722E-01	3.2780E+00	1.2734E-01	2.8317E+00
43	8.6498E-02	2.9453E-01	1.0479E-01	3.8665E+00	1.1261E-01	3.3212E+00	1.2224E-01	2.8688E+00
44	8.3503E-02	3.8619E-01	1.0085E-01	3.9163E+00	1.0828E-01	3.3637E+00	1.1744E-01	2.9054E+00
45	8.0683E-02	4.7688E-01	9.7137E-02	3.9653E+00	1.0420E-01	3.4055E+00	1.1293E-01	2.9413E+00
46	7.8025E-02	5.6666E-01	9.3640E-02	4.0136E+00	1.0036E-01	3.4466E+00	1.0868E-01	2.9767E+00
47	7.5515E-02	6.5561E-01	9.0339E-02	4.0612E+00	9.6738E-02	3.4871E+00	1.0468E-01	3.0114E+00
48	7.3139E-02	7.4381E-01	8.7219E-02	4.1080E+00	9.3315E-02	3.5269E+00	1.0089E-01	3.0456E+00
49	7.0889E-02	8.3131E-01	8.4266E-02	4.1540E+00	9.0080E-02	3.5661E+00	9.7324E-02	3.0793E+00
50	6.8759E-02	9.1814E-01	8.1465E-02	4.1995E+00	8.7014E-02	3.6047E+00	9.3942E-02	3.1123E+00
51	6.6741E-02	1.0043E+00	7.8805E-02	4.2442E+00	8.4104E-02	3.6426E+00	9.0736E-02	3.1449E+00
52	6.4827E-02	1.0899E+00	7.6277E-02	4.2883E+00	8.1339E-02	3.6800E+00	8.7692E-02	3.1769E+00
53	6.3011E-02	1.1749E+00	7.3871E-02	4.3319E+00	7.8710E-02	3.7168E+00	8.4800E-02	3.2083E+00
54	6.1287E-02	1.2594E+00	7.1581E-02	4.3747E+00	7.6210E-02	3.7531E+00	8.2052E-02	3.2393E+00
55	5.9648E-02	1.3434E+00	6.9398E-02	4.4170E+00	7.3831E-02	3.7887E+00	7.9440E-02	3.2698E+00
56	5.8092E-02	1.4270E+00	6.7316E-02	4.4587E+00	7.1563E-02	3.8239E+00	7.6953E-02	3.2997E+00
57	5.6614E-02	1.5101E+00	6.5328E-02	4.4998E+00	6.9399E-02	3.8585E+00	7.4580E-02	3.3292E+00
58	5.5209E-02	1.5928E+00	6.3428E-02	4.5404E+00	6.7331E-02	3.8927E+00	7.2316E-02	3.3583E+00
59	5.3875E-02	1.6751E+00	6.1611E-02	4.5805E+00	6.5355E-02	3.9263E+00	7.0153E-02	3.3869E+00
60	5.2607E-02	1.7569E+00	5.9873E-02	4.6200E+00	6.3467E-02	3.9595E+00	6.8088E-02	3.4151E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Eu; $Z = 63$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.3056E+01	2.9531E-01	1.5264E+01	2.0862E-01	1.6130E+01	1.8604E-01	1.7227E+01	1.6580E-01
1	9.6092E+00	3.9035E-01	1.1526E+01	2.7045E-01	1.2239E+01	2.4023E-01	1.3126E+01	2.1335E-01
2	5.8309E+00	6.0373E-01	7.3302E+00	4.0376E-01	7.8508E+00	3.5618E-01	8.4793E+00	3.1453E-01
3	3.9757E+00	8.1406E-01	5.1952E+00	5.3170E-01	5.6035E+00	4.6691E-01	6.0853E+00	4.1082E-01
4	2.8951E+00	1.0181E+00	3.9107E+00	6.5391E-01	4.2434E+00	5.7234E-01	4.6298E+00	5.0228E-01
5	2.1802E+00	1.2334E+00	3.0255E+00	7.8079E-01	3.2998E+00	6.8145E-01	3.6147E+00	5.9669E-01
6	1.6952E+00	1.4565E+00	2.3970E+00	9.1106E-01	2.6247E+00	7.9323E-01	2.8844E+00	6.9323E-01
7	1.3591E+00	1.6778E+00	1.9441E+00	1.0402E+00	2.1350E+00	9.0389E-01	2.3519E+00	7.8871E-01
8	1.1175E+00	1.8918E+00	1.6097E+00	1.1653E+00	1.7716E+00	1.0111E+00	1.9552E+00	8.8114E-01
9	9.3720E-01	2.0978E+00	1.3557E+00	1.2859E+00	1.4945E+00	1.1144E+00	1.6518E+00	9.7023E-01
10	7.9876E-01	2.2976E+00	1.1575E+00	1.4029E+00	1.2775E+00	1.2146E+00	1.4135E+00	1.0566E+00
11	6.9058E-01	2.4925E+00	9.9970E-01	1.5174E+00	1.1040E+00	1.3127E+00	1.2224E+00	1.1411E+00
12	6.0506E-01	2.6832E+00	8.7216E-01	1.6300E+00	9.6323E-01	1.4092E+00	1.0668E+00	1.2243E+00
13	5.3672E-01	2.8693E+00	7.6794E-01	1.7408E+00	8.4765E-01	1.5043E+00	9.3862E-01	1.3063E+00
14	4.8140E-01	3.0500E+00	6.8196E-01	1.8495E+00	7.5191E-01	1.5977E+00	8.3208E-01	1.3870E+00
15	4.3588E-01	3.2246E+00	6.1040E-01	1.9557E+00	6.7195E-01	1.6892E+00	7.4285E-01	1.4661E+00
16	3.9771E-01	3.3927E+00	5.5028E-01	2.0588E+00	6.0463E-01	1.7781E+00	6.6758E-01	1.5431E+00
17	3.6509E-01	3.5544E+00	4.9924E-01	2.1584E+00	5.4746E-01	1.8642E+00	6.0360E-01	1.6177E+00
18	3.3668E-01	3.7099E+00	4.5547E-01	2.2541E+00	4.9847E-01	1.9469E+00	5.4881E-01	1.6895E+00
19	3.1157E-01	3.8600E+00	4.1753E-01	2.3459E+00	4.5612E-01	2.0263E+00	5.0150E-01	1.7583E+00
20	2.8914E-01	4.0052E+00	3.8432E-01	2.4338E+00	4.1918E-01	2.1022E+00	4.6034E-01	1.8241E+00
21	2.6895E-01	4.1461E+00	3.5502E-01	2.5181E+00	3.8670E-01	2.1748E+00	4.2424E-01	1.8870E+00
22	2.5070E-01	4.2832E+00	3.2897E-01	2.5989E+00	3.5794E-01	2.2444E+00	3.9239E-01	1.9471E+00
23	2.3417E-01	4.4169E+00	3.0569E-01	2.6767E+00	3.3234E-01	2.3112E+00	3.6409E-01	2.0047E+00
24	2.1915E-01	4.5475E+00	2.8479E-01	2.7518E+00	3.0942E-01	2.3754E+00	3.3881E-01	2.0600E+00
25	2.0550E-01	4.6754E+00	2.6593E-01	2.8244E+00	2.8879E-01	2.4374E+00	3.1613E-01	2.1133E+00
26	1.9309E-01	4.8007E+00	2.4887E-01	2.8949E+00	2.7017E-01	2.4974E+00	2.9567E-01	2.1648E+00
27	1.8181E-01	4.9236E+00	2.3339E-01	2.9634E+00	2.5329E-01	2.5556E+00	2.7716E-01	2.2146E+00
28	1.7153E-01	5.0441E+00	2.1933E-01	3.0303E+00	2.3797E-01	2.6124E+00	2.6036E-01	2.2631E+00
29	1.6215E-01	5.1622E+00	2.0653E-01	3.0956E+00	2.2402E-01	2.6677E+00	2.4507E-01	2.3105E+00
30	1.5359E-01	5.2780E+00	1.9485E-01	3.1595E+00	2.1130E-01	2.7219E+00	2.3111E-01	2.3568E+00
31	1.4575E-01	5.3916E+00	1.8419E-01	3.2221E+00	1.9967E-01	2.7750E+00	2.1834E-01	2.4021E+00
32	1.3857E-01	5.5031E+00	1.7442E-01	3.2836E+00	1.8901E-01	2.8271E+00	2.0663E-01	2.4467E+00
33	1.3197E-01	5.6126E+00	1.6545E-01	3.3439E+00	1.7921E-01	2.8783E+00	1.9586E-01	2.4904E+00
34	1.2589E-01	5.7201E+00	1.5721E-01	3.4032E+00	1.7020E-01	2.9286E+00	1.8594E-01	2.5334E+00
35	1.2027E-01	5.8256E+00	1.4962E-01	3.4615E+00	1.6189E-01	2.9781E+00	1.7679E-01	2.5758E+00
36	1.1507E-01	5.9293E+00	1.4262E-01	3.5188E+00	1.5422E-01	3.0268E+00	1.6833E-01	2.6176E+00
37	1.1024E-01	6.0313E+00	1.3615E-01	3.5752E+00	1.4712E-01	3.0748E+00	1.6049E-01	2.6587E+00
38	1.0575E-01	6.1317E+00	1.3015E-01	3.6306E+00	1.4053E-01	3.1220E+00	1.5321E-01	2.6992E+00
39	1.0156E-01	6.2306E+00	1.2457E-01	3.6851E+00	1.3441E-01	3.1685E+00	1.4643E-01	2.7391E+00
40	9.7655E-02	6.4808E-02	1.1938E-01	3.7388E+00	1.2870E-01	3.2143E+00	1.4012E-01	2.7784E+00
41	9.3996E-02	1.4091E-01	1.1454E-01	3.7917E+00	1.2338E-01	3.2593E+00	1.3422E-01	2.8172E+00
42	9.0562E-02	2.3577E-01	1.1001E-01	3.8437E+00	1.1840E-01	3.3037E+00	1.2872E-01	2.8553E+00
43	8.7334E-02	3.2950E-01	1.0577E-01	3.8948E+00	1.1374E-01	3.3473E+00	1.2356E-01	2.8928E+00
44	8.4299E-02	4.2216E-01	1.0179E-01	3.9452E+00	1.0937E-01	3.3903E+00	1.1871E-01	2.9298E+00
45	8.1441E-02	5.1383E-01	9.8049E-02	3.9948E+00	1.0525E-01	3.4326E+00	1.1416E-01	2.9661E+00
46	7.8746E-02	6.0456E-01	9.4520E-02	4.0437E+00	1.0137E-01	3.4742E+00	1.0987E-01	3.0019E+00
47	7.6201E-02	6.9445E-01	9.1189E-02	4.0918E+00	9.7719E-02	3.5152E+00	1.0582E-01	3.0371E+00
48	7.3793E-02	7.8356E-01	8.8043E-02	4.1392E+00	9.4267E-02	3.5556E+00	1.0201E-01	3.0718E+00
49	7.1513E-02	8.7197E-01	8.5066E-02	4.1858E+00	9.1003E-02	3.5952E+00	9.8404E-02	3.1059E+00
50	6.9354E-02	9.5970E-01	8.2243E-02	4.2318E+00	8.7912E-02	3.6343E+00	9.4991E-02	3.1394E+00
51	6.7308E-02	1.0468E+00	7.9563E-02	4.2771E+00	8.4978E-02	3.6728E+00	9.1756E-02	3.1724E+00
52	6.5369E-02	1.1333E+00	7.7017E-02	4.3218E+00	8.2192E-02	3.7107E+00	8.8685E-02	3.2048E+00
53	6.3528E-02	1.2192E+00	7.4594E-02	4.3659E+00	7.9542E-02	3.7480E+00	8.5767E-02	3.2368E+00
54	6.1780E-02	1.3046E+00	7.2287E-02	4.4094E+00	7.7022E-02	3.7848E+00	8.2994E-02	3.2682E+00
55	6.0120E-02	1.3896E+00	7.0089E-02	4.4522E+00	7.4624E-02	3.8210E+00	8.0358E-02	3.2992E+00
56	5.8542E-02	1.4741E+00	6.7992E-02	4.4945E+00	7.2339E-02	3.8567E+00	7.7849E-02	3.3296E+00
57	5.7044E-02	1.5582E+00	6.5990E-02	4.5362E+00	7.0157E-02	3.8918E+00	7.5455E-02	3.3596E+00
58	5.5620E-02	1.6419E+00	6.4077E-02	4.5774E+00	6.8073E-02	3.9265E+00	7.3169E-02	3.3891E+00
59	5.4268E-02	1.7251E+00	6.2247E-02	4.6180E+00	6.6081E-02	3.9607E+00	7.0987E-02	3.4182E+00
60	5.2984E-02	1.8081E+00	6.0497E-02	4.6582E+00	6.4178E-02	3.9944E+00	6.8902E-02	3.4469E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Gd; $Z = 64$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.2712E+01	3.0927E-01	1.4919E+01	2.1809E-01	1.5776E+01	1.9448E-01	1.6860E+01	1.7334E-01
1	9.6906E+00	3.9480E-01	1.1638E+01	2.7378E-01	1.2361E+01	2.4330E-01	1.3261E+01	2.1618E-01
2	5.9880E+00	5.9894E-01	7.5269E+00	4.0180E-01	8.0624E+00	3.5475E-01	8.7090E+00	3.1350E-01
3	4.0295E+00	8.1801E-01	5.2714E+00	5.3518E-01	5.6878E+00	4.7022E-01	6.1791E+00	4.1395E-01
4	2.9114E+00	1.0307E+00	3.9386E+00	6.6254E-01	4.2760E+00	5.8011E-01	4.6676E+00	5.0930E-01
5	2.1882E+00	1.2497E+00	3.0418E+00	7.9175E-01	3.3195E+00	6.9127E-01	3.6383E+00	6.0551E-01
6	1.7007E+00	1.4745E+00	2.4096E+00	9.2329E-01	2.6402E+00	8.0417E-01	2.9032E+00	7.0305E-01
7	1.3633E+00	1.6977E+00	1.9543E+00	1.0537E+00	2.1477E+00	9.1595E-01	2.3674E+00	7.9953E-01
8	1.1212E+00	1.9136E+00	1.6183E+00	1.1801E+00	1.7823E+00	1.0243E+00	1.9684E+00	8.9303E-01
9	9.4073E-01	2.1212E+00	1.3633E+00	1.3019E+00	1.5039E+00	1.1287E+00	1.6633E+00	9.8305E-01
10	8.0207E-01	2.3219E+00	1.1646E+00	1.4197E+00	1.2862E+00	1.2296E+00	1.4241E+00	1.0701E+00
11	6.9349E-01	2.5173E+00	1.0064E+00	1.5346E+00	1.1122E+00	1.3281E+00	1.2324E+00	1.1549E+00
12	6.0745E-01	2.7083E+00	8.7838E-01	1.6473E+00	9.7095E-01	1.4247E+00	1.0762E+00	1.2383E+00
13	5.3859E-01	2.8948E+00	7.7369E-01	1.7582E+00	8.5486E-01	1.5199E+00	9.4746E-01	1.3204E+00
14	4.8285E-01	3.0761E+00	6.8723E-01	1.8672E+00	7.5857E-01	1.6136E+00	8.4029E-01	1.4013E+00
15	4.3705E-01	3.2517E+00	6.1520E-01	1.9739E+00	6.7806E-01	1.7054E+00	7.5041E-01	1.4807E+00
16	3.9876E-01	3.4211E+00	5.5466E-01	2.0777E+00	6.1021E-01	1.7950E+00	6.7449E-01	1.5583E+00
17	3.6612E-01	3.5842E+00	5.0327E-01	2.1782E+00	5.5256E-01	1.8819E+00	6.0991E-01	1.6336E+00
18	3.3779E-01	3.7413E+00	4.5922E-01	2.2751E+00	5.0316E-01	1.9657E+00	5.5457E-01	1.7064E+00
19	3.1281E-01	3.8928E+00	4.2105E-01	2.3682E+00	4.6045E-01	2.0463E+00	5.0677E-01	1.7763E+00
20	2.9053E-01	4.0394E+00	3.8767E-01	2.4575E+00	4.2322E-01	2.1235E+00	4.6519E-01	1.8433E+00
21	2.7048E-01	4.1816E+00	3.5823E-01	2.5432E+00	3.9049E-01	2.1975E+00	4.2873E-01	1.9074E+00
22	2.5235E-01	4.3200E+00	3.3206E-01	2.6254E+00	3.6152E-01	2.2684E+00	3.9655E-01	1.9688E+00
23	2.3589E-01	4.4549E+00	3.0866E-01	2.7046E+00	3.3572E-01	2.3364E+00	3.6797E-01	2.0276E+00
24	2.2092E-01	4.5868E+00	2.8764E-01	2.7809E+00	3.1261E-01	2.4019E+00	3.4245E-01	2.0841E+00
25	2.0729E-01	4.7159E+00	2.6866E-01	2.8547E+00	2.9182E-01	2.4650E+00	3.1953E-01	2.1384E+00
26	1.9488E-01	4.8425E+00	2.5148E-01	2.9263E+00	2.7303E-01	2.5261E+00	2.9887E-01	2.1908E+00
27	1.8356E-01	4.9665E+00	2.3588E-01	2.9959E+00	2.5600E-01	2.5853E+00	2.8017E-01	2.2416E+00
28	1.7324E-01	5.0883E+00	2.2169E-01	3.0636E+00	2.4053E-01	2.6428E+00	2.6319E-01	2.2909E+00
29	1.6381E-01	5.2076E+00	2.0876E-01	3.1298E+00	2.2644E-01	2.6990E+00	2.4774E-01	2.3389E+00
30	1.5518E-01	5.3248E+00	1.9696E-01	3.1945E+00	2.1358E-01	2.7539E+00	2.3363E-01	2.3858E+00
31	1.4728E-01	5.4397E+00	1.8616E-01	3.2579E+00	2.0181E-01	2.8076E+00	2.2071E-01	2.4318E+00
32	1.4003E-01	5.5525E+00	1.7627E-01	3.3200E+00	1.9102E-01	2.8603E+00	2.0886E-01	2.4768E+00
33	1.3336E-01	5.6633E+00	1.6719E-01	3.3810E+00	1.8110E-01	2.9120E+00	1.9797E-01	2.5210E+00
34	1.2722E-01	5.7721E+00	1.5884E-01	3.4409E+00	1.7198E-01	2.9629E+00	1.8794E-01	2.5644E+00
35	1.2154E-01	5.8789E+00	1.5115E-01	3.4998E+00	1.6357E-01	3.0128E+00	1.7868E-01	2.6072E+00
36	1.1627E-01	5.9839E+00	1.4406E-01	3.5577E+00	1.5580E-01	3.0620E+00	1.7012E-01	2.6493E+00
37	1.1138E-01	6.0871E+00	1.3750E-01	3.6147E+00	1.4861E-01	3.1105E+00	1.6219E-01	2.6908E+00
38	1.0684E-01	6.1887E+00	1.3142E-01	3.6707E+00	1.4195E-01	3.1581E+00	1.5482E-01	2.7317E+00
39	1.0260E-01	5.5211E-03	1.2577E-01	3.7258E+00	1.3575E-01	3.2050E+00	1.4797E-01	2.7720E+00
40	9.8639E-02	1.0408E-01	1.2051E-01	3.7800E+00	1.2998E-01	3.2512E+00	1.4159E-01	2.8116E+00
41	9.4930E-02	2.0128E-01	1.1561E-01	3.8334E+00	1.2459E-01	3.2967E+00	1.3563E-01	2.8507E+00
42	9.1450E-02	2.9720E-01	1.1103E-01	3.8859E+00	1.1956E-01	3.3415E+00	1.3006E-01	2.8892E+00
43	8.8180E-02	3.9195E-01	1.0675E-01	3.9376E+00	1.1485E-01	3.3856E+00	1.2485E-01	2.9271E+00
44	8.5104E-02	4.8560E-01	1.0272E-01	3.9885E+00	1.1043E-01	3.4291E+00	1.1996E-01	2.9645E+00
45	8.2207E-02	5.7823E-01	9.8942E-02	4.0387E+00	1.0628E-01	3.4718E+00	1.1536E-01	3.0012E+00
46	7.9474E-02	6.6990E-01	9.5380E-02	4.0881E+00	1.0237E-01	3.5139E+00	1.1103E-01	3.0374E+00
47	7.6892E-02	7.6071E-01	9.2020E-02	4.1367E+00	9.8676E-02	3.5554E+00	1.0695E-01	3.0731E+00
48	7.4451E-02	8.5072E-01	8.8846E-02	4.1847E+00	9.5194E-02	3.5962E+00	1.0310E-01	3.1081E+00
49	7.2139E-02	9.3999E-01	8.5844E-02	4.2319E+00	9.1902E-02	3.6364E+00	9.9457E-02	3.1426E+00
50	6.9950E-02	1.0286E+00	8.2998E-02	4.2784E+00	8.8784E-02	3.6760E+00	9.6013E-02	3.1766E+00
51	6.7876E-02	1.1165E+00	8.0298E-02	4.3243E+00	8.5827E-02	3.7150E+00	9.2748E-02	3.2101E+00
52	6.5908E-02	1.2039E+00	7.7733E-02	4.3696E+00	8.3019E-02	3.7534E+00	8.9651E-02	3.2430E+00
53	6.4041E-02	1.2907E+00	7.5293E-02	4.4142E+00	8.0350E-02	3.7912E+00	8.6710E-02	3.2754E+00
54	6.2268E-02	1.3770E+00	7.2970E-02	4.4583E+00	7.7811E-02	3.8285E+00	8.3913E-02	3.3073E+00
55	6.0584E-02	1.4628E+00	7.0757E-02	4.5017E+00	7.5394E-02	3.8652E+00	8.1254E-02	3.3387E+00
56	5.8984E-02	1.5482E+00	6.8646E-02	4.5445E+00	7.3091E-02	3.9014E+00	7.8721E-02	3.3696E+00
57	5.7464E-02	1.6332E+00	6.6630E-02	4.5868E+00	7.0892E-02	3.9371E+00	7.6306E-02	3.4000E+00
58	5.6020E-02	1.7178E+00	6.4704E-02	4.6285E+00	6.8793E-02	3.9722E+00	7.4001E-02	3.4300E+00
59	5.4649E-02	1.8021E+00	6.2862E-02	4.6697E+00	6.6786E-02	4.0069E+00	7.1800E-02	3.4596E+00
60	5.3347E-02	1.8860E+00	6.1100E-02	4.7104E+00	6.4868E-02	4.0412E+00	6.9698E-02	3.4887E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Tb; $Z = 65$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.2423E+01	2.9911E-01	1.4568E+01	2.1364E-01	1.5408E+01	1.9105E-01	1.6468E+01	1.7068E-01
1	9.2443E+00	3.9180E-01	1.1121E+01	2.7443E-01	1.1819E+01	2.4443E-01	1.2687E+01	2.1759E-01
2	5.6735E+00	6.0164E-01	7.1565E+00	4.0647E-01	7.6731E+00	3.5946E-01	8.2954E+00	3.1811E-01
3	3.8950E+00	8.0964E-01	5.1101E+00	5.3371E-01	5.5185E+00	4.6972E-01	5.9996E+00	4.1410E-01
4	2.8568E+00	1.0095E+00	3.8769E+00	6.5403E-01	4.2124E+00	5.7366E-01	4.6015E+00	5.0437E-01
5	2.1635E+00	1.2197E+00	3.0200E+00	7.7852E-01	3.2988E+00	6.8084E-01	3.6184E+00	5.9721E-01
6	1.6874E+00	1.4391E+00	2.4041E+00	9.0710E-01	2.6371E+00	7.9125E-01	2.9024E+00	6.9265E-01
7	1.3549E+00	1.6591E+00	1.9556E+00	1.0357E+00	2.1520E+00	9.0155E-01	2.3746E+00	7.8787E-01
8	1.1155E+00	1.8736E+00	1.6225E+00	1.1613E+00	1.7895E+00	1.0092E+00	1.9785E+00	8.8078E-01
9	9.3672E-01	2.0808E+00	1.3686E+00	1.2829E+00	1.5120E+00	1.1135E+00	1.6743E+00	9.7069E-01
10	7.9930E-01	2.2818E+00	1.1701E+00	1.4010E+00	1.2943E+00	1.2146E+00	1.4349E+00	1.0580E+00
11	6.9163E-01	2.4778E+00	1.0118E+00	1.5164E+00	1.1200E+00	1.3136E+00	1.2426E+00	1.1433E+00
12	6.0623E-01	2.6696E+00	8.8363E-01	1.6298E+00	9.7826E-01	1.4108E+00	1.0857E+00	1.2272E+00
13	5.3781E-01	2.8571E+00	7.7864E-01	1.7415E+00	8.6164E-01	1.5067E+00	9.5619E-01	1.3099E+00
14	4.8238E-01	3.0396E+00	6.9186E-01	1.8513E+00	7.6483E-01	1.6011E+00	8.4830E-01	1.3915E+00
15	4.3683E-01	3.2164E+00	6.1951E-01	1.9589E+00	6.8382E-01	1.6938E+00	7.5774E-01	1.4716E+00
16	3.9877E-01	3.3872E+00	5.5867E-01	2.0637E+00	6.1551E-01	1.7843E+00	6.8119E-01	1.5500E+00
17	3.6637E-01	3.5518E+00	5.0703E-01	2.1654E+00	5.5745E-01	1.8722E+00	6.1604E-01	1.6263E+00
18	3.3827E-01	3.7103E+00	4.6275E-01	2.2635E+00	5.0769E-01	1.9571E+00	5.6019E-01	1.7000E+00
19	3.1351E-01	3.8633E+00	4.2441E-01	2.3579E+00	4.6467E-01	2.0389E+00	5.1195E-01	1.7710E+00
20	2.9142E-01	4.0113E+00	3.9088E-01	2.4485E+00	4.2716E-01	2.1173E+00	4.6997E-01	1.8392E+00
21	2.7155E-01	4.1549E+00	3.6130E-01	2.5354E+00	3.9420E-01	2.1925E+00	4.3317E-01	1.9045E+00
22	2.5357E-01	4.2946E+00	3.3502E-01	2.6190E+00	3.6502E-01	2.2647E+00	4.0068E-01	1.9670E+00
23	2.3723E-01	4.4308E+00	3.1152E-01	2.6994E+00	3.3903E-01	2.3339E+00	3.7183E-01	2.0269E+00
24	2.2234E-01	4.5640E+00	2.9039E-01	2.7770E+00	3.1575E-01	2.4006E+00	3.4607E-01	2.0845E+00
25	2.0877E-01	4.6943E+00	2.7131E-01	2.8520E+00	2.9480E-01	2.4648E+00	3.2294E-01	2.1398E+00
26	1.9639E-01	4.8221E+00	2.5403E-01	2.9246E+00	2.7586E-01	2.5269E+00	3.0207E-01	2.1932E+00
27	1.8508E-01	4.9474E+00	2.3831E-01	2.9952E+00	2.5869E-01	2.5870E+00	2.8319E-01	2.2449E+00
28	1.7475E-01	5.0704E+00	2.2401E-01	3.0640E+00	2.4307E-01	2.6455E+00	2.6604E-01	2.2950E+00
29	1.6530E-01	5.1910E+00	2.1097E-01	3.1310E+00	2.2885E-01	2.7025E+00	2.5042E-01	2.3438E+00
30	1.5665E-01	5.3094E+00	1.9905E-01	3.1966E+00	2.1585E-01	2.7582E+00	2.3616E-01	2.3914E+00
31	1.4871E-01	5.4256E+00	1.8814E-01	3.2608E+00	2.0396E-01	2.8126E+00	2.2311E-01	2.4379E+00
32	1.4141E-01	5.5398E+00	1.7814E-01	3.3237E+00	1.9305E-01	2.8659E+00	2.1113E-01	2.4835E+00
33	1.3470E-01	5.6518E+00	1.6895E-01	3.3854E+00	1.8302E-01	2.9183E+00	2.0011E-01	2.5282E+00
34	1.2851E-01	5.7619E+00	1.6050E-01	3.4460E+00	1.7379E-01	2.9697E+00	1.8996E-01	2.5722E+00
35	1.2278E-01	5.8700E+00	1.5272E-01	3.5055E+00	1.6528E-01	3.0202E+00	1.8059E-01	2.6154E+00
36	1.1747E-01	5.9763E+00	1.4553E-01	3.5641E+00	1.5742E-01	3.0699E+00	1.7193E-01	2.6580E+00
37	1.1253E-01	6.0808E+00	1.3889E-01	3.6216E+00	1.5014E-01	3.1188E+00	1.6391E-01	2.6999E+00
38	1.0794E-01	6.1836E+00	1.3273E-01	3.6782E+00	1.4340E-01	3.1670E+00	1.5646E-01	2.7411E+00
39	1.0365E-01	6.2799E+00	1.2701E-01	3.7339E+00	1.3712E-01	3.2144E+00	1.4954E-01	2.7818E+00
40	9.9648E-02	6.3743E+00	1.2169E-01	3.7887E+00	1.3128E-01	3.2611E+00	1.4308E-01	2.8219E+00
41	9.5898E-02	6.4678E+00	1.1672E-01	3.8427E+00	1.2584E-01	3.3070E+00	1.3706E-01	2.8613E+00
42	9.2376E-02	6.5602E+00	1.1209E-01	3.8958E+00	1.2075E-01	3.3523E+00	1.3143E-01	2.9002E+00
43	8.9065E-02	6.6516E+00	1.0775E-01	3.9481E+00	1.1599E-01	3.3969E+00	1.2616E-01	2.9385E+00
44	8.5950E-02	6.7420E+00	1.0369E-01	3.9995E+00	1.1152E-01	3.4408E+00	1.2121E-01	2.9763E+00
45	8.3015E-02	6.8314E+00	9.9865E-02	4.0503E+00	1.0732E-01	3.4840E+00	1.1657E-01	3.0134E+00
46	8.0247E-02	6.9198E+00	9.6265E-02	4.1002E+00	1.0337E-01	3.5266E+00	1.1219E-01	3.0500E+00
47	7.7631E-02	7.0072E+00	9.2872E-02	4.1494E+00	9.9645E-02	3.5685E+00	1.0807E-01	3.0861E+00
48	7.5156E-02	7.0936E+00	8.9668E-02	4.1979E+00	9.6130E-02	3.6098E+00	1.0418E-01	3.1216E+00
49	7.2812E-02	7.1790E+00	8.6638E-02	4.2457E+00	9.2809E-02	3.6505E+00	1.0051E-01	3.1565E+00
50	7.0592E-02	7.2634E+00	8.3768E-02	4.2928E+00	8.9664E-02	3.6906E+00	9.7036E-02	3.1909E+00
51	6.8487E-02	7.3468E+00	8.1046E-02	4.3393E+00	8.6681E-02	3.7301E+00	9.3742E-02	3.2248E+00
52	6.6491E-02	7.4292E+00	7.8459E-02	4.3851E+00	8.3850E-02	3.7690E+00	9.0617E-02	3.2582E+00
53	6.4596E-02	7.5106E+00	7.6000E-02	4.4303E+00	8.1158E-02	3.8073E+00	8.7648E-02	3.2910E+00
54	6.2796E-02	7.5910E+00	7.3659E-02	4.4749E+00	7.8598E-02	3.8451E+00	8.4826E-02	3.3234E+00
55	6.1086E-02	7.6704E+00	7.1429E-02	4.5188E+00	7.6163E-02	3.8823E+00	8.2144E-02	3.3552E+00
56	5.9461E-02	7.7488E+00	6.9302E-02	4.5622E+00	7.3841E-02	3.9190E+00	7.9590E-02	3.3866E+00
57	5.7918E-02	7.8262E+00	6.7272E-02	4.6051E+00	7.1626E-02	3.9552E+00	7.7153E-02	3.4175E+00
58	5.6451E-02	7.9026E+00	6.5332E-02	4.6474E+00	6.9509E-02	3.9908E+00	7.4827E-02	3.4479E+00
59	5.5058E-02	7.9780E+00	6.3477E-02	4.6892E+00	6.7487E-02	4.0261E+00	7.2607E-02	3.4779E+00
60	5.3734E-02	8.0524E+00	6.1702E-02	4.7304E+00	6.5554E-02	4.0608E+00	7.0485E-02	3.5075E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Dy; $Z = 66$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.2127E+01	3.0077E-01	1.4241E+01	2.1597E-01	1.5068E+01	1.9340E-01	1.6111E+01	1.7300E-01
1	9.0699E+00	3.9231E-01	1.0926E+01	2.7626E-01	1.1617E+01	2.4639E-01	1.2474E+01	2.1960E-01
2	5.5957E+00	6.0041E-01	7.0691E+00	4.0768E-01	7.5833E+00	3.6098E-01	8.2021E+00	3.1980E-01
3	3.8535E+00	8.0732E-01	5.0649E+00	5.3461E-01	5.4728E+00	4.7104E-01	5.9531E+00	4.1567E-01
4	2.8359E+00	1.0051E+00	3.8565E+00	6.5406E-01	4.1931E+00	5.7429E-01	4.5830E+00	5.0539E-01
5	2.1536E+00	1.2128E+00	3.0141E+00	7.7738E-01	3.2947E+00	6.8052E-01	3.6163E+00	5.9745E-01
6	1.6823E+00	1.4303E+00	2.4052E+00	9.0502E-01	2.6406E+00	7.9018E-01	2.9083E+00	6.9228E-01
7	1.3520E+00	1.6494E+00	1.9596E+00	1.0332E+00	2.1584E+00	9.0016E-01	2.3837E+00	7.8727E-01
8	1.1137E+00	1.8638E+00	1.6275E+00	1.1589E+00	1.7969E+00	1.0079E+00	1.9885E+00	8.8027E-01
9	9.3574E-01	2.0714E+00	1.3739E+00	1.2808E+00	1.5196E+00	1.1125E+00	1.6842E+00	9.7049E-01
10	7.9892E-01	2.2728E+00	1.1755E+00	1.3993E+00	1.3017E+00	1.2141E+00	1.4445E+00	1.0581E+00
11	6.9160E-01	2.4693E+00	1.0171E+00	1.5151E+00	1.1272E+00	1.3134E+00	1.2518E+00	1.1438E+00
12	6.0635E-01	2.6615E+00	8.8873E-01	1.6289E+00	9.8510E-01	1.4110E+00	1.0944E+00	1.2280E+00
13	5.3796E-01	2.8496E+00	7.8347E-01	1.7410E+00	8.6809E-01	1.5072E+00	9.6439E-01	1.3111E+00
14	4.8252E-01	3.0328E+00	6.9636E-01	1.8513E+00	7.7084E-01	1.6020E+00	8.5593E-01	1.3930E+00
15	4.3697E-01	3.2107E+00	6.2369E-01	1.9595E+00	6.8938E-01	1.6952E+00	7.6479E-01	1.4736E+00
16	3.9897E-01	3.3826E+00	5.6255E-01	2.0650E+00	6.2064E-01	1.7864E+00	6.8769E-01	1.5526E+00
17	3.6667E-01	3.5484E+00	5.1064E-01	2.1676E+00	5.6218E-01	1.8751E+00	6.2200E-01	1.6296E+00
18	3.3872E-01	3.7083E+00	4.6614E-01	2.2667E+00	5.1207E-01	1.9609E+00	5.6567E-01	1.7042E+00
19	3.1413E-01	3.8627E+00	4.2762E-01	2.3623E+00	4.6875E-01	2.0438E+00	5.1700E-01	1.7762E+00
20	2.9223E-01	4.0121E+00	3.9395E-01	2.4541E+00	4.3098E-01	2.1234E+00	4.7464E-01	1.8454E+00
21	2.7253E-01	4.1570E+00	3.6425E-01	2.5424E+00	3.9779E-01	2.1998E+00	4.3750E-01	1.9118E+00
22	2.5469E-01	4.2979E+00	3.3787E-01	2.6272E+00	3.6842E-01	2.2731E+00	4.0473E-01	1.9755E+00
23	2.3848E-01	4.4353E+00	3.1428E-01	2.7089E+00	3.4226E-01	2.3436E+00	3.7562E-01	2.0365E+00
24	2.2369E-01	4.5696E+00	2.9307E-01	2.7877E+00	3.1883E-01	2.4114E+00	3.4962E-01	2.0952E+00
25	2.1018E-01	4.7011E+00	2.7390E-01	2.8639E+00	2.9773E-01	2.4768E+00	3.2628E-01	2.1516E+00
26	1.9784E-01	4.8300E+00	2.5652E-01	2.9376E+00	2.7865E-01	2.5399E+00	3.0523E-01	2.2060E+00
27	1.8655E-01	4.9565E+00	2.4071E-01	3.0092E+00	2.6134E-01	2.6011E+00	2.8617E-01	2.2585E+00
28	1.7622E-01	5.0807E+00	2.2631E-01	3.0789E+00	2.4560E-01	2.6605E+00	2.6885E-01	2.3095E+00
29	1.6676E-01	5.2025E+00	2.1316E-01	3.1469E+00	2.3124E-01	2.7183E+00	2.5308E-01	2.3591E+00
30	1.5808E-01	5.3222E+00	2.0114E-01	3.2133E+00	2.1812E-01	2.7747E+00	2.3867E-01	2.4074E+00
31	1.5010E-01	5.4396E+00	1.9012E-01	3.2783E+00	2.0610E-01	2.8299E+00	2.2548E-01	2.4546E+00
32	1.4277E-01	5.5550E+00	1.8001E-01	3.3419E+00	1.9508E-01	2.8839E+00	2.1337E-01	2.5007E+00
33	1.3602E-01	5.6684E+00	1.7072E-01	3.4044E+00	1.8494E-01	2.9368E+00	2.0223E-01	2.5460E+00
34	1.2978E-01	5.7797E+00	1.6217E-01	3.4657E+00	1.7560E-01	2.9888E+00	1.9197E-01	2.5904E+00
35	1.2401E-01	5.8891E+00	1.5428E-01	3.5259E+00	1.6699E-01	3.0399E+00	1.8250E-01	2.6341E+00
36	1.1865E-01	5.9966E+00	1.4701E-01	3.5850E+00	1.5903E-01	3.0901E+00	1.7374E-01	2.6771E+00
37	1.1367E-01	6.1023E+00	1.4028E-01	3.6432E+00	1.5167E-01	3.1395E+00	1.6562E-01	2.7194E+00
38	1.0903E-01	6.2064E+00	1.3404E-01	3.7004E+00	1.4484E-01	3.1881E+00	1.5809E-01	2.7610E+00
39	1.0470E-01	2.5636E-02	1.2825E-01	3.7567E+00	1.3849E-01	3.2360E+00	1.5108E-01	2.8021E+00
40	1.0066E-01	1.2655E-01	1.2285E-01	3.8121E+00	1.3258E-01	3.2832E+00	1.4455E-01	2.8425E+00
41	9.6865E-02	2.2604E-01	1.1783E-01	3.8666E+00	1.2707E-01	3.3296E+00	1.3846E-01	2.8824E+00
42	9.3303E-02	3.2419E-01	1.1314E-01	3.9202E+00	1.2192E-01	3.3753E+00	1.3277E-01	2.9216E+00
43	8.9953E-02	4.2111E-01	1.0875E-01	3.9731E+00	1.1710E-01	3.4203E+00	1.2745E-01	2.9603E+00
44	8.6800E-02	5.1686E-01	1.0464E-01	4.0251E+00	1.1259E-01	3.4647E+00	1.2245E-01	2.9985E+00
45	8.3829E-02	6.1152E-01	1.0077E-01	4.0764E+00	1.0835E-01	3.5084E+00	1.1776E-01	3.0360E+00
46	8.1024E-02	7.0518E-01	9.7137E-02	4.1269E+00	1.0436E-01	3.5514E+00	1.1334E-01	3.0730E+00
47	7.8374E-02	7.9791E-01	9.3709E-02	4.1766E+00	1.0059E-01	3.5938E+00	1.0917E-01	3.1095E+00
48	7.5865E-02	8.8981E-01	9.0474E-02	4.2257E+00	9.7047E-02	3.6356E+00	1.0525E-01	3.1453E+00
49	7.3489E-02	9.8094E-01	8.7416E-02	4.2740E+00	9.3695E-02	3.6768E+00	1.0154E-01	3.1807E+00
50	7.1237E-02	1.0713E+00	8.4520E-02	4.3216E+00	9.0522E-02	3.7173E+00	9.8035E-02	3.2155E+00
51	6.9101E-02	1.1611E+00	8.1774E-02	4.3686E+00	8.7514E-02	3.7573E+00	9.4712E-02	3.2498E+00
52	6.7075E-02	1.2502E+00	7.9166E-02	4.4150E+00	8.4658E-02	3.7966E+00	9.1558E-02	3.2836E+00
53	6.5151E-02	1.3388E+00	7.6687E-02	4.4607E+00	8.1945E-02	3.8354E+00	8.8564E-02	3.3169E+00
54	6.3323E-02	1.4269E+00	7.4329E-02	4.5059E+00	7.9365E-02	3.8737E+00	8.5718E-02	3.3497E+00
55	6.1586E-02	1.5145E+00	7.2082E-02	4.5504E+00	7.6910E-02	3.9114E+00	8.3012E-02	3.3820E+00
56	5.9936E-02	1.6018E+00	6.9939E-02	4.5943E+00	7.4570E-02	3.9486E+00	8.0436E-02	3.4138E+00
57	5.8367E-02	1.6887E+00	6.7894E-02	4.6377E+00	7.2338E-02	3.9853E+00	7.7979E-02	3.4451E+00
58	5.6876E-02	1.7751E+00	6.5940E-02	4.6806E+00	7.0206E-02	4.0215E+00	7.5633E-02	3.4760E+00
59	5.5459E-02	1.8613E+00	6.4073E-02	4.7229E+00	6.8168E-02	4.0571E+00	7.3394E-02	3.5064E+00
60	5.4114E-02	1.9473E+00	6.2286E-02	4.7647E+00	6.6220E-02	4.0924E+00	7.1254E-02	3.5365E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Ho; $Z = 67$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.1843E+01	3.0231E-01	1.3925E+01	2.1822E-01	1.4740E+01	1.9568E-01	1.5766E+01	1.7525E-01
1	8.9007E+00	3.9271E-01	1.0735E+01	2.7799E-01	1.1419E+01	2.4826E-01	1.2266E+01	2.2153E-01
2	5.5189E+00	5.9908E-01	6.9821E+00	4.0879E-01	7.4936E+00	3.6241E-01	8.1088E+00	3.2141E-01
3	3.8117E+00	8.0493E-01	5.0185E+00	5.3543E-01	5.4258E+00	4.7229E-01	5.9051E+00	4.1718E-01
4	2.8141E+00	1.0009E+00	3.8344E+00	6.5407E-01	4.1716E+00	5.7490E-01	4.5622E+00	5.0639E-01
5	2.1428E+00	1.2061E+00	3.0064E+00	7.7624E-01	3.2887E+00	6.8020E-01	3.6120E+00	5.9770E-01
6	1.6766E+00	1.4215E+00	2.4048E+00	9.0291E-01	2.6423E+00	7.8908E-01	2.9124E+00	6.9190E-01
7	1.3485E+00	1.6395E+00	1.9625E+00	1.0306E+00	2.1636E+00	8.9867E-01	2.3913E+00	7.8658E-01
8	1.1114E+00	1.8537E+00	1.6317E+00	1.1562E+00	1.8033E+00	1.0064E+00	1.9974E+00	8.7961E-01
9	9.3435E-01	2.0615E+00	1.3786E+00	1.2784E+00	1.5264E+00	1.1112E+00	1.6933E+00	9.7007E-01
10	7.9816E-01	2.2633E+00	1.1803E+00	1.3973E+00	1.3086E+00	1.2132E+00	1.4534E+00	1.0580E+00
11	6.9125E-01	2.4601E+00	1.0219E+00	1.5135E+00	1.1338E+00	1.3128E+00	1.2604E+00	1.1440E+00
12	6.0619E-01	2.6527E+00	8.9342E-01	1.6276E+00	9.9150E-01	1.4107E+00	1.1027E+00	1.2285E+00
13	5.3787E-01	2.8412E+00	7.8795E-01	1.7400E+00	8.7416E-01	1.5073E+00	9.7218E-01	1.3119E+00
14	4.8244E-01	3.0252E+00	7.0058E-01	1.8507E+00	7.7654E-01	1.6025E+00	8.6323E-01	1.3942E+00
15	4.3691E-01	3.2039E+00	6.2763E-01	1.9594E+00	6.9468E-01	1.6961E+00	7.7157E-01	1.4752E+00
16	3.9896E-01	3.3770E+00	5.6621E-01	2.0657E+00	6.2555E-01	1.7878E+00	6.9395E-01	1.5547E+00
17	3.6676E-01	3.5440E+00	5.1406E-01	2.1690E+00	5.6673E-01	1.8773E+00	6.2778E-01	1.6323E+00
18	3.3896E-01	3.7052E+00	4.6936E-01	2.2692E+00	5.1629E-01	1.9640E+00	5.7100E-01	1.7077E+00
19	3.1455E-01	3.8609E+00	4.3067E-01	2.3658E+00	4.7268E-01	2.0478E+00	5.2192E-01	1.7806E+00
20	2.9283E-01	4.0115E+00	3.9687E-01	2.4588E+00	4.3467E-01	2.1286E+00	4.7920E-01	1.8508E+00
21	2.7330E-01	4.1576E+00	3.6708E-01	2.5483E+00	4.0128E-01	2.2061E+00	4.4174E-01	1.9183E+00
22	2.5562E-01	4.2998E+00	3.4061E-01	2.6344E+00	3.7173E-01	2.2807E+00	4.0869E-01	1.9830E+00
23	2.3954E-01	4.4384E+00	3.1694E-01	2.7173E+00	3.4541E-01	2.3523E+00	3.7934E-01	2.0452E+00
24	2.2486E-01	4.5738E+00	2.9566E-01	2.7973E+00	3.2183E-01	2.4213E+00	3.5312E-01	2.1050E+00
25	2.1144E-01	4.7064E+00	2.7641E-01	2.8746E+00	3.0059E-01	2.4877E+00	3.2958E-01	2.1624E+00
26	1.9915E-01	4.8365E+00	2.5896E-01	2.9494E+00	2.8139E-01	2.5519E+00	3.0835E-01	2.2178E+00
27	1.8789E-01	4.9640E+00	2.4306E-01	3.0220E+00	2.6395E-01	2.6141E+00	2.8912E-01	2.2713E+00
28	1.7758E-01	5.0893E+00	2.2857E-01	3.0927E+00	2.4809E-01	2.6744E+00	2.7164E-01	2.3231E+00
29	1.6812E-01	5.2123E+00	2.1532E-01	3.1616E+00	2.3361E-01	2.7331E+00	2.5572E-01	2.3735E+00
30	1.5942E-01	5.3331E+00	2.0320E-01	3.2289E+00	2.2037E-01	2.7903E+00	2.4117E-01	2.4225E+00
31	1.5143E-01	5.4518E+00	1.9209E-01	3.2947E+00	2.0824E-01	2.8462E+00	2.2785E-01	2.4703E+00
32	1.4407E-01	5.5684E+00	1.8188E-01	3.3591E+00	1.9710E-01	2.9008E+00	2.1561E-01	2.5171E+00
33	1.3728E-01	5.6830E+00	1.7249E-01	3.4223E+00	1.8685E-01	2.9544E+00	2.0435E-01	2.5629E+00
34	1.3101E-01	5.7955E+00	1.6384E-01	3.4842E+00	1.7741E-01	3.0070E+00	1.9398E-01	2.6079E+00
35	1.2520E-01	5.9062E+00	1.5586E-01	3.5451E+00	1.6870E-01	3.0587E+00	1.8440E-01	2.6520E+00
36	1.1981E-01	6.0149E+00	1.4850E-01	3.6049E+00	1.6065E-01	3.1094E+00	1.7554E-01	2.6955E+00
37	1.1479E-01	6.1219E+00	1.4168E-01	3.6637E+00	1.5319E-01	3.1593E+00	1.6733E-01	2.7382E+00
38	1.1012E-01	6.2272E+00	1.3536E-01	3.7215E+00	1.4628E-01	3.2085E+00	1.5971E-01	2.7803E+00
39	1.0575E-01	4.7612E-02	1.2950E-01	3.7784E+00	1.3986E-01	3.2568E+00	1.5263E-01	2.8217E+00
40	1.0167E-01	1.4970E-01	1.2404E-01	3.8344E+00	1.3388E-01	3.3044E+00	1.4602E-01	2.8625E+00
41	9.7836E-02	2.5032E-01	1.1895E-01	3.8894E+00	1.2830E-01	3.3513E+00	1.3986E-01	2.9027E+00
42	9.4238E-02	3.4959E-01	1.1420E-01	3.9437E+00	1.2309E-01	3.3975E+00	1.3411E-01	2.9424E+00
43	9.0852E-02	4.4758E-01	1.0976E-01	3.9970E+00	1.1823E-01	3.4430E+00	1.2873E-01	2.9815E+00
44	8.7663E-02	5.4438E-01	1.0560E-01	4.0496E+00	1.1366E-01	3.4878E+00	1.2368E-01	3.0200E+00
45	8.4657E-02	6.4007E-01	1.0169E-01	4.1014E+00	1.0937E-01	3.5319E+00	1.1893E-01	3.0579E+00
46	8.1818E-02	7.3471E-01	9.8011E-02	4.1525E+00	1.0534E-01	3.5754E+00	1.1447E-01	3.0953E+00
47	7.9134E-02	8.2841E-01	9.4547E-02	4.2028E+00	1.0154E-01	3.6183E+00	1.1027E-01	3.1321E+00
48	7.6592E-02	9.2125E-01	9.1279E-02	4.2524E+00	9.7957E-02	3.6605E+00	1.0630E-01	3.1684E+00
49	7.4183E-02	1.0133E+00	8.8191E-02	4.3012E+00	9.4573E-02	3.7021E+00	1.0256E-01	3.2042E+00
50	7.1900E-02	1.1046E+00	8.5268E-02	4.3494E+00	9.1371E-02	3.7431E+00	9.9022E-02	3.2394E+00
51	6.9733E-02	1.1952E+00	8.2497E-02	4.3969E+00	8.8336E-02	3.7836E+00	9.5667E-02	3.2741E+00
52	6.7677E-02	1.2852E+00	7.9867E-02	4.4438E+00	8.5456E-02	3.8234E+00	9.2486E-02	3.3083E+00
53	6.5723E-02	1.3747E+00	7.7368E-02	4.4901E+00	8.2720E-02	3.8627E+00	8.9465E-02	3.3420E+00
54	6.3867E-02	1.4636E+00	7.4990E-02	4.5358E+00	8.0120E-02	3.9014E+00	8.6595E-02	3.3752E+00
55	6.2101E-02	1.5521E+00	7.2725E-02	4.5808E+00	7.7645E-02	3.9396E+00	8.3866E-02	3.4079E+00
56	6.0424E-02	1.6402E+00	7.0567E-02	4.6253E+00	7.5287E-02	3.9773E+00	8.1267E-02	3.4402E+00
57	5.8828E-02	1.7280E+00	6.8506E-02	4.6692E+00	7.3037E-02	4.0144E+00	7.8789E-02	3.4719E+00
58	5.7312E-02	1.8154E+00	6.6538E-02	4.7126E+00	7.0888E-02	4.0511E+00	7.6424E-02	3.5032E+00
59	5.5870E-02	1.9025E+00	6.4657E-02	4.7555E+00	6.8836E-02	4.0873E+00	7.4166E-02	3.5341E+00
60	5.4501E-02	1.9894E+00	6.2857E-02	4.7978E+00	6.6873E-02	4.1230E+00	7.2008E-02	3.5646E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Er; $Z = 68$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.1570E+01	3.0375E-01	1.3621E+01	2.2038E-01	1.4424E+01	1.9788E-01	1.5433E+01	1.7744E-01
1	8.7366E+00	3.9302E-01	1.0549E+01	2.7965E-01	1.1226E+01	2.5007E-01	1.2063E+01	2.2341E-01
2	5.4435E+00	5.9766E-01	6.8956E+00	4.0981E-01	7.4044E+00	3.6376E-01	8.0159E+00	3.2296E-01
3	3.7698E+00	8.0248E-01	4.9713E+00	5.3618E-01	5.3778E+00	4.7348E-01	5.8558E+00	4.1865E-01
4	2.7917E+00	9.9659E-01	3.8108E+00	6.5405E-01	4.1485E+00	5.7549E-01	4.5394E+00	5.0738E-01
5	2.1312E+00	1.1994E+00	2.9971E+00	7.7510E-01	3.2809E+00	6.7989E-01	3.6056E+00	5.9795E-01
6	1.6703E+00	1.4127E+00	2.4031E+00	9.0078E-01	2.6426E+00	7.8797E-01	2.9147E+00	6.9150E-01
7	1.3445E+00	1.6294E+00	1.9642E+00	1.0279E+00	2.1676E+00	8.9711E-01	2.3976E+00	7.8583E-01
8	1.1088E+00	1.8433E+00	1.6350E+00	1.1534E+00	1.8089E+00	1.0048E+00	2.0052E+00	8.7882E-01
9	9.3259E-01	2.0512E+00	1.3825E+00	1.2758E+00	1.5324E+00	1.1098E+00	1.7016E+00	9.6945E-01
10	7.9707E-01	2.2533E+00	1.1846E+00	1.3950E+00	1.3147E+00	1.2120E+00	1.4617E+00	1.0577E+00
11	6.9059E-01	2.4504E+00	1.0263E+00	1.5115E+00	1.1400E+00	1.3119E+00	1.2685E+00	1.1440E+00
12	6.0578E-01	2.6433E+00	8.9771E-01	1.6259E+00	9.9747E-01	1.4102E+00	1.1105E+00	1.2288E+00
13	5.3756E-01	2.8323E+00	7.9209E-01	1.7387E+00	8.7987E-01	1.5070E+00	9.7958E-01	1.3124E+00
14	4.8216E-01	3.0168E+00	7.0452E-01	1.8497E+00	7.8193E-01	1.6025E+00	8.7020E-01	1.3950E+00
15	4.3666E-01	3.1964E+00	6.3132E-01	1.9589E+00	6.9973E-01	1.6966E+00	7.7808E-01	1.4763E+00
16	3.9876E-01	3.3703E+00	5.6967E-01	2.0657E+00	6.3025E-01	1.7888E+00	7.0000E-01	1.5563E+00
17	3.6667E-01	3.5385E+00	5.1729E-01	2.1699E+00	5.7109E-01	1.8789E+00	6.3338E-01	1.6345E+00
18	3.3900E-01	3.7009E+00	4.7241E-01	2.2709E+00	5.2035E-01	1.9665E+00	5.7617E-01	1.7106E+00
19	3.1476E-01	3.8578E+00	4.3357E-01	2.3685E+00	4.7648E-01	2.0512E+00	5.2670E-01	1.7844E+00
20	2.9322E-01	4.0097E+00	3.9965E-01	2.4626E+00	4.3824E-01	2.1329E+00	4.8364E-01	1.8555E+00
21	2.7387E-01	4.1571E+00	3.6977E-01	2.5533E+00	4.0465E-01	2.2116E+00	4.4589E-01	1.9240E+00
22	2.5636E-01	4.3004E+00	3.4323E-01	2.6405E+00	3.7493E-01	2.2873E+00	4.1257E-01	1.9898E+00
23	2.4042E-01	4.4401E+00	3.1949E-01	2.7246E+00	3.4846E-01	2.3601E+00	3.8299E-01	2.0531E+00
24	2.2586E-01	4.5766E+00	2.9815E-01	2.8058E+00	3.2475E-01	2.4302E+00	3.5656E-01	2.1139E+00
25	2.1253E-01	4.7103E+00	2.7884E-01	2.8842E+00	3.0340E-01	2.4977E+00	3.3283E-01	2.1724E+00
26	2.0031E-01	4.8414E+00	2.6132E-01	2.9601E+00	2.8407E-01	2.5629E+00	3.1142E-01	2.2287E+00
27	1.8911E-01	4.9701E+00	2.4535E-01	3.0338E+00	2.6652E-01	2.6260E+00	2.9203E-01	2.2832E+00
28	1.7882E-01	5.0964E+00	2.3078E-01	3.1054E+00	2.5054E-01	2.6873E+00	2.7441E-01	2.3359E+00
29	1.6937E-01	5.2205E+00	2.1745E-01	3.1752E+00	2.3595E-01	2.7468E+00	2.5834E-01	2.3870E+00
30	1.6068E-01	5.3425E+00	2.0524E-01	3.2433E+00	2.2261E-01	2.8049E+00	2.4366E-01	2.4368E+00
31	1.5268E-01	5.4623E+00	1.9404E-01	3.3099E+00	2.1036E-01	2.8615E+00	2.3020E-01	2.4853E+00
32	1.4531E-01	5.5801E+00	1.8374E-01	3.3751E+00	1.9912E-01	2.9169E+00	2.1785E-01	2.5327E+00
33	1.3850E-01	5.6958E+00	1.7425E-01	3.4390E+00	1.8876E-01	2.9711E+00	2.0647E-01	2.5791E+00
34	1.3220E-01	5.8096E+00	1.6551E-01	3.5017E+00	1.7922E-01	3.0243E+00	1.9599E-01	2.6246E+00
35	1.2636E-01	5.9215E+00	1.5744E-01	3.5633E+00	1.7041E-01	3.0765E+00	1.8630E-01	2.6693E+00
36	1.2094E-01	6.0314E+00	1.4999E-01	3.6237E+00	1.6227E-01	3.1279E+00	1.7734E-01	2.7132E+00
37	1.1589E-01	6.1396E+00	1.4310E-01	3.6832E+00	1.5473E-01	3.1783E+00	1.6904E-01	2.7563E+00
38	1.1118E-01	6.2461E+00	1.3670E-01	3.7416E+00	1.4774E-01	3.2279E+00	1.6134E-01	2.7988E+00
39	1.0678E-01	6.3508E+00	1.3076E-01	3.7991E+00	1.4123E-01	3.2768E+00	1.5417E-01	2.8407E+00
40	1.0267E-01	6.4527E+00	1.2523E-01	3.8556E+00	1.3518E-01	3.3249E+00	1.4749E-01	2.8819E+00
41	9.8806E-02	6.5518E+00	1.2008E-01	3.9113E+00	1.2954E-01	3.3722E+00	1.4127E-01	2.9225E+00
42	9.5175E-02	6.6481E+00	1.1527E-01	3.9661E+00	1.2427E-01	3.4189E+00	1.3545E-01	2.9625E+00
43	9.1757E-02	6.7417E+00	1.1078E-01	4.0200E+00	1.1935E-01	3.4648E+00	1.3000E-01	3.0019E+00
44	8.8536E-02	6.8327E+00	1.0656E-01	4.0731E+00	1.1473E-01	3.5101E+00	1.2490E-01	3.0408E+00
45	8.5496E-02	6.9213E+00	1.0261E-01	4.1255E+00	1.1040E-01	3.5547E+00	1.2011E-01	3.0791E+00
46	8.2625E-02	7.0077E+00	9.8890E-02	4.1771E+00	1.0632E-01	3.5986E+00	1.1560E-01	3.1169E+00
47	7.9909E-02	7.0920E+00	9.5388E-02	4.2279E+00	1.0248E-01	3.6419E+00	1.1135E-01	3.1541E+00
48	7.7335E-02	7.1743E+00	9.2086E-02	4.2780E+00	9.8862E-02	3.6846E+00	1.0735E-01	3.1908E+00
49	7.4895E-02	7.2547E+00	8.8966E-02	4.3274E+00	9.5445E-02	3.7267E+00	1.0357E-01	3.2269E+00
50	7.2580E-02	7.3332E+00	8.6014E-02	4.3761E+00	9.2213E-02	3.7681E+00	9.9996E-02	3.2626E+00
51	7.0383E-02	7.4107E+00	8.3218E-02	4.4242E+00	8.9150E-02	3.8090E+00	9.6611E-02	3.2977E+00
52	6.8296E-02	7.4870E+00	8.0563E-02	4.4716E+00	8.6245E-02	3.8493E+00	9.3401E-02	3.3323E+00
53	6.6313E-02	7.5623E+00	7.8042E-02	4.5184E+00	8.3486E-02	3.8891E+00	9.0354E-02	3.3664E+00
54	6.4427E-02	7.6367E+00	7.5645E-02	4.5646E+00	8.0863E-02	3.9283E+00	8.7458E-02	3.4000E+00
55	6.2633E-02	7.7101E+00	7.3362E-02	4.6102E+00	7.8368E-02	3.9669E+00	8.4706E-02	3.4331E+00
56	6.0927E-02	7.7826E+00	7.1186E-02	4.6552E+00	7.5991E-02	4.0051E+00	8.2085E-02	3.4658E+00
57	5.9304E-02	7.8541E+00	6.9109E-02	4.6996E+00	7.3724E-02	4.0427E+00	7.9586E-02	3.4980E+00
58	5.7760E-02	7.9247E+00	6.7127E-02	4.7436E+00	7.1559E-02	4.0798E+00	7.7202E-02	3.5297E+00
59	5.6292E-02	7.9943E+00	6.5232E-02	4.7870E+00	6.9491E-02	4.1164E+00	7.4925E-02	3.5610E+00
60	5.4896E-02	8.0630E+00	6.3419E-02	4.8298E+00	6.7513E-02	4.1526E+00	7.2749E-02	3.5919E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

Tm; $Z = 69$

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	1.1308E+01	3.0510E-01	1.3328E+01	2.2247E-01	1.4119E+01	2.0003E-01	1.5112E+01	1.7958E-01
1	8.5773E+00	3.9326E-01	1.0368E+01	2.8123E-01	1.1037E+01	2.5182E-01	1.1865E+01	2.2523E-01
2	5.3695E+00	5.9615E-01	6.8101E+00	4.1075E-01	7.3160E+00	3.6504E-01	7.9236E+00	3.2444E-01
3	3.7281E+00	7.9997E-01	4.9235E+00	5.3686E-01	5.3290E+00	4.7461E-01	5.8056E+00	4.2005E-01
4	2.7687E+00	9.9236E-01	3.7859E+00	6.5402E-01	4.1238E+00	5.7606E-01	4.5149E+00	5.0835E-01
5	2.1192E+00	1.1928E+00	2.9865E+00	7.7397E-01	3.2714E+00	6.7958E-01	3.5974E+00	5.9821E-01
6	1.6635E+00	1.4039E+00	2.4002E+00	8.9865E-01	2.6415E+00	7.8685E-01	2.9155E+00	6.9110E-01
7	1.3402E+00	1.6193E+00	1.9651E+00	1.0252E+00	2.1704E+00	8.9550E-01	2.4026E+00	7.8503E-01
8	1.1058E+00	1.8326E+00	1.6375E+00	1.1504E+00	1.8135E+00	1.0030E+00	2.0120E+00	8.7792E-01
9	9.3051E-01	2.0406E+00	1.3859E+00	1.2729E+00	1.5378E+00	1.1081E+00	1.7091E+00	9.6868E-01
10	7.9567E-01	2.2429E+00	1.1883E+00	1.3924E+00	1.3204E+00	1.2106E+00	1.4693E+00	1.0572E+00
11	6.8966E-01	2.4402E+00	1.0302E+00	1.5092E+00	1.1456E+00	1.3108E+00	1.2760E+00	1.1437E+00
12	6.0513E-01	2.6334E+00	9.0161E-01	1.6239E+00	1.0030E+00	1.4093E+00	1.1178E+00	1.2287E+00
13	5.3704E-01	2.8227E+00	7.9590E-01	1.7369E+00	8.8522E-01	1.5064E+00	9.8658E-01	1.3126E+00
14	4.8170E-01	3.0078E+00	7.0817E-01	1.8483E+00	7.8702E-01	1.6022E+00	8.7683E-01	1.3954E+00
15	4.3624E-01	3.1880E+00	6.3477E-01	1.9579E+00	7.0452E-01	1.6966E+00	7.8432E-01	1.4771E+00
16	3.9840E-01	3.3629E+00	5.7291E-01	2.0653E+00	6.3473E-01	1.7893E+00	7.0581E-01	1.5575E+00
17	3.6640E-01	3.5321E+00	5.2034E-01	2.1701E+00	5.7527E-01	1.8800E+00	6.3877E-01	1.6363E+00
18	3.3887E-01	3.6957E+00	4.7529E-01	2.2719E+00	5.2425E-01	1.9683E+00	5.8117E-01	1.7131E+00
19	3.1479E-01	3.8538E+00	4.3631E-01	2.3705E+00	4.8013E-01	2.0539E+00	5.3135E-01	1.7875E+00
20	2.9343E-01	4.0068E+00	4.0229E-01	2.4656E+00	4.4167E-01	2.1366E+00	4.8797E-01	1.8596E+00
21	2.7426E-01	4.1553E+00	3.7232E-01	2.5574E+00	4.0790E-01	2.2163E+00	4.4993E-01	1.9290E+00
22	2.5691E-01	4.2998E+00	3.4572E-01	2.6458E+00	3.7803E-01	2.2931E+00	4.1636E-01	1.9958E+00
23	2.4113E-01	4.4406E+00	3.2193E-01	2.7310E+00	3.5143E-01	2.3669E+00	3.8655E-01	2.0601E+00
24	2.2670E-01	4.5782E+00	3.0053E-01	2.8133E+00	3.2759E-01	2.4381E+00	3.5993E-01	2.1220E+00
25	2.1347E-01	4.7129E+00	2.8118E-01	2.8928E+00	3.0612E-01	2.5067E+00	3.3602E-01	2.1815E+00
26	2.0134E-01	4.8450E+00	2.6360E-01	2.9697E+00	2.8669E-01	2.5730E+00	3.1445E-01	2.2388E+00
27	1.9019E-01	4.9747E+00	2.4758E-01	3.0444E+00	2.6904E-01	2.6371E+00	2.9491E-01	2.2942E+00
28	1.7995E-01	5.1021E+00	2.3294E-01	3.1170E+00	2.5296E-01	2.6992E+00	2.7714E-01	2.3477E+00
29	1.7052E-01	5.2273E+00	2.1954E-01	3.1877E+00	2.3827E-01	2.7597E+00	2.6094E-01	2.3997E+00
30	1.6185E-01	5.3503E+00	2.0725E-01	3.2567E+00	2.2481E-01	2.8185E+00	2.4613E-01	2.4502E+00
31	1.5385E-01	5.4712E+00	1.9597E-01	3.3242E+00	2.1247E-01	2.8759E+00	2.3255E-01	2.4995E+00
32	1.4647E-01	5.5901E+00	1.8558E-01	3.3902E+00	2.0112E-01	2.9320E+00	2.2007E-01	2.5475E+00
33	1.3965E-01	5.7070E+00	1.7601E-01	3.4548E+00	1.9067E-01	2.9869E+00	2.0858E-01	2.5945E+00
34	1.3334E-01	5.8220E+00	1.6718E-01	3.5182E+00	1.8103E-01	3.0408E+00	1.9799E-01	2.6406E+00
35	1.2748E-01	5.9350E+00	1.5903E-01	3.5804E+00	1.7213E-01	3.0936E+00	1.8820E-01	2.6858E+00
36	1.2203E-01	6.0462E+00	1.5149E-01	3.6416E+00	1.6390E-01	3.1454E+00	1.7915E-01	2.7301E+00
37	1.1696E-01	6.1556E+00	1.4452E-01	3.7016E+00	1.5627E-01	3.1964E+00	1.7076E-01	2.7738E+00
38	1.1223E-01	6.2632E+00	1.3804E-01	3.7607E+00	1.4920E-01	3.2466E+00	1.6296E-01	2.8167E+00
39	1.0780E-01	6.3616E-02	1.3203E-01	3.8187E+00	1.4262E-01	3.2959E+00	1.5572E-01	2.8589E+00
40	1.0366E-01	1.9042E-01	1.2643E-01	3.8759E+00	1.3649E-01	3.3445E+00	1.4897E-01	2.9006E+00
41	9.9769E-02	2.9331E-01	1.2122E-01	3.9321E+00	1.3079E-01	3.3923E+00	1.4267E-01	2.9416E+00
42	9.6110E-02	3.9480E-01	1.1635E-01	3.9875E+00	1.2546E-01	3.4394E+00	1.3678E-01	2.9820E+00
43	9.2663E-02	4.9496E-01	1.1180E-01	4.0420E+00	1.2047E-01	3.4858E+00	1.3128E-01	3.0218E+00
44	8.9412E-02	5.9386E-01	1.0754E-01	4.0957E+00	1.1581E-01	3.5315E+00	1.2612E-01	3.0610E+00
45	8.6344E-02	6.9160E-01	1.0353E-01	4.1486E+00	1.1142E-01	3.5766E+00	1.2127E-01	3.0997E+00
46	8.3443E-02	7.8825E-01	9.9774E-02	4.2007E+00	1.0730E-01	3.6210E+00	1.1672E-01	3.1379E+00
47	8.0696E-02	8.8388E-01	9.6233E-02	4.2521E+00	1.0342E-01	3.6648E+00	1.1243E-01	3.1755E+00
48	7.8093E-02	9.7861E-01	9.2895E-02	4.3027E+00	9.9765E-02	3.7079E+00	1.0839E-01	3.2125E+00
49	7.5623E-02	1.0725E+00	8.9743E-02	4.3527E+00	9.6314E-02	3.7504E+00	1.0457E-01	3.2490E+00
50	7.3278E-02	1.1656E+00	8.6761E-02	4.4019E+00	9.3050E-02	3.7923E+00	1.0096E-01	3.2850E+00
51	7.1051E-02	1.2580E+00	8.3937E-02	4.4505E+00	8.9958E-02	3.8336E+00	9.7545E-02	3.3205E+00
52	6.8934E-02	1.3497E+00	8.1258E-02	4.4984E+00	8.7027E-02	3.8744E+00	9.4305E-02	3.3556E+00
53	6.6921E-02	1.4409E+00	7.8713E-02	4.5458E+00	8.4243E-02	3.9146E+00	9.1231E-02	3.3900E+00
54	6.5005E-02	1.5315E+00	7.6295E-02	4.5925E+00	8.1598E-02	3.9543E+00	8.8310E-02	3.4241E+00
55	6.3182E-02	1.6217E+00	7.3992E-02	4.6385E+00	7.9082E-02	3.9934E+00	8.5533E-02	3.4576E+00
56	6.1447E-02	1.7115E+00	7.1798E-02	4.6841E+00	7.6686E-02	4.0319E+00	8.2890E-02	3.4907E+00
57	5.9795E-02	1.8009E+00	6.9706E-02	4.7290E+00	7.4401E-02	4.0700E+00	8.0370E-02	3.5233E+00
58	5.8223E-02	1.8901E+00	6.7707E-02	4.7735E+00	7.2219E-02	4.1076E+00	7.7966E-02	3.5554E+00
59	5.6727E-02	1.9790E+00	6.5798E-02	4.8174E+00	7.0134E-02	4.1447E+00	7.5670E-02	3.5871E+00
60	5.5304E-02	2.0676E+00	6.3972E-02	4.8608E+00	6.8142E-02	4.1814E+00	7.3477E-02	3.6184E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Yb; $Z = 70$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.1055E+01	3.0638E-01	1.3045E+01	2.2449E-01	1.3824E+01	2.0212E-01	1.4801E+01	1.8168E-01
1	8.4228E+00	3.9343E-01	1.0191E+01	2.8274E-01	1.0853E+01	2.5350E-01	1.1671E+01	2.2700E-01
2	5.2969E+00	5.9457E-01	6.7255E+00	4.1161E-01	7.2284E+00	3.6625E-01	7.8321E+00	3.2586E-01
3	3.6866E+00	7.9742E-01	4.8754E+00	5.3748E-01	5.2797E+00	4.7568E-01	5.7547E+00	4.2141E-01
4	2.7454E+00	9.8816E-01	3.7599E+00	6.5395E-01	4.0980E+00	5.7660E-01	4.4890E+00	5.0930E-01
5	2.1066E+00	1.1863E+00	2.9746E+00	7.7286E-01	3.2606E+00	6.7927E-01	3.5876E+00	5.9847E-01
6	1.6563E+00	1.3952E+00	2.3962E+00	8.9653E-01	2.6391E+00	7.8573E-01	2.9147E+00	6.9069E-01
7	1.3356E+00	1.6092E+00	1.9650E+00	1.0224E+00	2.1723E+00	8.9384E-01	2.4064E+00	7.8420E-01
8	1.1025E+00	1.8219E+00	1.6393E+00	1.1474E+00	1.8172E+00	1.0012E+00	2.0179E+00	8.7694E-01
9	9.2815E-01	2.0297E+00	1.3886E+00	1.2699E+00	1.5424E+00	1.1063E+00	1.7157E+00	9.6777E-01
10	7.9400E-01	2.2321E+00	1.1915E+00	1.3895E+00	1.3254E+00	1.2090E+00	1.4763E+00	1.0564E+00
11	6.8849E-01	2.4297E+00	1.0336E+00	1.5066E+00	1.1508E+00	1.3095E+00	1.2830E+00	1.1432E+00
12	6.0426E-01	2.6231E+00	9.0512E-01	1.6216E+00	1.0081E+00	1.4082E+00	1.1246E+00	1.2285E+00
13	5.3634E-01	2.8126E+00	7.9938E-01	1.7349E+00	8.9021E-01	1.5055E+00	9.9320E-01	1.3126E+00
14	4.8108E-01	2.9981E+00	7.1154E-01	1.8465E+00	7.9181E-01	1.6016E+00	8.8314E-01	1.3956E+00
15	4.3567E-01	3.1790E+00	6.3798E-01	1.9565E+00	7.0905E-01	1.6963E+00	7.9027E-01	1.4776E+00
16	3.9789E-01	3.3547E+00	5.7594E-01	2.0643E+00	6.3898E-01	1.7895E+00	7.1139E-01	1.5584E+00
17	3.6597E-01	3.5249E+00	5.2320E-01	2.1697E+00	5.7926E-01	1.8807E+00	6.4398E-01	1.6376E+00
18	3.3857E-01	3.6895E+00	4.7800E-01	2.2723E+00	5.2798E-01	1.9696E+00	5.8602E-01	1.7150E+00
19	3.1464E-01	3.8487E+00	4.3890E-01	2.3718E+00	4.8363E-01	2.0560E+00	5.3586E-01	1.7902E+00
20	2.9346E-01	4.0029E+00	4.0478E-01	2.4679E+00	4.4498E-01	2.1396E+00	4.9217E-01	1.8630E+00
21	2.7446E-01	4.1526E+00	3.7474E-01	2.5607E+00	4.1104E-01	2.2203E+00	4.5386E-01	1.9334E+00
22	2.5729E-01	4.2981E+00	3.4808E-01	2.6502E+00	3.8102E-01	2.2980E+00	4.2006E-01	2.0012E+00
23	2.4166E-01	4.4399E+00	3.2425E-01	2.7365E+00	3.5429E-01	2.3730E+00	3.9004E-01	2.0664E+00
24	2.2737E-01	4.5785E+00	3.0282E-01	2.8198E+00	3.3035E-01	2.4452E+00	3.6323E-01	2.1293E+00
25	2.1426E-01	4.7143E+00	2.8343E-01	2.9004E+00	3.0877E-01	2.5148E+00	3.3915E-01	2.1897E+00
26	2.0222E-01	4.8474E+00	2.6581E-01	2.9784E+00	2.8925E-01	2.5821E+00	3.1742E-01	2.2480E+00
27	1.9114E-01	4.9780E+00	2.4973E-01	3.0541E+00	2.7150E-01	2.6472E+00	2.9773E-01	2.3043E+00
28	1.8095E-01	5.1064E+00	2.3504E-01	3.1276E+00	2.5533E-01	2.7103E+00	2.7983E-01	2.3588E+00
29	1.7156E-01	5.2326E+00	2.2158E-01	3.1992E+00	2.4054E-01	2.7716E+00	2.6350E-01	2.4116E+00
30	1.6291E-01	5.3567E+00	2.0923E-01	3.2691E+00	2.2700E-01	2.8312E+00	2.4857E-01	2.4629E+00
31	1.5493E-01	5.4787E+00	1.9787E-01	3.3374E+00	2.1456E-01	2.8894E+00	2.3487E-01	2.5129E+00
32	1.4755E-01	5.5987E+00	1.8740E-01	3.4041E+00	2.0311E-01	2.9462E+00	2.2228E-01	2.5616E+00
33	1.4073E-01	5.7167E+00	1.7775E-01	3.4695E+00	1.9257E-01	3.0018E+00	2.1068E-01	2.6092E+00
34	1.3441E-01	5.8328E+00	1.6885E-01	3.5337E+00	1.8284E-01	3.0563E+00	1.9999E-01	2.6558E+00
35	1.2854E-01	5.9470E+00	1.6062E-01	3.5966E+00	1.7385E-01	3.1097E+00	1.9010E-01	2.7016E+00
36	1.2308E-01	6.0593E+00	1.5300E-01	3.6584E+00	1.6553E-01	3.1622E+00	1.8095E-01	2.7464E+00
37	1.1799E-01	6.1699E+00	1.4595E-01	3.7191E+00	1.5782E-01	3.2137E+00	1.7247E-01	2.7905E+00
38	1.1324E-01	6.2787E+00	1.3940E-01	3.7787E+00	1.5066E-01	3.2644E+00	1.6459E-01	2.8339E+00
39	1.0880E-01	1.0263E-01	1.3331E-01	3.8374E+00	1.4401E-01	3.3143E+00	1.5726E-01	2.8766E+00
40	1.0463E-01	2.0817E-01	1.2765E-01	3.8952E+00	1.3781E-01	3.3633E+00	1.5044E-01	2.9186E+00
41	1.0072E-01	3.1219E-01	1.2237E-01	3.9520E+00	1.3204E-01	3.4116E+00	1.4407E-01	2.9600E+00
42	9.7036E-02	4.1477E-01	1.1744E-01	4.0080E+00	1.2665E-01	3.4592E+00	1.3812E-01	3.0008E+00
43	9.3565E-02	5.1601E-01	1.1284E-01	4.0630E+00	1.2161E-01	3.5061E+00	1.3255E-01	3.0410E+00
44	9.0290E-02	6.1597E-01	1.0852E-01	4.1173E+00	1.1688E-01	3.5522E+00	1.2734E-01	3.0806E+00
45	8.7195E-02	7.1474E-01	1.0447E-01	4.1707E+00	1.1245E-01	3.5977E+00	1.2244E-01	3.1197E+00
46	8.4267E-02	8.1238E-01	1.0067E-01	4.2234E+00	1.0828E-01	3.6426E+00	1.1784E-01	3.1582E+00
47	8.1493E-02	9.0899E-01	9.7085E-02	4.2753E+00	1.0436E-01	3.6868E+00	1.1350E-01	3.1962E+00
48	7.8862E-02	1.0047E+00	9.3709E-02	4.3265E+00	1.0067E-01	3.7304E+00	1.0942E-01	3.2336E+00
49	7.6364E-02	1.0995E+00	9.0523E-02	4.3769E+00	9.7180E-02	3.7733E+00	1.0556E-01	3.2705E+00
50	7.3991E-02	1.1935E+00	8.7510E-02	4.4267E+00	9.3884E-02	3.8157E+00	1.0192E-01	3.3069E+00
51	7.1735E-02	1.2867E+00	8.4657E-02	4.4758E+00	9.0762E-02	3.8575E+00	9.8470E-02	3.3428E+00
52	6.9589E-02	1.3793E+00	8.1951E-02	4.5243E+00	8.7803E-02	3.8987E+00	9.5200E-02	3.3781E+00
53	6.7547E-02	1.4713E+00	7.9383E-02	4.5721E+00	8.4995E-02	3.9393E+00	9.2098E-02	3.4130E+00
54	6.5602E-02	1.5628E+00	7.6942E-02	4.6193E+00	8.2326E-02	3.9794E+00	8.9151E-02	3.4474E+00
55	6.3749E-02	1.6538E+00	7.4620E-02	4.6659E+00	7.9789E-02	4.0190E+00	8.6350E-02	3.4814E+00
56	6.1985E-02	1.7444E+00	7.2407E-02	4.7119E+00	7.7372E-02	4.0580E+00	8.3684E-02	3.5148E+00
57	6.0304E-02	1.8347E+00	7.0296E-02	4.7574E+00	7.5068E-02	4.0965E+00	8.1143E-02	3.5478E+00
58	5.8702E-02	1.9247E+00	6.8282E-02	4.8024E+00	7.2869E-02	4.1346E+00	7.8718E-02	3.5804E+00
59	5.7178E-02	2.0144E+00	6.6358E-02	4.8468E+00	7.0768E-02	4.1721E+00	7.6404E-02	3.6125E+00
60	5.5727E-02	2.1039E+00	6.4517E-02	4.8907E+00	6.8761E-02	4.2092E+00	7.4193E-02	3.6442E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Lu; $Z = 71$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.0943E+01	3.1759E-01	1.2941E+01	2.3177E-01	1.3721E+01	2.0859E-01	1.4697E+01	1.8747E-01
1	8.5956E+00	3.9524E-01	1.0394E+01	2.8379E-01	1.1070E+01	2.5451E-01	1.1905E+01	2.2797E-01
2	5.4783E+00	5.8749E-01	6.9420E+00	4.0753E-01	7.4594E+00	3.6289E-01	8.0814E+00	3.2310E-01
3	3.7447E+00	8.0077E-01	4.9509E+00	5.4004E-01	5.3623E+00	4.7814E-01	5.8458E+00	4.2377E-01
4	2.7567E+00	1.0028E+00	3.7768E+00	6.6330E-01	4.1179E+00	5.8494E-01	4.5126E+00	5.1678E-01
5	2.1084E+00	1.2058E+00	2.9786E+00	7.8527E-01	3.2664E+00	6.9028E-01	3.5956E+00	6.0829E-01
6	1.6571E+00	1.4161E+00	2.3990E+00	9.0994E-01	2.6436E+00	7.9764E-01	2.9212E+00	7.0133E-01
7	1.3362E+00	1.6305E+00	1.9682E+00	1.0362E+00	2.1771E+00	9.0619E-01	2.4132E+00	7.9524E-01
8	1.1031E+00	1.8436E+00	1.6427E+00	1.1618E+00	1.8222E+00	1.0140E+00	2.0246E+00	8.8843E-01
9	9.2889E-01	2.0521E+00	1.3920E+00	1.2849E+00	1.5473E+00	1.1197E+00	1.7223E+00	9.7976E-01
10	7.9486E-01	2.2551E+00	1.1950E+00	1.4051E+00	1.3303E+00	1.2228E+00	1.4828E+00	1.0689E+00
11	6.8939E-01	2.4530E+00	1.0372E+00	1.5225E+00	1.1557E+00	1.3237E+00	1.2894E+00	1.1560E+00
12	6.0507E-01	2.6465E+00	9.0872E-01	1.6377E+00	1.0130E+00	1.4226E+00	1.1309E+00	1.2414E+00
13	5.3695E-01	2.8361E+00	8.0292E-01	1.7510E+00	8.9498E-01	1.5200E+00	9.9934E-01	1.3256E+00
14	4.8145E-01	3.0218E+00	7.1494E-01	1.8628E+00	7.9641E-01	1.6161E+00	8.8908E-01	1.4087E+00
15	4.3582E-01	3.2030E+00	6.4120E-01	1.9728E+00	7.1344E-01	1.7109E+00	7.9595E-01	1.4908E+00
16	3.9788E-01	3.3794E+00	5.7895E-01	2.0809E+00	6.4312E-01	1.8043E+00	7.1675E-01	1.5717E+00
17	3.6588E-01	3.5504E+00	5.2601E-01	2.1867E+00	5.8312E-01	1.8958E+00	6.4901E-01	1.6512E+00
18	3.3846E-01	3.7160E+00	4.8062E-01	2.2898E+00	5.3159E-01	1.9852E+00	5.9071E-01	1.7290E+00
19	3.1460E-01	3.8763E+00	4.4138E-01	2.3900E+00	4.8701E-01	2.0722E+00	5.4023E-01	1.8048E+00
20	2.9353E-01	4.0315E+00	4.0715E-01	2.4869E+00	4.4817E-01	2.1566E+00	4.9625E-01	1.8783E+00
21	2.7467E-01	4.1822E+00	3.7704E-01	2.5807E+00	4.1406E-01	2.2381E+00	4.5769E-01	1.9495E+00
22	2.5764E-01	4.3287E+00	3.5033E-01	2.6712E+00	3.8390E-01	2.3169E+00	4.2365E-01	2.0182E+00
23	2.4215E-01	4.4716E+00	3.2647E-01	2.7585E+00	3.5706E-01	2.3928E+00	3.9343E-01	2.0844E+00
24	2.2799E-01	4.6112E+00	3.0500E-01	2.8429E+00	3.3301E-01	2.4660E+00	3.6644E-01	2.1482E+00
25	2.1499E-01	4.7478E+00	2.8558E-01	2.9245E+00	3.1135E-01	2.5367E+00	3.4220E-01	2.2096E+00
26	2.0304E-01	4.8818E+00	2.6793E-01	3.0035E+00	2.9173E-01	2.6050E+00	3.2033E-01	2.2689E+00
27	1.9204E-01	5.0134E+00	2.5183E-01	3.0802E+00	2.7391E-01	2.6710E+00	3.0051E-01	2.3261E+00
28	1.8190E-01	5.1427E+00	2.3710E-01	3.1547E+00	2.5765E-01	2.7350E+00	2.8248E-01	2.3815E+00
29	1.7255E-01	5.2699E+00	2.2358E-01	3.2272E+00	2.4278E-01	2.7972E+00	2.6603E-01	2.4351E+00
30	1.6393E-01	5.3949E+00	2.1117E-01	3.2979E+00	2.2915E-01	2.8577E+00	2.5098E-01	2.4872E+00
31	1.5596E-01	5.5179E+00	1.9974E-01	3.3670E+00	2.1662E-01	2.9167E+00	2.3717E-01	2.5379E+00
32	1.4859E-01	5.6390E+00	1.8921E-01	3.4345E+00	2.0509E-01	2.9742E+00	2.2447E-01	2.5873E+00
33	1.4177E-01	5.7581E+00	1.7949E-01	3.5007E+00	1.9446E-01	3.0305E+00	2.1277E-01	2.6356E+00
34	1.3545E-01	5.8752E+00	1.7051E-01	3.5655E+00	1.8464E-01	3.0856E+00	2.0197E-01	2.6828E+00
35	1.2957E-01	5.9905E+00	1.6220E-01	3.6291E+00	1.7556E-01	3.1397E+00	1.9199E-01	2.7290E+00
36	1.2410E-01	6.1040E+00	1.5451E-01	3.6916E+00	1.6716E-01	3.1927E+00	1.8275E-01	2.7744E+00
37	1.1900E-01	6.2156E+00	1.4738E-01	3.7529E+00	1.5936E-01	3.2448E+00	1.7417E-01	2.8190E+00
38	1.1423E-01	4.2364E-02	1.4075E-01	3.8132E+00	1.5213E-01	3.2960E+00	1.6621E-01	2.8628E+00
39	1.0977E-01	1.5062E-01	1.3460E-01	3.8725E+00	1.4540E-01	3.3464E+00	1.5880E-01	2.9059E+00
40	1.0559E-01	2.5726E-01	1.2887E-01	3.9309E+00	1.3913E-01	3.3959E+00	1.5190E-01	2.9483E+00
41	1.0165E-01	3.6238E-01	1.2352E-01	3.9883E+00	1.3329E-01	3.4447E+00	1.4546E-01	2.9901E+00
42	9.7950E-02	4.6604E-01	1.1854E-01	4.0448E+00	1.2784E-01	3.4927E+00	1.3945E-01	3.0313E+00
43	9.4458E-02	5.6833E-01	1.1387E-01	4.1004E+00	1.2273E-01	3.5401E+00	1.3382E-01	3.0719E+00
44	9.1160E-02	6.6932E-01	1.0950E-01	4.1552E+00	1.1796E-01	3.5867E+00	1.2855E-01	3.1119E+00
45	8.8042E-02	7.6908E-01	1.0541E-01	4.2092E+00	1.1347E-01	3.6326E+00	1.2360E-01	3.1513E+00
46	8.5089E-02	8.6771E-01	1.0156E-01	4.2624E+00	1.0926E-01	3.6779E+00	1.1894E-01	3.1902E+00
47	8.2290E-02	9.6528E-01	9.7934E-02	4.3148E+00	1.0530E-01	3.7225E+00	1.1456E-01	3.2285E+00
48	7.9633E-02	1.0619E+00	9.4520E-02	4.3665E+00	1.0156E-01	3.7666E+00	1.1044E-01	3.2663E+00
49	7.7109E-02	1.1576E+00	9.1298E-02	4.4175E+00	9.8038E-02	3.8100E+00	1.0654E-01	3.3036E+00
50	7.4709E-02	1.2524E+00	8.8253E-02	4.4678E+00	9.4707E-02	3.8527E+00	1.0286E-01	3.3403E+00
51	7.2425E-02	1.3465E+00	8.5370E-02	4.5174E+00	9.1555E-02	3.8949E+00	9.9380E-02	3.3766E+00
52	7.0251E-02	1.4400E+00	8.2637E-02	4.5664E+00	8.8568E-02	3.9366E+00	9.6080E-02	3.4123E+00
53	6.8180E-02	1.5328E+00	8.0044E-02	4.6147E+00	8.5733E-02	3.9777E+00	9.2949E-02	3.4476E+00
54	6.6206E-02	1.6251E+00	7.7580E-02	4.6624E+00	8.3041E-02	4.0182E+00	8.9976E-02	3.4824E+00
55	6.4324E-02	1.7169E+00	7.5236E-02	4.7095E+00	8.0481E-02	4.0582E+00	8.7150E-02	3.5167E+00
56	6.2530E-02	1.8083E+00	7.3004E-02	4.7561E+00	7.8044E-02	4.0977E+00	8.4461E-02	3.5506E+00
57	6.0819E-02	1.8993E+00	7.0876E-02	4.8020E+00	7.5721E-02	4.1366E+00	8.1898E-02	3.5840E+00
58	5.9188E-02	1.9901E+00	6.8845E-02	4.8475E+00	7.3504E-02	4.1751E+00	7.9454E-02	3.6169E+00
59	5.7634E-02	2.0806E+00	6.6905E-02	4.8924E+00	7.1387E-02	4.2131E+00	7.7121E-02	3.6494E+00
60	5.6154E-02	2.1709E+00	6.5050E-02	4.9368E+00	6.9364E-02	4.2506E+00	7.4892E-02	3.6815E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Hf; $Z = 72$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.0603E+01	3.3167E-01	1.2587E+01	2.4153E-01	1.3356E+01	2.1737E-01	1.4316E+01	1.9538E-01
1	8.5530E+00	4.0215E-01	1.0359E+01	2.8874E-01	1.1037E+01	2.5904E-01	1.1875E+01	2.3212E-01
2	5.5915E+00	5.8256E-01	7.0794E+00	4.0530E-01	7.6076E+00	3.6123E-01	8.2428E+00	3.2187E-01
3	3.8068E+00	7.9686E-01	5.0313E+00	5.3889E-01	5.4508E+00	4.7751E-01	5.9438E+00	4.2350E-01
4	2.7788E+00	1.0066E+00	3.8079E+00	6.6705E-01	4.1536E+00	5.8857E-01	4.5536E+00	5.2024E-01
5	2.1162E+00	1.2155E+00	2.9904E+00	7.9273E-01	3.2813E+00	6.9714E-01	3.6138E+00	6.1455E-01
6	1.6607E+00	1.4288E+00	2.4050E+00	9.1954E-01	2.6519E+00	8.0637E-01	2.9320E+00	7.0922E-01
7	1.3384E+00	1.6447E+00	1.9724E+00	1.0472E+00	2.1833E+00	9.1609E-01	2.4215E+00	8.0416E-01
8	1.1046E+00	1.8590E+00	1.6463E+00	1.1738E+00	1.8276E+00	1.0248E+00	2.0319E+00	8.9816E-01
9	9.3006E-01	2.0684E+00	1.3954E+00	1.2978E+00	1.5524E+00	1.1313E+00	1.7291E+00	9.9019E-01
10	7.9575E-01	2.2721E+00	1.1983E+00	1.4188E+00	1.3351E+00	1.2351E+00	1.4891E+00	1.0799E+00
11	6.8963E-01	2.4704E+00	1.0400E+00	1.5367E+00	1.1599E+00	1.3364E+00	1.2950E+00	1.1674E+00
12	6.0517E-01	2.6642E+00	9.1187E-01	1.6522E+00	1.0175E+00	1.4356E+00	1.1367E+00	1.2531E+00
13	5.3685E-01	2.8540E+00	8.0629E-01	1.7658E+00	8.9967E-01	1.5331E+00	1.0053E+00	1.3374E+00
14	4.8099E-01	3.0401E+00	7.1829E-01	1.8776E+00	8.0104E-01	1.6293E+00	8.9498E-01	1.4205E+00
15	4.3504E-01	3.2220E+00	6.4446E-01	1.9877E+00	7.1793E-01	1.7241E+00	8.0166E-01	1.5026E+00
16	3.9687E-01	3.3992E+00	5.8208E-01	2.0959E+00	6.4742E-01	1.8175E+00	7.2222E-01	1.5836E+00
17	3.6475E-01	3.5715E+00	5.2899E-01	2.2020E+00	5.8721E-01	1.9093E+00	6.5419E-01	1.6632E+00
18	3.3734E-01	3.7386E+00	4.8348E-01	2.3056E+00	5.3547E-01	1.9990E+00	5.9559E-01	1.7413E+00
19	3.1358E-01	3.9004E+00	4.4413E-01	2.4063E+00	4.9069E-01	2.0865E+00	5.4482E-01	1.8175E+00
20	2.9268E-01	4.0574E+00	4.0984E-01	2.5041E+00	4.5166E-01	2.1715E+00	5.0057E-01	1.8916E+00
21	2.7406E-01	4.2097E+00	3.7969E-01	2.5986E+00	4.1741E-01	2.2538E+00	4.6176E-01	1.9634E+00
22	2.5729E-01	4.3578E+00	3.5296E-01	2.6900E+00	3.8713E-01	2.3333E+00	4.2750E-01	2.0329E+00
23	2.4207E-01	4.5021E+00	3.2908E-01	2.7783E+00	3.6018E-01	2.4102E+00	3.9708E-01	2.0999E+00
24	2.2817E-01	4.6431E+00	3.0761E-01	2.8636E+00	3.3603E-01	2.4843E+00	3.6992E-01	2.1645E+00
25	2.1543E-01	4.7811E+00	2.8818E-01	2.9461E+00	3.1428E-01	2.5558E+00	3.4552E-01	2.2269E+00
26	2.0372E-01	4.9164E+00	2.7052E-01	3.0259E+00	2.9459E-01	2.6249E+00	3.2351E-01	2.2870E+00
27	1.9294E-01	5.0491E+00	2.5440E-01	3.1034E+00	2.7668E-01	2.6918E+00	3.0355E-01	2.3450E+00
28	1.8300E-01	5.1794E+00	2.3964E-01	3.1787E+00	2.6035E-01	2.7566E+00	2.8540E-01	2.4011E+00
29	1.7383E-01	5.3075E+00	2.2609E-01	3.2519E+00	2.4539E-01	2.8195E+00	2.6882E-01	2.4555E+00
30	1.6536E-01	5.4335E+00	2.1362E-01	3.3233E+00	2.3167E-01	2.8807E+00	2.5365E-01	2.5083E+00
31	1.5753E-01	5.5573E+00	2.0213E-01	3.3929E+00	2.1905E-01	2.9403E+00	2.3972E-01	2.5596E+00
32	1.5028E-01	5.6790E+00	1.9152E-01	3.4610E+00	2.0743E-01	2.9984E+00	2.2691E-01	2.6096E+00
33	1.4355E-01	5.7987E+00	1.8173E-01	3.5277E+00	1.9670E-01	3.0552E+00	2.1509E-01	2.6584E+00
34	1.3731E-01	5.9164E+00	1.7266E-01	3.5930E+00	1.8678E-01	3.1108E+00	2.0418E-01	2.7061E+00
35	1.3149E-01	6.0321E+00	1.6427E-01	3.6570E+00	1.7761E-01	3.1653E+00	1.9410E-01	2.7528E+00
36	1.2606E-01	6.1459E+00	1.5649E-01	3.7198E+00	1.6910E-01	3.2187E+00	1.8475E-01	2.7985E+00
37	1.2099E-01	6.2579E+00	1.4926E-01	3.7815E+00	1.6121E-01	3.2712E+00	1.7607E-01	2.8435E+00
38	1.1623E-01	6.3680E+00	1.4255E-01	3.8422E+00	1.5388E-01	3.3227E+00	1.6801E-01	2.8876E+00
39	1.1176E-01	6.4764E+00	1.3630E-01	3.9018E+00	1.4706E-01	3.3734E+00	1.6051E-01	2.9310E+00
40	1.0756E-01	6.5831E+00	1.3048E-01	3.9604E+00	1.4070E-01	3.4232E+00	1.5352E-01	2.9737E+00
41	1.0359E-01	6.6882E+00	1.2505E-01	4.0181E+00	1.3477E-01	3.4723E+00	1.4699E-01	3.0158E+00
42	9.9844E-02	6.7918E+00	1.1998E-01	4.0749E+00	1.2924E-01	3.5206E+00	1.4090E-01	3.0572E+00
43	9.6296E-02	6.8939E+00	1.1523E-01	4.1308E+00	1.2405E-01	3.5682E+00	1.3519E-01	3.0980E+00
44	9.2931E-02	6.9948E+00	1.1079E-01	4.1858E+00	1.1920E-01	3.6150E+00	1.2984E-01	3.1383E+00
45	8.9736E-02	7.0944E+00	1.0661E-01	4.2400E+00	1.1464E-01	3.6612E+00	1.2483E-01	3.1779E+00
46	8.6697E-02	7.1929E+00	1.0269E-01	4.2935E+00	1.1037E-01	3.7067E+00	1.2011E-01	3.2170E+00
47	8.3804E-02	7.2903E+00	9.8966E-02	4.3461E+00	1.0634E-01	3.7516E+00	1.1567E-01	3.2556E+00
48	8.1047E-02	7.3867E+00	9.5515E-02	4.3981E+00	1.0254E-01	3.7959E+00	1.1148E-01	3.2936E+00
49	7.8417E-02	7.4823E+00	9.2229E-02	4.4493E+00	9.8959E-02	3.8395E+00	1.0754E-01	3.3311E+00
50	7.5906E-02	7.5771E+00	8.9122E-02	4.4998E+00	9.5574E-02	3.8826E+00	1.0380E-01	3.3681E+00
51	7.3508E-02	7.6712E+00	8.6181E-02	4.5497E+00	9.2370E-02	3.9250E+00	1.0027E-01	3.4046E+00
52	7.1216E-02	7.7646E+00	8.3393E-02	4.5989E+00	8.9335E-02	3.9669E+00	9.6929E-02	3.4406E+00
53	6.9025E-02	7.8576E+00	8.0747E-02	4.6475E+00	8.6455E-02	4.0083E+00	9.3756E-02	3.4761E+00
54	6.6931E-02	7.9501E+00	7.8232E-02	4.6954E+00	8.3719E-02	4.0490E+00	9.0743E-02	3.5112E+00
55	6.4928E-02	8.0422E+00	7.5840E-02	4.7428E+00	8.1117E-02	4.0893E+00	8.7879E-02	3.5457E+00
56	6.3014E-02	8.1340E+00	7.3561E-02	4.7897E+00	7.8640E-02	4.1291E+00	8.5153E-02	3.5799E+00
57	6.1185E-02	8.2257E+00	7.1388E-02	4.8360E+00	7.6280E-02	4.1684E+00	8.2556E-02	3.6135E+00
58	5.9437E-02	8.3172E+00	6.9314E-02	4.8817E+00	7.4028E-02	4.2071E+00	8.0080E-02	3.6468E+00
59	5.7770E-02	8.4086E+00	6.7333E-02	4.9270E+00	7.1877E-02	4.2455E+00	7.7716E-02	3.6796E+00
60	5.6180E-02	8.5000E+00	6.5440E-02	4.9717E+00	6.9822E-02	4.2833E+00	7.5458E-02	3.7119E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Ta; $Z = 73$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.0252E+01	3.4524E-01	1.2220E+01	2.5112E-01	1.2978E+01	2.2603E-01	1.3921E+01	2.0321E-01
1	8.4411E+00	4.1045E-01	1.0249E+01	2.9477E-01	1.0927E+01	2.6456E-01	1.1761E+01	2.3716E-01
2	5.6583E+00	5.8029E-01	7.1658E+00	4.0479E-01	7.7018E+00	3.6107E-01	8.3465E+00	3.2197E-01
3	3.8629E+00	7.9165E-01	5.1069E+00	5.3696E-01	5.5339E+00	4.7621E-01	6.0357E+00	4.2267E-01
4	2.8046E+00	1.0060E+00	3.8463E+00	6.6807E-01	4.1971E+00	5.8988E-01	4.6029E+00	5.2172E-01
5	2.1272E+00	1.2204E+00	3.0086E+00	7.9718E-01	3.3027E+00	7.0144E-01	3.6390E+00	6.1865E-01
6	1.6661E+00	1.4377E+00	2.4145E+00	9.2656E-01	2.6637E+00	8.1291E-01	2.9466E+00	7.1529E-01
7	1.3417E+00	1.6565E+00	1.9784E+00	1.0560E+00	2.1911E+00	9.2425E-01	2.4315E+00	8.1166E-01
8	1.1071E+00	1.8728E+00	1.6507E+00	1.1841E+00	1.8335E+00	1.0343E+00	2.0396E+00	9.0679E-01
9	9.3225E-01	2.0837E+00	1.3991E+00	1.3093E+00	1.5574E+00	1.1418E+00	1.7356E+00	9.9974E-01
10	7.9782E-01	2.2883E+00	1.2018E+00	1.4311E+00	1.3397E+00	1.2464E+00	1.4951E+00	1.0901E+00
11	6.9154E-01	2.4871E+00	1.0434E+00	1.5497E+00	1.1644E+00	1.3482E+00	1.3008E+00	1.1781E+00
12	6.0684E-01	2.6812E+00	9.1521E-01	1.6656E+00	1.0219E+00	1.4477E+00	1.1424E+00	1.2641E+00
13	5.3819E-01	2.8711E+00	8.0957E-01	1.7792E+00	9.0400E-01	1.5454E+00	1.0109E+00	1.3486E+00
14	4.8195E-01	3.0572E+00	7.2144E-01	1.8911E+00	8.0525E-01	1.6416E+00	9.0037E-01	1.4318E+00
15	4.3563E-01	3.2393E+00	6.4743E-01	2.0012E+00	7.2197E-01	1.7364E+00	8.0686E-01	1.5138E+00
16	3.9714E-01	3.4170E+00	5.8486E-01	2.1095E+00	6.5124E-01	1.8299E+00	7.2718E-01	1.5948E+00
17	3.6480E-01	3.5900E+00	5.3158E-01	2.2159E+00	5.9081E-01	1.9218E+00	6.5888E-01	1.6746E+00
18	3.3726E-01	3.7579E+00	4.8588E-01	2.3198E+00	5.3883E-01	2.0119E+00	6.0000E-01	1.7529E+00
19	3.1346E-01	3.9207E+00	4.4640E-01	2.4211E+00	4.9384E-01	2.0998E+00	5.4895E-01	1.8295E+00
20	2.9258E-01	4.0786E+00	4.1199E-01	2.5195E+00	4.5464E-01	2.1854E+00	5.0444E-01	1.9042E+00
21	2.7403E-01	4.2320E+00	3.8176E-01	2.6148E+00	4.2023E-01	2.2684E+00	4.6539E-01	1.9767E+00
22	2.5736E-01	4.3811E+00	3.5498E-01	2.7071E+00	3.8982E-01	2.3488E+00	4.3093E-01	2.0469E+00
23	2.4225E-01	4.5265E+00	3.3108E-01	2.7963E+00	3.6276E-01	2.4265E+00	4.0033E-01	2.1147E+00
24	2.2846E-01	4.6685E+00	3.0959E-01	2.8826E+00	3.3853E-01	2.5015E+00	3.7300E-01	2.1803E+00
25	2.1583E-01	4.8074E+00	2.9015E-01	2.9661E+00	3.1671E-01	2.5740E+00	3.4846E-01	2.2435E+00
26	2.0422E-01	4.9436E+00	2.7248E-01	3.0469E+00	2.9695E-01	2.6441E+00	3.2632E-01	2.3045E+00
27	1.9352E-01	5.0772E+00	2.5635E-01	3.1253E+00	2.7898E-01	2.7119E+00	3.0624E-01	2.3635E+00
28	1.8365E-01	5.2085E+00	2.4157E-01	3.2015E+00	2.6258E-01	2.7777E+00	2.8798E-01	2.4205E+00
29	1.7455E-01	5.3376E+00	2.2799E-01	3.2756E+00	2.4757E-01	2.8414E+00	2.7130E-01	2.4757E+00
30	1.6612E-01	5.4645E+00	2.1549E-01	3.3478E+00	2.3378E-01	2.9034E+00	2.5603E-01	2.5293E+00
31	1.5833E-01	5.5893E+00	2.0396E-01	3.4183E+00	2.2109E-01	2.9638E+00	2.4200E-01	2.5814E+00
32	1.5111E-01	5.7121E+00	1.9331E-01	3.4871E+00	2.0939E-01	3.0227E+00	2.2909E-01	2.6320E+00
33	1.4441E-01	5.8328E+00	1.8346E-01	3.5545E+00	1.9859E-01	3.0802E+00	2.1718E-01	2.6815E+00
34	1.3818E-01	5.9516E+00	1.7433E-01	3.6205E+00	1.8860E-01	3.1364E+00	2.0619E-01	2.7298E+00
35	1.3238E-01	6.0684E+00	1.6588E-01	3.6853E+00	1.7934E-01	3.1915E+00	1.9600E-01	2.7771E+00
36	1.2697E-01	6.1833E+00	1.5803E-01	3.7488E+00	1.7076E-01	3.2455E+00	1.8657E-01	2.8234E+00
37	1.2190E-01	6.2964E+00	1.5074E-01	3.8111E+00	1.6280E-01	3.2985E+00	1.7781E-01	2.8688E+00
38	1.1716E-01	6.4076E+00	1.4396E-01	3.8724E+00	1.5539E-01	3.3506E+00	1.6967E-01	2.9134E+00
39	1.1269E-01	6.5171E+00	1.3765E-01	3.9326E+00	1.4850E-01	3.4018E+00	1.6209E-01	2.9573E+00
40	1.0849E-01	6.6248E+00	1.3176E-01	3.9918E+00	1.4208E-01	3.4522E+00	1.5502E-01	3.0004E+00
41	1.0452E-01	6.7310E+00	1.2627E-01	4.0501E+00	1.3608E-01	3.5017E+00	1.4843E-01	3.0428E+00
42	1.0077E-01	6.8357E+00	1.2114E-01	4.1074E+00	1.3048E-01	3.5505E+00	1.4226E-01	3.0847E+00
43	9.7222E-02	6.9388E+00	1.1634E-01	4.1638E+00	1.2524E-01	3.5985E+00	1.3649E-01	3.1258E+00
44	9.3850E-02	7.0407E+00	1.1184E-01	4.2194E+00	1.2033E-01	3.6458E+00	1.3109E-01	3.1664E+00
45	9.0645E-02	7.1413E+00	1.0762E-01	4.2742E+00	1.1572E-01	3.6924E+00	1.2601E-01	3.2064E+00
46	8.7595E-02	7.2406E+00	1.0365E-01	4.3281E+00	1.1139E-01	3.7384E+00	1.2125E-01	3.2459E+00
47	8.4688E-02	7.3389E+00	9.9911E-02	4.3813E+00	1.0732E-01	3.7837E+00	1.1676E-01	3.2848E+00
48	8.1914E-02	7.4362E+00	9.6389E-02	4.4337E+00	1.0348E-01	3.8283E+00	1.1253E-01	3.3232E+00
49	7.9265E-02	7.5326E+00	9.3066E-02	4.4854E+00	9.9858E-02	3.8724E+00	1.0854E-01	3.3610E+00
50	7.6734E-02	7.6281E+00	8.9924E-02	4.5364E+00	9.6436E-02	3.9158E+00	1.0477E-01	3.3984E+00
51	7.4313E-02	7.7230E+00	8.6950E-02	4.5868E+00	9.3199E-02	3.9587E+00	1.0120E-01	3.4352E+00
52	7.1996E-02	7.8172E+00	8.4132E-02	4.6364E+00	9.0132E-02	4.0010E+00	9.7825E-02	3.4715E+00
53	6.9779E-02	7.9108E+00	8.1458E-02	4.6855E+00	8.7224E-02	4.0427E+00	9.4622E-02	3.5074E+00
54	6.7656E-02	8.0040E+00	7.8917E-02	4.7339E+00	8.4461E-02	4.0839E+00	9.1581E-02	3.5428E+00
55	6.5623E-02	8.0967E+00	7.6500E-02	4.7818E+00	8.1835E-02	4.1246E+00	8.8690E-02	3.5777E+00
56	6.3678E-02	8.1892E+00	7.4199E-02	4.8291E+00	7.9335E-02	4.1648E+00	8.5939E-02	3.6122E+00
57	6.1816E-02	8.2815E+00	7.2005E-02	4.8758E+00	7.6953E-02	4.2044E+00	8.3319E-02	3.6462E+00
58	6.0035E-02	8.3736E+00	6.9912E-02	4.9220E+00	7.4681E-02	4.2436E+00	8.0821E-02	3.6798E+00
59	5.8333E-02	8.4656E+00	6.7913E-02	4.9677E+00	7.2512E-02	4.2823E+00	7.8437E-02	3.7130E+00
60	5.6707E-02	8.5576E+00	6.6002E-02	5.0129E+00	7.0439E-02	4.3206E+00	7.6160E-02	3.7457E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

W; Z = 74

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	9.9115E+00	3.5816E-01	1.1863E+01	2.6042E-01	1.2610E+01	2.3446E-01	1.3535E+01	2.1086E-01
1	8.2957E+00	4.1927E-01	1.0102E+01	3.0129E-01	1.0776E+01	2.7053E-01	1.1606E+01	2.4263E-01
2	5.6909E+00	5.7992E-01	7.2132E+00	4.0557E-01	7.7550E+00	3.6206E-01	8.4066E+00	3.2309E-01
3	3.9107E+00	7.8642E-01	5.1727E+00	5.3510E-01	5.6066E+00	4.7499E-01	6.1167E+00	4.2192E-01
4	2.8318E+00	1.0027E+00	3.8873E+00	6.6760E-01	4.2435E+00	5.8992E-01	4.6555E+00	5.2211E-01
5	2.1405E+00	1.2214E+00	3.0308E+00	7.9949E-01	3.3287E+00	7.0391E-01	3.6694E+00	6.2119E-01
6	1.6729E+00	1.4430E+00	2.4268E+00	9.3153E-01	2.6788E+00	8.1770E-01	2.9648E+00	7.1987E-01
7	1.3458E+00	1.6651E+00	1.9859E+00	1.0632E+00	2.2006E+00	9.3099E-01	2.4433E+00	8.1795E-01
8	1.1102E+00	1.8840E+00	1.6559E+00	1.1931E+00	1.8403E+00	1.0426E+00	2.0482E+00	9.1448E-01
9	9.3494E-01	2.0969E+00	1.4032E+00	1.3198E+00	1.5628E+00	1.1514E+00	1.7426E+00	1.0086E+00
10	8.0033E-01	2.3029E+00	1.2054E+00	1.4428E+00	1.3444E+00	1.2571E+00	1.5012E+00	1.0999E+00
11	6.9387E-01	2.5025E+00	1.0468E+00	1.5621E+00	1.1688E+00	1.3596E+00	1.3064E+00	1.1885E+00
12	6.0890E-01	2.6969E+00	9.1852E-01	1.6784E+00	1.0262E+00	1.4596E+00	1.1478E+00	1.2750E+00
13	5.3988E-01	2.8870E+00	8.1279E-01	1.7923E+00	9.0818E-01	1.5574E+00	1.0162E+00	1.3596E+00
14	4.8322E-01	3.0732E+00	7.2452E-01	1.9042E+00	8.0931E-01	1.6537E+00	9.0554E-01	1.4428E+00
15	4.3648E-01	3.2555E+00	6.5034E-01	2.0144E+00	7.2586E-01	1.7485E+00	8.1185E-01	1.5249E+00
16	3.9763E-01	3.4336E+00	5.8757E-01	2.1228E+00	6.5494E-01	1.8420E+00	7.3195E-01	1.6059E+00
17	3.6501E-01	3.6072E+00	5.3409E-01	2.2292E+00	5.9428E-01	1.9340E+00	6.6340E-01	1.6858E+00
18	3.3729E-01	3.7758E+00	4.8821E-01	2.3335E+00	5.4209E-01	2.0243E+00	6.0426E-01	1.7643E+00
19	3.1339E-01	3.9396E+00	4.4857E-01	2.4352E+00	4.9690E-01	2.1126E+00	5.5296E-01	1.8412E+00
20	2.9249E-01	4.0985E+00	4.1405E-01	2.5342E+00	4.5751E-01	2.1987E+00	5.0820E-01	1.9163E+00
21	2.7398E-01	4.2528E+00	3.8374E-01	2.6303E+00	4.2295E-01	2.2824E+00	4.6892E-01	1.9893E+00
22	2.5738E-01	4.4030E+00	3.5691E-01	2.7234E+00	3.9242E-01	2.3635E+00	4.3426E-01	2.0602E+00
23	2.4236E-01	4.5493E+00	3.3297E-01	2.8135E+00	3.6526E-01	2.4420E+00	4.0348E-01	2.1289E+00
24	2.2868E-01	4.6923E+00	3.1147E-01	2.9007E+00	3.4095E-01	2.5180E+00	3.7600E-01	2.1952E+00
25	2.1614E-01	4.8321E+00	2.9203E-01	2.9851E+00	3.1905E-01	2.5914E+00	3.5133E-01	2.2594E+00
26	2.0462E-01	4.9692E+00	2.7436E-01	3.0669E+00	2.9924E-01	2.6624E+00	3.2906E-01	2.3213E+00
27	1.9401E-01	5.1038E+00	2.5822E-01	3.1462E+00	2.8121E-01	2.7311E+00	3.0888E-01	2.3811E+00
28	1.8422E-01	5.2360E+00	2.4343E-01	3.2232E+00	2.6476E-01	2.7977E+00	2.9051E-01	2.4390E+00
29	1.7517E-01	5.3660E+00	2.2984E-01	3.2982E+00	2.4969E-01	2.8623E+00	2.7374E-01	2.4950E+00
30	1.6680E-01	5.4938E+00	2.1731E-01	3.3712E+00	2.3584E-01	2.9251E+00	2.5837E-01	2.5494E+00
31	1.5905E-01	5.6196E+00	2.0575E-01	3.4425E+00	2.2309E-01	2.9863E+00	2.4425E-01	2.6022E+00
32	1.5186E-01	5.7434E+00	1.9505E-01	3.5122E+00	2.1133E-01	3.0459E+00	2.3125E-01	2.6536E+00
33	1.4519E-01	5.8651E+00	1.8515E-01	3.5803E+00	2.0046E-01	3.1041E+00	2.1926E-01	2.7037E+00
34	1.3899E-01	5.9850E+00	1.7598E-01	3.6470E+00	1.9040E-01	3.1610E+00	2.0817E-01	2.7526E+00
35	1.3321E-01	6.1029E+00	1.6747E-01	3.7124E+00	1.8108E-01	3.2168E+00	1.9791E-01	2.8005E+00
36	1.2782E-01	6.2189E+00	1.5956E-01	3.7766E+00	1.7242E-01	3.2714E+00	1.8838E-01	2.8473E+00
37	1.2277E-01	6.3330E+00	1.5221E-01	3.8396E+00	1.6439E-01	3.3250E+00	1.7954E-01	2.8933E+00
38	1.1803E-01	6.4453E+00	1.4537E-01	3.9014E+00	1.5691E-01	3.3776E+00	1.7132E-01	2.9384E+00
39	1.1358E-01	6.5558E+00	1.3900E-01	3.9623E+00	1.4995E-01	3.4293E+00	1.6367E-01	2.9827E+00
40	1.0938E-01	6.6647E+00	1.3305E-01	4.0221E+00	1.4346E-01	3.4801E+00	1.5653E-01	3.0262E+00
41	1.0542E-01	6.7719E+00	1.2750E-01	4.0809E+00	1.3740E-01	3.5302E+00	1.4986E-01	3.0691E+00
42	1.0168E-01	6.8776E+00	1.2232E-01	4.1388E+00	1.3173E-01	3.5794E+00	1.4363E-01	3.1113E+00
43	9.8125E-02	6.9818E+00	1.1746E-01	4.1958E+00	1.2643E-01	3.6279E+00	1.3780E-01	3.1529E+00
44	9.4751E-02	7.0846E+00	1.1291E-01	4.2519E+00	1.2146E-01	3.6756E+00	1.3234E-01	3.1938E+00
45	9.1542E-02	7.1861E+00	1.0863E-01	4.3072E+00	1.1681E-01	3.7227E+00	1.2721E-01	3.2342E+00
46	8.8484E-02	7.2864E+00	1.0462E-01	4.3616E+00	1.1243E-01	3.7691E+00	1.2239E-01	3.2740E+00
47	8.5567E-02	7.3856E+00	1.0084E-01	4.4153E+00	1.0831E-01	3.8148E+00	1.1785E-01	3.3133E+00
48	8.2781E-02	7.4837E+00	9.7274E-02	4.4683E+00	1.0443E-01	3.8599E+00	1.1358E-01	3.3520E+00
49	8.0118E-02	7.5809E+00	9.3912E-02	4.5205E+00	1.0076E-01	3.9043E+00	1.0954E-01	3.3902E+00
50	7.7569E-02	7.6773E+00	9.0734E-02	4.5719E+00	9.7304E-02	3.9482E+00	1.0573E-01	3.4279E+00
51	7.5129E-02	7.7728E+00	8.7727E-02	4.6227E+00	9.4032E-02	3.9914E+00	1.0213E-01	3.4650E+00
52	7.2790E-02	7.8678E+00	8.4878E-02	4.6729E+00	9.0933E-02	4.0341E+00	9.8720E-02	3.5017E+00
53	7.0549E-02	7.9621E+00	8.2175E-02	4.7224E+00	8.7995E-02	4.0763E+00	9.5485E-02	3.5379E+00
54	6.8400E-02	8.0559E+00	7.9607E-02	4.7713E+00	8.5205E-02	4.1179E+00	9.2414E-02	3.5736E+00
55	6.6340E-02	8.1493E+00	7.7165E-02	4.8196E+00	8.2553E-02	4.1589E+00	8.9496E-02	3.6089E+00
56	6.4365E-02	8.2424E+00	7.4840E-02	4.8673E+00	8.0029E-02	4.1995E+00	8.6720E-02	3.6437E+00
57	6.2471E-02	8.3352E+00	7.2625E-02	4.9145E+00	7.7625E-02	4.2396E+00	8.4076E-02	3.6781E+00
58	6.0657E-02	8.4279E+00	7.0511E-02	4.9612E+00	7.5332E-02	4.2791E+00	8.1556E-02	3.7120E+00
59	5.8921E-02	8.5206E+00	6.8493E-02	5.0073E+00	7.3144E-02	4.3182E+00	7.9151E-02	3.7455E+00
60	5.7260E-02	8.6132E+00	6.6564E-02	5.0529E+00	7.1053E-02	4.3568E+00	7.6855E-02	3.7786E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Re; $Z = 75$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	9.6041E+00	3.7069E-01	1.1541E+01	2.6947E-01	1.2279E+01	2.4267E-01	1.3189E+01	2.1831E-01
1	8.1535E+00	4.2816E-01	9.9578E+00	3.0788E-01	1.0630E+01	2.7656E-01	1.1454E+01	2.4815E-01
2	5.7116E+00	5.8065E-01	7.2475E+00	4.0704E-01	7.7945E+00	3.6365E-01	8.4521E+00	3.2473E-01
3	3.9544E+00	7.8203E-01	5.2339E+00	5.3372E-01	5.6745E+00	4.7418E-01	6.1925E+00	4.2153E-01
4	2.8597E+00	9.9894E-01	3.9297E+00	6.6687E-01	4.2914E+00	5.8974E-01	4.7098E+00	5.2232E-01
5	2.1553E+00	1.2213E+00	3.0555E+00	8.0109E-01	3.3575E+00	7.0578E-01	3.7028E+00	6.2321E-01
6	1.6809E+00	1.4469E+00	2.4412E+00	9.3572E-01	2.6960E+00	8.2184E-01	2.9854E+00	7.2387E-01
7	1.3507E+00	1.6727E+00	1.9947E+00	1.0698E+00	2.2116E+00	9.3719E-01	2.4568E+00	8.2377E-01
8	1.1138E+00	1.8946E+00	1.6618E+00	1.2017E+00	1.8479E+00	1.0506E+00	2.0578E+00	9.2188E-01
9	9.3805E-01	2.1098E+00	1.4077E+00	1.3301E+00	1.5686E+00	1.1609E+00	1.7499E+00	1.0173E+00
10	8.0323E-01	2.3174E+00	1.2092E+00	1.4544E+00	1.3493E+00	1.2678E+00	1.5074E+00	1.1097E+00
11	6.9655E-01	2.5181E+00	1.0503E+00	1.5747E+00	1.1732E+00	1.3712E+00	1.3120E+00	1.1991E+00
12	6.1130E-01	2.7131E+00	9.2184E-01	1.6917E+00	1.0304E+00	1.4717E+00	1.1531E+00	1.2860E+00
13	5.4191E-01	2.9034E+00	8.1598E-01	1.8059E+00	9.1226E-01	1.5699E+00	1.0213E+00	1.3709E+00
14	4.8479E-01	3.0898E+00	7.2757E-01	1.9179E+00	8.1325E-01	1.6662E+00	9.1051E-01	1.4543E+00
15	4.3760E-01	3.2723E+00	6.5321E-01	2.0281E+00	7.2964E-01	1.7611E+00	8.1666E-01	1.5364E+00
16	3.9835E-01	3.4508E+00	5.9024E-01	2.1365E+00	6.5852E-01	1.8546E+00	7.3656E-01	1.6174E+00
17	3.6541E-01	3.6248E+00	5.3655E-01	2.2431E+00	5.9766E-01	1.9466E+00	6.6778E-01	1.6973E+00
18	3.3745E-01	3.7942E+00	4.9049E-01	2.3475E+00	5.4525E-01	2.0371E+00	6.0840E-01	1.7759E+00
19	3.1341E-01	3.9588E+00	4.5068E-01	2.4496E+00	4.9986E-01	2.1257E+00	5.5684E-01	1.8531E+00
20	2.9245E-01	4.1187E+00	4.1603E-01	2.5491E+00	4.6030E-01	2.2122E+00	5.1185E-01	1.9286E+00
21	2.7393E-01	4.2740E+00	3.8563E-01	2.6459E+00	4.2558E-01	2.2965E+00	4.7236E-01	2.0021E+00
22	2.5738E-01	4.4252E+00	3.5874E-01	2.7397E+00	3.9493E-01	2.3783E+00	4.3750E-01	2.0736E+00
23	2.4243E-01	4.5725E+00	3.3477E-01	2.8307E+00	3.6767E-01	2.4576E+00	4.0655E-01	2.1430E+00
24	2.2883E-01	4.7163E+00	3.1326E-01	2.9187E+00	3.4328E-01	2.5343E+00	3.7892E-01	2.2101E+00
25	2.1639E-01	4.8571E+00	2.9381E-01	3.0040E+00	3.2132E-01	2.6086E+00	3.5412E-01	2.2750E+00
26	2.0495E-01	4.9951E+00	2.7614E-01	3.0867E+00	3.0145E-01	2.6805E+00	3.3174E-01	2.3378E+00
27	1.9441E-01	5.1305E+00	2.6001E-01	3.1669E+00	2.8338E-01	2.7501E+00	3.1146E-01	2.3985E+00
28	1.8469E-01	5.2636E+00	2.4521E-01	3.2449E+00	2.6687E-01	2.8175E+00	2.9299E-01	2.4572E+00
29	1.7570E-01	5.3945E+00	2.3161E-01	3.3207E+00	2.5175E-01	2.8830E+00	2.7613E-01	2.5141E+00
30	1.6739E-01	5.5232E+00	2.1907E-01	3.3946E+00	2.3786E-01	2.9467E+00	2.6068E-01	2.5692E+00
31	1.5968E-01	5.6500E+00	2.0748E-01	3.4666E+00	2.2505E-01	3.0086E+00	2.4647E-01	2.6228E+00
32	1.5254E-01	5.7747E+00	1.9676E-01	3.5370E+00	2.1324E-01	3.0689E+00	2.3339E-01	2.6749E+00
33	1.4590E-01	5.8975E+00	1.8682E-01	3.6059E+00	2.0231E-01	3.1279E+00	2.2131E-01	2.7257E+00
34	1.3973E-01	6.0183E+00	1.7760E-01	3.6733E+00	1.9218E-01	3.1855E+00	2.1014E-01	2.7753E+00
35	1.3397E-01	6.1372E+00	1.6904E-01	3.7394E+00	1.8279E-01	3.2418E+00	1.9980E-01	2.8237E+00
36	1.2860E-01	6.2543E+00	1.6108E-01	3.8042E+00	1.7408E-01	3.2970E+00	1.9020E-01	2.8711E+00
37	1.2357E-01	6.3695E+00	1.5367E-01	3.8678E+00	1.6597E-01	3.3512E+00	1.8128E-01	2.9176E+00
38	1.1885E-01	6.4829E+00	1.4678E-01	3.9303E+00	1.5843E-01	3.4044E+00	1.7298E-01	2.9632E+00
39	1.1442E-01	6.5945E+00	1.4035E-01	3.9917E+00	1.5140E-01	3.4566E+00	1.6525E-01	3.0080E+00
40	1.1023E-01	6.7044E+00	1.3435E-01	4.0521E+00	1.4484E-01	3.5080E+00	1.5804E-01	3.0520E+00
41	1.0628E-01	6.8127E+00	1.2874E-01	4.1115E+00	1.3872E-01	3.5585E+00	1.5131E-01	3.0952E+00
42	1.0255E-01	6.9194E+00	1.2350E-01	4.1700E+00	1.3299E-01	3.6082E+00	1.4501E-01	3.1379E+00
43	9.9000E-02	7.0246E+00	1.1859E-01	4.2275E+00	1.2763E-01	3.6572E+00	1.3912E-01	3.1798E+00
44	9.5629E-02	7.1284E+00	1.1398E-01	4.2842E+00	1.2261E-01	3.7053E+00	1.3359E-01	3.2211E+00
45	9.2420E-02	7.2309E+00	1.0966E-01	4.3400E+00	1.1790E-01	3.7528E+00	1.2840E-01	3.2619E+00
46	8.9360E-02	7.3321E+00	1.0560E-01	4.3950E+00	1.1347E-01	3.7996E+00	1.2353E-01	3.3020E+00
47	8.6439E-02	7.4321E+00	1.0177E-01	4.4492E+00	1.0930E-01	3.8458E+00	1.1895E-01	3.3416E+00
48	8.3645E-02	7.5311E+00	9.8170E-02	4.5026E+00	1.0538E-01	3.8913E+00	1.1463E-01	3.3807E+00
49	8.0971E-02	7.6291E+00	9.4769E-02	4.5553E+00	1.0167E-01	3.9361E+00	1.1055E-01	3.4192E+00
50	7.8409E-02	7.7262E+00	9.1555E-02	4.6073E+00	9.8178E-02	3.9804E+00	1.0670E-01	3.4573E+00
51	7.5953E-02	7.8225E+00	8.8513E-02	4.6586E+00	9.4870E-02	4.0241E+00	1.0306E-01	3.4948E+00
52	7.3596E-02	7.9182E+00	8.5632E-02	4.7092E+00	9.1739E-02	4.0671E+00	9.9614E-02	3.5318E+00
53	7.1334E-02	8.0132E+00	8.2899E-02	4.7592E+00	8.8769E-02	4.1097E+00	9.6347E-02	3.5683E+00
54	6.9162E-02	8.1076E+00	8.0304E-02	4.8085E+00	8.5951E-02	4.1516E+00	9.3246E-02	3.6044E+00
55	6.7076E-02	8.2017E+00	7.7836E-02	4.8573E+00	8.3272E-02	4.1931E+00	9.0300E-02	3.6400E+00
56	6.5073E-02	8.2954E+00	7.5487E-02	4.9054E+00	8.0724E-02	4.2340E+00	8.7498E-02	3.6751E+00
57	6.3150E-02	8.3888E+00	7.3249E-02	4.9530E+00	7.8297E-02	4.2745E+00	8.4830E-02	3.7098E+00
58	6.1304E-02	8.4821E+00	7.1115E-02	5.0001E+00	7.5983E-02	4.3144E+00	8.2287E-02	3.7441E+00
59	5.9535E-02	8.5753E+00	6.9077E-02	5.0467E+00	7.3774E-02	4.3539E+00	7.9861E-02	3.7780E+00
60	5.7839E-02	8.6685E+00	6.7129E-02	5.0927E+00	7.1665E-02	4.3929E+00	7.7544E-02	3.8114E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Os; $Z = 76$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	9.3019E+00	3.8287E-01	1.1224E+01	2.7839E-01	1.1952E+01	2.5078E-01	1.2847E+01	2.2570E-01
1	7.9932E+00	4.3726E-01	9.7929E+00	3.1472E-01	1.0461E+01	2.8284E-01	1.1279E+01	2.5391E-01
2	5.7088E+00	5.8245E-01	7.2547E+00	4.0927E-01	7.8055E+00	3.6592E-01	8.4672E+00	3.2699E-01
3	3.9885E+00	7.7808E-01	5.2837E+00	5.3268E-01	5.7303E+00	4.7367E-01	6.2553E+00	4.2141E-01
4	2.8862E+00	9.9394E-01	3.9707E+00	6.6547E-01	4.3379E+00	5.8900E-01	4.7626E+00	5.2205E-01
5	2.1708E+00	1.2186E+00	3.0821E+00	8.0126E-01	3.3883E+00	7.0644E-01	3.7385E+00	6.2420E-01
6	1.6897E+00	1.4478E+00	2.4574E+00	9.3820E-01	2.7155E+00	8.2453E-01	3.0085E+00	7.2664E-01
7	1.3561E+00	1.6773E+00	2.0048E+00	1.0747E+00	2.2241E+00	9.4199E-01	2.4721E+00	8.2838E-01
8	1.1178E+00	1.9026E+00	1.6685E+00	1.2089E+00	1.8564E+00	1.0574E+00	2.0684E+00	9.2823E-01
9	9.4147E-01	2.1205E+00	1.4127E+00	1.3392E+00	1.5749E+00	1.1694E+00	1.7579E+00	1.0252E+00
10	8.0643E-01	2.3301E+00	1.2132E+00	1.4651E+00	1.3544E+00	1.2777E+00	1.5138E+00	1.1188E+00
11	6.9955E-01	2.5321E+00	1.0539E+00	1.5866E+00	1.1777E+00	1.3821E+00	1.3176E+00	1.2092E+00
12	6.1403E-01	2.7278E+00	9.2519E-01	1.7043E+00	1.0346E+00	1.4834E+00	1.1583E+00	1.2967E+00
13	5.4426E-01	2.9186E+00	8.1918E-01	1.8190E+00	9.1627E-01	1.5820E+00	1.0263E+00	1.3820E+00
14	4.8668E-01	3.1052E+00	7.3060E-01	1.9312E+00	8.1710E-01	1.6785E+00	9.1533E-01	1.4656E+00
15	4.3902E-01	3.2879E+00	6.5606E-01	2.0415E+00	7.3332E-01	1.7734E+00	8.2130E-01	1.5477E+00
16	3.9932E-01	3.4667E+00	5.9287E-01	2.1499E+00	6.6201E-01	1.8669E+00	7.4101E-01	1.6287E+00
17	3.6600E-01	3.6413E+00	5.3898E-01	2.2565E+00	6.0094E-01	1.9590E+00	6.7202E-01	1.7086E+00
18	3.3776E-01	3.8114E+00	4.9271E-01	2.3612E+00	5.4833E-01	2.0496E+00	6.1240E-01	1.7874E+00
19	3.1353E-01	3.9768E+00	4.5274E-01	2.4636E+00	5.0274E-01	2.1384E+00	5.6062E-01	1.8647E+00
20	2.9246E-01	4.1376E+00	4.1795E-01	2.5636E+00	4.6300E-01	2.2253E+00	5.1540E-01	1.9404E+00
21	2.7391E-01	4.2939E+00	3.8745E-01	2.6609E+00	4.2814E-01	2.3100E+00	4.7570E-01	2.0145E+00
22	2.5737E-01	4.4460E+00	3.6049E-01	2.7554E+00	3.9735E-01	2.3924E+00	4.4065E-01	2.0865E+00
23	2.4247E-01	4.5942E+00	3.3649E-01	2.8471E+00	3.6999E-01	2.4724E+00	4.0954E-01	2.1565E+00
24	2.2893E-01	4.7390E+00	3.1495E-01	2.9360E+00	3.4552E-01	2.5499E+00	3.8177E-01	2.2243E+00
25	2.1656E-01	4.8807E+00	2.9550E-01	3.0221E+00	3.2350E-01	2.6250E+00	3.5684E-01	2.2901E+00
26	2.0520E-01	5.0195E+00	2.7784E-01	3.1057E+00	3.0358E-01	2.6978E+00	3.3435E-01	2.3536E+00
27	1.9474E-01	5.1558E+00	2.6171E-01	3.1868E+00	2.8546E-01	2.7682E+00	3.1397E-01	2.4151E+00
28	1.8509E-01	5.2898E+00	2.4692E-01	3.2655E+00	2.6892E-01	2.8365E+00	2.9542E-01	2.4747E+00
29	1.7616E-01	5.4215E+00	2.3332E-01	3.3422E+00	2.5376E-01	2.9028E+00	2.7847E-01	2.5323E+00
30	1.6790E-01	5.5512E+00	2.2077E-01	3.4169E+00	2.3982E-01	2.9673E+00	2.6294E-01	2.5883E+00
31	1.6024E-01	5.6788E+00	2.0916E-01	3.4897E+00	2.2697E-01	3.0300E+00	2.4866E-01	2.6426E+00
32	1.5314E-01	5.8045E+00	1.9842E-01	3.5608E+00	2.1511E-01	3.0911E+00	2.3550E-01	2.6954E+00
33	1.4654E-01	5.9282E+00	1.8845E-01	3.6304E+00	2.0412E-01	3.1507E+00	2.2334E-01	2.7469E+00
34	1.4039E-01	6.0500E+00	1.7919E-01	3.6985E+00	1.9394E-01	3.2090E+00	2.1210E-01	2.7971E+00
35	1.3467E-01	6.1700E+00	1.7059E-01	3.7653E+00	1.8449E-01	3.2660E+00	2.0167E-01	2.8461E+00
36	1.2932E-01	6.2881E+00	1.6258E-01	3.8308E+00	1.7571E-01	3.3218E+00	1.9200E-01	2.8941E+00
37	1.2432E-01	6.4043E+00	1.5513E-01	3.8950E+00	1.6755E-01	3.3765E+00	1.8300E-01	2.9411E+00
38	1.1962E-01	6.5187E+00	1.4818E-01	3.9581E+00	1.5994E-01	3.4303E+00	1.7463E-01	2.9872E+00
39	1.1520E-01	6.6314E+00	1.4169E-01	4.0202E+00	1.5285E-01	3.4831E+00	1.6683E-01	3.0325E+00
40	1.1104E-01	6.7424E+00	1.3564E-01	4.0812E+00	1.4623E-01	3.5349E+00	1.5955E-01	3.0769E+00
41	1.0711E-01	6.8517E+00	1.2998E-01	4.1411E+00	1.4004E-01	3.5859E+00	1.5275E-01	3.1207E+00
42	1.0338E-01	6.9594E+00	1.2468E-01	4.2002E+00	1.3426E-01	3.6361E+00	1.4639E-01	3.1637E+00
43	9.9843E-02	7.0656E+00	1.1972E-01	4.2583E+00	1.2885E-01	3.6855E+00	1.4043E-01	3.2060E+00
44	9.6481E-02	7.1704E+00	1.1507E-01	4.3155E+00	1.2377E-01	3.7342E+00	1.3485E-01	3.2477E+00
45	9.3277E-02	7.2738E+00	1.1070E-01	4.3718E+00	1.1900E-01	3.7821E+00	1.2961E-01	3.2888E+00
46	9.0220E-02	7.3759E+00	1.0659E-01	4.4273E+00	1.1452E-01	3.8293E+00	1.2468E-01	3.3294E+00
47	8.7298E-02	7.4769E+00	1.0272E-01	4.4820E+00	1.1031E-01	3.8759E+00	1.2005E-01	3.3693E+00
48	8.4501E-02	7.5767E+00	9.9077E-02	4.5360E+00	1.0634E-01	3.9218E+00	1.1568E-01	3.4087E+00
49	8.1821E-02	7.6755E+00	9.5637E-02	4.5891E+00	1.0260E-01	3.9671E+00	1.1156E-01	3.4476E+00
50	7.9250E-02	7.7734E+00	9.2386E-02	4.6416E+00	9.9059E-02	4.0117E+00	1.0767E-01	3.4859E+00
51	7.6782E-02	7.8705E+00	8.9310E-02	4.6933E+00	9.5716E-02	4.0558E+00	1.0399E-01	3.5238E+00
52	7.4410E-02	7.9668E+00	8.6397E-02	4.7444E+00	9.2550E-02	4.0993E+00	1.0051E-01	3.5611E+00
53	7.2131E-02	8.0625E+00	8.3633E-02	4.7948E+00	8.9549E-02	4.1422E+00	9.7209E-02	3.5980E+00
54	6.9938E-02	8.1576E+00	8.1009E-02	4.8447E+00	8.6701E-02	4.1846E+00	9.4078E-02	3.6344E+00
55	6.7830E-02	8.2523E+00	7.8515E-02	4.8938E+00	8.3995E-02	4.2264E+00	9.1103E-02	3.6703E+00
56	6.5802E-02	8.3466E+00	7.6141E-02	4.9425E+00	8.1421E-02	4.2677E+00	8.8274E-02	3.7058E+00
57	6.3851E-02	8.4406E+00	7.3880E-02	4.9905E+00	7.8970E-02	4.3085E+00	8.5581E-02	3.7408E+00
58	6.1976E-02	8.5344E+00	7.1723E-02	5.0380E+00	7.6634E-02	4.3489E+00	8.3014E-02	3.7754E+00
59	6.0174E-02	8.6282E+00	6.9665E-02	5.0850E+00	7.4405E-02	4.3887E+00	8.0567E-02	3.8096E+00
60	5.8444E-02	8.7219E+00	6.7698E-02	5.1315E+00	7.2276E-02	4.4281E+00	7.8230E-02	3.8434E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Ir; $Z = 77$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	9.0094E+00	3.9465E-01	1.0915E+01	2.8713E-01	1.1634E+01	2.5876E-01	1.2514E+01	2.3298E-01
1	7.8231E+00	4.4641E-01	9.6163E+00	3.2167E-01	1.0280E+01	2.8924E-01	1.1091E+01	2.5978E-01
2	5.6873E+00	5.8508E-01	7.2404E+00	4.1210E-01	7.7938E+00	3.6873E-01	8.4580E+00	3.2972E-01
3	4.0132E+00	7.7474E-01	5.3222E+00	5.3206E-01	5.7741E+00	4.7355E-01	6.3052E+00	4.2163E-01
4	2.9103E+00	9.8831E-01	4.0090E+00	6.6376E-01	4.3815E+00	5.8800E-01	4.8124E+00	5.2156E-01
5	2.1863E+00	1.2141E+00	3.1093E+00	8.0039E-01	3.4200E+00	7.0623E-01	3.7752E+00	6.2443E-01
6	1.6988E+00	1.4462E+00	2.4750E+00	9.3923E-01	2.7366E+00	8.2599E-01	3.0335E+00	7.2837E-01
7	1.3618E+00	1.6793E+00	2.0161E+00	1.0780E+00	2.2380E+00	9.4548E-01	2.4889E+00	8.3189E-01
8	1.1219E+00	1.9080E+00	1.6760E+00	1.2146E+00	1.8658E+00	1.0629E+00	2.0800E+00	9.3354E-01
9	9.4506E-01	2.1289E+00	1.4181E+00	1.3471E+00	1.5817E+00	1.1769E+00	1.7664E+00	1.0322E+00
10	8.0983E-01	2.3409E+00	1.2175E+00	1.4748E+00	1.3598E+00	1.2867E+00	1.5205E+00	1.1272E+00
11	7.0279E-01	2.5444E+00	1.0576E+00	1.5977E+00	1.1823E+00	1.3924E+00	1.3233E+00	1.2187E+00
12	6.1704E-01	2.7411E+00	9.2861E-01	1.7163E+00	1.0388E+00	1.4945E+00	1.1635E+00	1.3070E+00
13	5.4690E-01	2.9325E+00	8.2241E-01	1.8316E+00	9.2024E-01	1.5937E+00	1.0312E+00	1.3928E+00
14	4.8887E-01	3.1194E+00	7.3365E-01	1.9441E+00	8.2089E-01	1.6905E+00	9.2001E-01	1.4766E+00
15	4.4071E-01	3.3024E+00	6.5890E-01	2.0545E+00	7.3693E-01	1.7855E+00	8.2581E-01	1.5589E+00
16	4.0054E-01	3.4816E+00	5.9550E-01	2.1630E+00	6.6543E-01	1.8791E+00	7.4533E-01	1.6399E+00
17	3.6681E-01	3.6566E+00	5.4139E-01	2.2697E+00	6.0415E-01	1.9712E+00	6.7613E-01	1.7198E+00
18	3.3824E-01	3.8274E+00	4.9492E-01	2.3745E+00	5.5133E-01	2.0618E+00	6.1629E-01	1.7986E+00
19	3.1378E-01	3.9936E+00	4.5476E-01	2.4772E+00	5.0555E-01	2.1508E+00	5.6429E-01	1.8760E+00
20	2.9256E-01	4.1553E+00	4.1982E-01	2.5775E+00	4.6563E-01	2.2380E+00	5.1885E-01	1.9520E+00
21	2.7393E-01	4.3125E+00	3.8921E-01	2.6753E+00	4.3061E-01	2.3231E+00	4.7895E-01	2.0264E+00
22	2.5737E-01	4.4655E+00	3.6217E-01	2.7704E+00	3.9970E-01	2.4061E+00	4.4372E-01	2.0989E+00
23	2.4249E-01	4.6147E+00	3.3812E-01	2.8628E+00	3.7224E-01	2.4867E+00	4.1245E-01	2.1695E+00
24	2.2900E-01	4.7604E+00	3.1656E-01	2.9525E+00	3.4769E-01	2.5649E+00	3.8453E-01	2.2380E+00
25	2.1669E-01	4.9030E+00	2.9711E-01	3.0394E+00	3.2561E-01	2.6408E+00	3.5949E-01	2.3044E+00
26	2.0540E-01	5.0427E+00	2.7945E-01	3.1238E+00	3.0563E-01	2.7143E+00	3.3689E-01	2.3688E+00
27	1.9500E-01	5.1799E+00	2.6333E-01	3.2057E+00	2.8748E-01	2.7856E+00	3.1642E-01	2.4311E+00
28	1.8541E-01	5.3146E+00	2.4855E-01	3.2854E+00	2.7090E-01	2.8547E+00	2.9778E-01	2.4914E+00
29	1.7654E-01	5.4472E+00	2.3495E-01	3.3628E+00	2.5570E-01	2.9218E+00	2.8076E-01	2.5498E+00
30	1.6833E-01	5.5778E+00	2.2240E-01	3.4383E+00	2.4173E-01	2.9871E+00	2.6515E-01	2.6065E+00
31	1.6072E-01	5.7063E+00	2.1079E-01	3.5119E+00	2.2884E-01	3.0505E+00	2.5080E-01	2.6616E+00
32	1.5366E-01	5.8328E+00	2.0002E-01	3.5838E+00	2.1693E-01	3.1123E+00	2.3757E-01	2.7152E+00
33	1.4710E-01	5.9575E+00	1.9003E-01	3.6540E+00	2.0591E-01	3.1727E+00	2.2534E-01	2.7673E+00
34	1.4099E-01	6.0803E+00	1.8075E-01	3.7229E+00	1.9568E-01	3.2316E+00	2.1403E-01	2.8182E+00
35	1.3530E-01	6.2013E+00	1.7211E-01	3.7903E+00	1.8618E-01	3.2892E+00	2.0353E-01	2.8678E+00
36	1.2998E-01	6.3203E+00	1.6407E-01	3.8564E+00	1.7734E-01	3.3457E+00	1.9379E-01	2.9164E+00
37	1.2500E-01	6.4376E+00	1.5656E-01	3.9213E+00	1.6912E-01	3.4010E+00	1.8472E-01	2.9639E+00
38	1.2033E-01	6.5531E+00	1.4957E-01	3.9850E+00	1.6145E-01	3.4553E+00	1.7628E-01	3.0105E+00
39	1.1593E-01	6.6668E+00	1.4304E-01	4.0477E+00	1.5430E-01	3.5087E+00	1.6841E-01	3.0563E+00
40	1.1179E-01	6.7788E+00	1.3693E-01	4.1092E+00	1.4762E-01	3.5610E+00	1.6106E-01	3.1012E+00
41	1.0788E-01	6.8891E+00	1.3122E-01	4.1698E+00	1.4138E-01	3.6125E+00	1.5420E-01	3.1453E+00
42	1.0417E-01	6.9979E+00	1.2587E-01	4.2294E+00	1.3554E-01	3.6632E+00	1.4777E-01	3.1888E+00
43	1.0065E-01	7.1051E+00	1.2086E-01	4.2880E+00	1.3006E-01	3.7131E+00	1.4176E-01	3.2315E+00
44	9.7301E-02	7.2108E+00	1.1616E-01	4.3458E+00	1.2493E-01	3.7622E+00	1.3612E-01	3.2736E+00
45	9.4107E-02	7.3152E+00	1.1174E-01	4.4026E+00	1.2011E-01	3.8106E+00	1.3082E-01	3.3151E+00
46	9.1058E-02	7.4182E+00	1.0759E-01	4.4587E+00	1.1559E-01	3.8582E+00	1.2584E-01	3.3560E+00
47	8.8140E-02	7.5200E+00	1.0368E-01	4.5139E+00	1.1133E-01	3.9052E+00	1.2115E-01	3.3963E+00
48	8.5345E-02	7.6207E+00	9.9995E-02	4.5683E+00	1.0731E-01	3.9516E+00	1.1674E-01	3.4361E+00
49	8.2663E-02	7.7204E+00	9.6516E-02	4.6220E+00	1.0352E-01	3.9972E+00	1.1258E-01	3.4753E+00
50	8.0088E-02	7.8190E+00	9.3228E-02	4.6749E+00	9.9950E-02	4.0423E+00	1.0864E-01	3.5140E+00
51	7.7612E-02	7.9169E+00	9.0117E-02	4.7272E+00	9.6569E-02	4.0868E+00	1.0493E-01	3.5521E+00
52	7.5230E-02	8.0139E+00	8.7171E-02	4.7787E+00	9.3368E-02	4.1306E+00	1.0141E-01	3.5898E+00
53	7.2937E-02	8.1102E+00	8.4377E-02	4.8296E+00	9.0335E-02	4.1739E+00	9.8074E-02	3.6270E+00
54	7.0728E-02	8.2060E+00	8.1724E-02	4.8799E+00	8.7457E-02	4.2167E+00	9.4911E-02	3.6637E+00
55	6.8600E-02	8.3013E+00	7.9202E-02	4.9295E+00	8.4722E-02	4.2589E+00	9.1906E-02	3.7000E+00
56	6.6549E-02	8.3961E+00	7.6803E-02	4.9785E+00	8.2122E-02	4.3006E+00	8.9050E-02	3.7358E+00
57	6.4573E-02	8.4907E+00	7.4517E-02	5.0270E+00	7.9647E-02	4.3418E+00	8.6331E-02	3.7712E+00
58	6.2670E-02	8.5851E+00	7.2338E-02	5.0750E+00	7.7288E-02	4.3825E+00	8.3740E-02	3.8061E+00
59	6.0838E-02	8.6793E+00	7.0258E-02	5.1224E+00	7.5038E-02	4.4227E+00	8.1270E-02	3.8406E+00
60	5.9076E-02	8.7736E+00	6.8272E-02	5.1693E+00	7.2889E-02	4.4625E+00	7.8912E-02	3.8747E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Pt; $Z = 78$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	8.1369E+00	4.2159E-01	9.9585E+00	3.0728E-01	1.0636E+01	2.7707E-01	1.1459E+01	2.4960E-01
1	7.2202E+00	4.6777E-01	8.9504E+00	3.3800E-01	9.5853E+00	3.0414E-01	1.0357E+01	2.7335E-01
2	5.4793E+00	5.9022E-01	7.0083E+00	4.1799E-01	7.5519E+00	3.7447E-01	8.2030E+00	3.3522E-01
3	3.9884E+00	7.6099E-01	5.3007E+00	5.2663E-01	5.7540E+00	4.6951E-01	6.2864E+00	4.1864E-01
4	2.9278E+00	9.6231E-01	4.0413E+00	6.5143E-01	4.4191E+00	5.7811E-01	4.8557E+00	5.1354E-01
5	2.2025E+00	1.1843E+00	3.1415E+00	7.8616E-01	3.4577E+00	6.9477E-01	3.8190E+00	6.1512E-01
6	1.7081E+00	1.4186E+00	2.4970E+00	9.2638E-01	2.7630E+00	8.1577E-01	3.0648E+00	7.2015E-01
7	1.3670E+00	1.6564E+00	2.0296E+00	1.0681E+00	2.2548E+00	9.3779E-01	2.5093E+00	8.2589E-01
8	1.1256E+00	1.8902E+00	1.6845E+00	1.2079E+00	1.8764E+00	1.0581E+00	2.0932E+00	9.3000E-01
9	9.4859E-01	2.1152E+00	1.4238E+00	1.3433E+00	1.5889E+00	1.1746E+00	1.7754E+00	1.0309E+00
10	8.1345E-01	2.3300E+00	1.2219E+00	1.4733E+00	1.3653E+00	1.2865E+00	1.5273E+00	1.1277E+00
11	7.0637E-01	2.5355E+00	1.0613E+00	1.5978E+00	1.1869E+00	1.3936E+00	1.3289E+00	1.2205E+00
12	6.2040E-01	2.7333E+00	9.3205E-01	1.7176E+00	1.0429E+00	1.4967E+00	1.1685E+00	1.3098E+00
13	5.4985E-01	2.9253E+00	8.2563E-01	1.8335E+00	9.2412E-01	1.5965E+00	1.0359E+00	1.3961E+00
14	4.9130E-01	3.1126E+00	7.3666E-01	1.9463E+00	8.2457E-01	1.6936E+00	9.2453E-01	1.4801E+00
15	4.4260E-01	3.2959E+00	6.6170E-01	2.0568E+00	7.4043E-01	1.7887E+00	8.3015E-01	1.5625E+00
16	4.0190E-01	3.4754E+00	5.9807E-01	2.1653E+00	6.6874E-01	1.8822E+00	7.4949E-01	1.6435E+00
17	3.6773E-01	3.6509E+00	5.4372E-01	2.2721E+00	6.0726E-01	1.9742E+00	6.8010E-01	1.7233E+00
18	3.3880E-01	3.8223E+00	4.9704E-01	2.3769E+00	5.5423E-01	2.0649E+00	6.2005E-01	1.8021E+00
19	3.1407E-01	3.9893E+00	4.5670E-01	2.4798E+00	5.0825E-01	2.1541E+00	5.6783E-01	1.8796E+00
20	2.9269E-01	4.1518E+00	4.2161E-01	2.5805E+00	4.6816E-01	2.2415E+00	5.2219E-01	1.9558E+00
21	2.7396E-01	4.3099E+00	3.9088E-01	2.6787E+00	4.3299E-01	2.3270E+00	4.8210E-01	2.0305E+00
22	2.5735E-01	4.4639E+00	3.6377E-01	2.7744E+00	4.0195E-01	2.4104E+00	4.4669E-01	2.1035E+00
23	2.4248E-01	4.6140E+00	3.3967E-01	2.8675E+00	3.7439E-01	2.4916E+00	4.1527E-01	2.1745E+00
24	2.2902E-01	4.7606E+00	3.1809E-01	2.9579E+00	3.4977E-01	2.5705E+00	3.8722E-01	2.2437E+00
25	2.1676E-01	4.9040E+00	2.9863E-01	3.0456E+00	3.2763E-01	2.6471E+00	3.6206E-01	2.3108E+00
26	2.0552E-01	5.0446E+00	2.8097E-01	3.1308E+00	3.0761E-01	2.7214E+00	3.3936E-01	2.3758E+00
27	1.9519E-01	5.1826E+00	2.6486E-01	3.2135E+00	2.8942E-01	2.7935E+00	3.1880E-01	2.4389E+00
28	1.8565E-01	5.3182E+00	2.5010E-01	3.2939E+00	2.7281E-01	2.8634E+00	3.0009E-01	2.5000E+00
29	1.7684E-01	5.4516E+00	2.3651E-01	3.3721E+00	2.5759E-01	2.9313E+00	2.8299E-01	2.5592E+00
30	1.6868E-01	5.5830E+00	2.2396E-01	3.4484E+00	2.4358E-01	2.9973E+00	2.6732E-01	2.6167E+00
31	1.6112E-01	5.7124E+00	2.1235E-01	3.5227E+00	2.3066E-01	3.0615E+00	2.5290E-01	2.6725E+00
32	1.5410E-01	5.8398E+00	2.0158E-01	3.5953E+00	2.1872E-01	3.1240E+00	2.3960E-01	2.7267E+00
33	1.4758E-01	5.9654E+00	1.9158E-01	3.6663E+00	2.0765E-01	3.1851E+00	2.2732E-01	2.7796E+00
34	1.4151E-01	6.0892E+00	1.8227E-01	3.7358E+00	1.9738E-01	3.2447E+00	2.1593E-01	2.8311E+00
35	1.3585E-01	6.2111E+00	1.7360E-01	3.8039E+00	1.8783E-01	3.3030E+00	2.0538E-01	2.8813E+00
36	1.3056E-01	6.3312E+00	1.6552E-01	3.8707E+00	1.7895E-01	3.3600E+00	1.9556E-01	2.9305E+00
37	1.2562E-01	6.4495E+00	1.5798E-01	3.9362E+00	1.7067E-01	3.4160E+00	1.8643E-01	2.9786E+00
38	1.2097E-01	6.5659E+00	1.5095E-01	4.0005E+00	1.6295E-01	3.4708E+00	1.7792E-01	3.0257E+00
39	1.1661E-01	6.6807E+00	1.4437E-01	4.0638E+00	1.5574E-01	3.5247E+00	1.6999E-01	3.0719E+00
40	1.1249E-01	6.7937E+00	1.3822E-01	4.1259E+00	1.4901E-01	3.5776E+00	1.6258E-01	3.1173E+00
41	1.0860E-01	6.9051E+00	1.3246E-01	4.1871E+00	1.4271E-01	3.6296E+00	1.5565E-01	3.1619E+00
42	1.0492E-01	7.0149E+00	1.2707E-01	4.2472E+00	1.3681E-01	3.6807E+00	1.4916E-01	3.2058E+00
43	1.0142E-01	7.1231E+00	1.2201E-01	4.3064E+00	1.3129E-01	3.7311E+00	1.4309E-01	3.2490E+00
44	9.8086E-02	7.2298E+00	1.1726E-01	4.3647E+00	1.2610E-01	3.7807E+00	1.3738E-01	3.2914E+00
45	9.4908E-02	7.3351E+00	1.1280E-01	4.4221E+00	1.2123E-01	3.8295E+00	1.3203E-01	3.3333E+00
46	9.1871E-02	7.4390E+00	1.0860E-01	4.4787E+00	1.1666E-01	3.8776E+00	1.2700E-01	3.3746E+00
47	8.8963E-02	7.5417E+00	1.0465E-01	4.5344E+00	1.1235E-01	3.9250E+00	1.2227E-01	3.4152E+00
48	8.6175E-02	7.6433E+00	1.0092E-01	4.5893E+00	1.0829E-01	3.9718E+00	1.1780E-01	3.4553E+00
49	8.3497E-02	7.7438E+00	9.7405E-02	4.6435E+00	1.0446E-01	4.0178E+00	1.1360E-01	3.4949E+00
50	8.0922E-02	7.8432E+00	9.4081E-02	4.6969E+00	1.0085E-01	4.0633E+00	1.0962E-01	3.5339E+00
51	7.8443E-02	7.9418E+00	9.0935E-02	4.7496E+00	9.7430E-02	4.1082E+00	1.0587E-01	3.5724E+00
52	7.6055E-02	8.0395E+00	8.7956E-02	4.8016E+00	9.4194E-02	4.1524E+00	1.0231E-01	3.6104E+00
53	7.3752E-02	8.1366E+00	8.5131E-02	4.8530E+00	9.1128E-02	4.1961E+00	9.8942E-02	3.6479E+00
54	7.1530E-02	8.2330E+00	8.2448E-02	4.9037E+00	8.8219E-02	4.2392E+00	9.5746E-02	3.6850E+00
55	6.9386E-02	8.3288E+00	7.9899E-02	4.9538E+00	8.5456E-02	4.2818E+00	9.2711E-02	3.7215E+00
56	6.7316E-02	8.4243E+00	7.7473E-02	5.0033E+00	8.2829E-02	4.3239E+00	8.9827E-02	3.7577E+00
57	6.5319E-02	8.5194E+00	7.5163E-02	5.0522E+00	8.0328E-02	4.3655E+00	8.7081E-02	3.7933E+00
58	6.3390E-02	8.6143E+00	7.2961E-02	5.1005E+00	7.7945E-02	4.4065E+00	8.4466E-02	3.8286E+00
59	6.1531E-02	8.7091E+00	7.0859E-02	5.1483E+00	7.5673E-02	4.4471E+00	8.1973E-02	3.8634E+00
60	5.9738E-02	8.8039E+00	6.8852E-02	5.1957E+00	7.3503E-02	4.4872E+00	7.9593E-02	3.8978E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Au; $Z = 79$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	7.8823E+00	4.3323E-01	9.6874E+00	3.1605E-01	1.0356E+01	2.8511E-01	1.1165E+01	2.5697E-01
1	7.0483E+00	4.7730E-01	8.7687E+00	3.4536E-01	9.3982E+00	3.1093E-01	1.0161E+01	2.7960E-01
2	5.4262E+00	5.9447E-01	6.9567E+00	4.2198E-01	7.5006E+00	3.7832E-01	8.1514E+00	3.3890E-01
3	3.9916E+00	7.5941E-01	5.3128E+00	5.2717E-01	5.7696E+00	4.7042E-01	6.3060E+00	4.1978E-01
4	2.9439E+00	9.5661E-01	4.0694E+00	6.4976E-01	4.4517E+00	5.7716E-01	4.8936E+00	5.1312E-01
5	2.2163E+00	1.1771E+00	3.1672E+00	7.8383E-01	3.4877E+00	6.9333E-01	3.8540E+00	6.1432E-01
6	1.7171E+00	1.4124E+00	2.5160E+00	9.2480E-01	2.7858E+00	8.1501E-01	3.0918E+00	7.1998E-01
7	1.3726E+00	1.6528E+00	2.0426E+00	1.0682E+00	2.2708E+00	9.3857E-01	2.5287E+00	8.2707E-01
8	1.1296E+00	1.8901E+00	1.6933E+00	1.2103E+00	1.8876E+00	1.0608E+00	2.1070E+00	9.3293E-01
9	9.5204E-01	2.1185E+00	1.4301E+00	1.3482E+00	1.5969E+00	1.1795E+00	1.7853E+00	1.0357E+00
10	8.1688E-01	2.3362E+00	1.2267E+00	1.4804E+00	1.3713E+00	1.2933E+00	1.5349E+00	1.1343E+00
11	7.0983E-01	2.5438E+00	1.0654E+00	1.6067E+00	1.1918E+00	1.4021E+00	1.3350E+00	1.2285E+00
12	6.2379E-01	2.7431E+00	9.3566E-01	1.7279E+00	1.0472E+00	1.5065E+00	1.1738E+00	1.3189E+00
13	5.5299E-01	2.9359E+00	8.2898E-01	1.8447E+00	9.2810E-01	1.6071E+00	1.0407E+00	1.4060E+00
14	4.9404E-01	3.1238E+00	7.3978E-01	1.9581E+00	8.2831E-01	1.7047E+00	9.2905E-01	1.4905E+00
15	4.4484E-01	3.3075E+00	6.6459E-01	2.0689E+00	7.4396E-01	1.8001E+00	8.3445E-01	1.5731E+00
16	4.0365E-01	3.4874E+00	6.0072E-01	2.1776E+00	6.7206E-01	1.8937E+00	7.5359E-01	1.6542E+00
17	3.6900E-01	3.6635E+00	5.4614E-01	2.2844E+00	6.1036E-01	1.9858E+00	6.8400E-01	1.7340E+00
18	3.3967E-01	3.8355E+00	4.9922E-01	2.3893E+00	5.5713E-01	2.0765E+00	6.2374E-01	1.8128E+00
19	3.1463E-01	4.0032E+00	4.5867E-01	2.4924E+00	5.1094E-01	2.1657E+00	5.7131E-01	1.8904E+00
20	2.9301E-01	4.1666E+00	4.2341E-01	2.5933E+00	4.7066E-01	2.2533E+00	5.2547E-01	1.9667E+00
21	2.7413E-01	4.3256E+00	3.9255E-01	2.6920E+00	4.3533E-01	2.3391E+00	4.8518E-01	2.0416E+00
22	2.5744E-01	4.4805E+00	3.6533E-01	2.7881E+00	4.0416E-01	2.4230E+00	4.4960E-01	2.1149E+00
23	2.4253E-01	4.6316E+00	3.4117E-01	2.8818E+00	3.7649E-01	2.5047E+00	4.1802E-01	2.1865E+00
24	2.2907E-01	4.7791E+00	3.1955E-01	2.9728E+00	3.5178E-01	2.5842E+00	3.8984E-01	2.2561E+00
25	2.1683E-01	4.9234E+00	3.0007E-01	3.0613E+00	3.2958E-01	2.6614E+00	3.6456E-01	2.3238E+00
26	2.0563E-01	5.0648E+00	2.8242E-01	3.1472E+00	3.0952E-01	2.7364E+00	3.4177E-01	2.3895E+00
27	1.9535E-01	5.2036E+00	2.6632E-01	3.2307E+00	2.9129E-01	2.8092E+00	3.2112E-01	2.4533E+00
28	1.8586E-01	5.3401E+00	2.5157E-01	3.3118E+00	2.7465E-01	2.8799E+00	3.0234E-01	2.5151E+00
29	1.7709E-01	5.4743E+00	2.3799E-01	3.3908E+00	2.5940E-01	2.9485E+00	2.8517E-01	2.5751E+00
30	1.6898E-01	5.6065E+00	2.2546E-01	3.4678E+00	2.4538E-01	3.0153E+00	2.6943E-01	2.6333E+00
31	1.6146E-01	5.7367E+00	2.1385E-01	3.5429E+00	2.3243E-01	3.0802E+00	2.5496E-01	2.6898E+00
32	1.5448E-01	5.8650E+00	2.0308E-01	3.6162E+00	2.2046E-01	3.1435E+00	2.4160E-01	2.7448E+00
33	1.4800E-01	5.9915E+00	1.9307E-01	3.6879E+00	2.0936E-01	3.2052E+00	2.2925E-01	2.7983E+00
34	1.4196E-01	6.1162E+00	1.8374E-01	3.7581E+00	1.9905E-01	3.2655E+00	2.1781E-01	2.8505E+00
35	1.3634E-01	6.2390E+00	1.7506E-01	3.8268E+00	1.8946E-01	3.3244E+00	2.0719E-01	2.9014E+00
36	1.3108E-01	6.3601E+00	1.6695E-01	3.8942E+00	1.8053E-01	3.3821E+00	1.9732E-01	2.9511E+00
37	1.2617E-01	6.4793E+00	1.5938E-01	3.9604E+00	1.7221E-01	3.4386E+00	1.8813E-01	2.9997E+00
38	1.2156E-01	6.5968E+00	1.5231E-01	4.0253E+00	1.6444E-01	3.4940E+00	1.7956E-01	3.0474E+00
39	1.1722E-01	6.7126E+00	1.4569E-01	4.0891E+00	1.5718E-01	3.5484E+00	1.7156E-01	3.0941E+00
40	1.1314E-01	6.8266E+00	1.3950E-01	4.1519E+00	1.5040E-01	3.6019E+00	1.6409E-01	3.1400E+00
41	1.0927E-01	6.9390E+00	1.3370E-01	4.2136E+00	1.4404E-01	3.6544E+00	1.5710E-01	3.1851E+00
42	1.0561E-01	7.0498E+00	1.2826E-01	4.2743E+00	1.3809E-01	3.7060E+00	1.5055E-01	3.2294E+00
43	1.0214E-01	7.1589E+00	1.2316E-01	4.3340E+00	1.3252E-01	3.7569E+00	1.4442E-01	3.2729E+00
44	9.8830E-02	7.2666E+00	1.1837E-01	4.3929E+00	1.2728E-01	3.8069E+00	1.3866E-01	3.3158E+00
45	9.5672E-02	7.3729E+00	1.1386E-01	4.4508E+00	1.2236E-01	3.8562E+00	1.3326E-01	3.3581E+00
46	9.2652E-02	7.4778E+00	1.0962E-01	4.5079E+00	1.1774E-01	3.9047E+00	1.2817E-01	3.3997E+00
47	8.9759E-02	7.5814E+00	1.0563E-01	4.5641E+00	1.1338E-01	3.9525E+00	1.2339E-01	3.4407E+00
48	8.6982E-02	7.6838E+00	1.0186E-01	4.6196E+00	1.0928E-01	3.9997E+00	1.1888E-01	3.4812E+00
49	8.4312E-02	7.7850E+00	9.8306E-02	4.6742E+00	1.0541E-01	4.0462E+00	1.1463E-01	3.5211E+00
50	8.1742E-02	7.8853E+00	9.4945E-02	4.7281E+00	1.0176E-01	4.0921E+00	1.1061E-01	3.5604E+00
51	7.9265E-02	7.9846E+00	9.1764E-02	4.7813E+00	9.8301E-02	4.1373E+00	1.0681E-01	3.5993E+00
52	7.6875E-02	8.0830E+00	8.8752E-02	4.8338E+00	9.5030E-02	4.1820E+00	1.0322E-01	3.6376E+00
53	7.4566E-02	8.1807E+00	8.5895E-02	4.8856E+00	9.1930E-02	4.2260E+00	9.9815E-02	3.6755E+00
54	7.2336E-02	8.2778E+00	8.3183E-02	4.9368E+00	8.8989E-02	4.2696E+00	9.6586E-02	3.7128E+00
55	7.0180E-02	8.3743E+00	8.0605E-02	4.9873E+00	8.6197E-02	4.3125E+00	9.3520E-02	3.7497E+00
56	6.8094E-02	8.4703E+00	7.8153E-02	5.0372E+00	8.3542E-02	4.3550E+00	9.0606E-02	3.7861E+00
57	6.6078E-02	8.5660E+00	7.5818E-02	5.0866E+00	8.1015E-02	4.3969E+00	8.7834E-02	3.8221E+00
58	6.4127E-02	8.6614E+00	7.3592E-02	5.1353E+00	7.8608E-02	4.4383E+00	8.5193E-02	3.8577E+00
59	6.2242E-02	8.7566E+00	7.1468E-02	5.1836E+00	7.6313E-02	4.4793E+00	8.2676E-02	3.8928E+00
60	6.0421E-02	8.8518E+00	6.9439E-02	5.2313E+00	7.4122E-02	4.5198E+00	8.0274E-02	3.9275E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Hg; $Z = 80$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	8.1999E+00	4.2779E-01	1.0057E+01	3.1227E-01	1.0747E+01	2.8183E-01	1.1585E+01	2.5414E-01
1	7.2950E+00	4.7334E-01	9.0609E+00	3.4264E-01	9.7088E+00	3.0862E-01	1.0495E+01	2.7765E-01
2	5.5456E+00	5.9611E-01	7.1072E+00	4.2293E-01	7.6629E+00	3.7927E-01	8.3282E+00	3.3985E-01
3	4.0362E+00	7.6853E-01	5.3757E+00	5.3276E-01	5.8394E+00	4.7544E-01	6.3839E+00	4.2432E-01
4	2.9635E+00	9.7105E-01	4.0999E+00	6.5858E-01	4.4866E+00	5.8500E-01	4.9337E+00	5.2014E-01
5	2.2288E+00	1.1940E+00	3.1874E+00	7.9423E-01	3.5113E+00	7.0258E-01	3.8817E+00	6.2259E-01
6	1.7262E+00	1.4301E+00	2.5315E+00	9.3598E-01	2.8042E+00	8.2500E-01	3.1137E+00	7.2894E-01
7	1.3791E+00	1.6717E+00	2.0545E+00	1.0803E+00	2.2853E+00	9.4930E-01	2.5462E+00	8.3671E-01
8	1.1342E+00	1.9106E+00	1.7022E+00	1.2235E+00	1.8987E+00	1.0727E+00	2.1206E+00	9.4356E-01
9	9.5569E-01	2.1414E+00	1.4367E+00	1.3631E+00	1.6053E+00	1.1928E+00	1.7958E+00	1.0476E+00
10	8.2022E-01	2.3616E+00	1.2319E+00	1.4972E+00	1.3779E+00	1.3083E+00	1.5430E+00	1.1477E+00
11	7.1313E-01	2.5713E+00	1.0696E+00	1.6253E+00	1.1971E+00	1.4188E+00	1.3417E+00	1.2434E+00
12	6.2710E-01	2.7723E+00	9.3942E-01	1.7481E+00	1.0518E+00	1.5245E+00	1.1794E+00	1.3350E+00
13	5.5620E-01	2.9664E+00	8.3243E-01	1.8662E+00	9.3223E-01	1.6262E+00	1.0457E+00	1.4231E+00
14	4.9698E-01	3.1550E+00	7.4299E-01	1.9804E+00	8.3213E-01	1.7246E+00	9.3365E-01	1.5083E+00
15	4.4739E-01	3.3393E+00	6.6758E-01	2.0917E+00	7.4753E-01	1.8205E+00	8.3877E-01	1.5914E+00
16	4.0573E-01	3.5197E+00	6.0348E-01	2.2007E+00	6.7541E-01	1.9144E+00	7.5768E-01	1.6727E+00
17	3.7062E-01	3.6963E+00	5.4865E-01	2.3077E+00	6.1350E-01	2.0066E+00	6.8786E-01	1.7527E+00
18	3.4087E-01	3.8689E+00	5.0150E-01	2.4128E+00	5.6005E-01	2.0974E+00	6.2740E-01	1.8315E+00
19	3.1547E-01	4.0374E+00	4.6073E-01	2.5160E+00	5.1365E-01	2.1867E+00	5.7476E-01	1.9091E+00
20	2.9358E-01	4.2016E+00	4.2527E-01	2.6171E+00	4.7317E-01	2.2744E+00	5.2870E-01	1.9855E+00
21	2.7449E-01	4.3616E+00	3.9424E-01	2.7161E+00	4.3766E-01	2.3605E+00	4.8822E-01	2.0606E+00
22	2.5767E-01	4.5175E+00	3.6690E-01	2.8127E+00	4.0634E-01	2.4446E+00	4.5246E-01	2.1342E+00
23	2.4268E-01	4.6695E+00	3.4264E-01	2.9069E+00	3.7856E-01	2.5268E+00	4.2072E-01	2.2060E+00
24	2.2919E-01	4.8179E+00	3.2097E-01	2.9985E+00	3.5375E-01	2.6068E+00	3.9240E-01	2.2762E+00
25	2.1694E-01	4.9631E+00	3.0147E-01	3.0876E+00	3.3148E-01	2.6846E+00	3.6700E-01	2.3444E+00
26	2.0576E-01	5.1054E+00	2.8380E-01	3.1742E+00	3.1136E-01	2.7603E+00	3.4411E-01	2.4108E+00
27	1.9550E-01	5.2450E+00	2.6771E-01	3.2584E+00	2.9310E-01	2.8338E+00	3.2338E-01	2.4752E+00
28	1.8605E-01	5.3823E+00	2.5296E-01	3.3403E+00	2.7643E-01	2.9052E+00	3.0452E-01	2.5377E+00
29	1.7732E-01	5.5173E+00	2.3940E-01	3.4201E+00	2.6116E-01	2.9745E+00	2.8729E-01	2.5984E+00
30	1.6925E-01	5.6503E+00	2.2688E-01	3.4978E+00	2.4711E-01	3.0420E+00	2.7150E-01	2.6573E+00
31	1.6176E-01	5.7813E+00	2.1529E-01	3.5736E+00	2.3414E-01	3.1077E+00	2.5697E-01	2.7145E+00
32	1.5482E-01	5.9105E+00	2.0452E-01	3.6476E+00	2.2215E-01	3.1716E+00	2.4356E-01	2.7702E+00
33	1.4837E-01	6.0378E+00	1.9450E-01	3.7199E+00	2.1102E-01	3.2340E+00	2.3116E-01	2.8244E+00
34	1.4236E-01	6.1634E+00	1.8517E-01	3.7908E+00	2.0068E-01	3.2950E+00	2.1966E-01	2.8772E+00
35	1.3677E-01	6.2871E+00	1.7647E-01	3.8602E+00	1.9106E-01	3.3545E+00	2.0899E-01	2.9278E+00
36	1.3155E-01	6.4091E+00	1.6834E-01	3.9282E+00	1.8210E-01	3.4128E+00	1.9906E-01	2.9790E+00
37	1.2667E-01	6.5293E+00	1.6075E-01	3.9950E+00	1.7373E-01	3.4699E+00	1.8981E-01	3.0282E+00
38	1.2209E-01	6.6478E+00	1.5365E-01	4.0605E+00	1.6592E-01	3.5259E+00	1.8119E-01	3.0764E+00
39	1.1778E-01	6.7646E+00	1.4700E-01	4.1249E+00	1.5861E-01	3.5808E+00	1.7313E-01	3.1237E+00
40	1.1373E-01	6.8796E+00	1.4077E-01	4.1882E+00	1.5178E-01	3.6348E+00	1.6560E-01	3.1700E+00
41	1.0989E-01	6.9930E+00	1.3493E-01	4.2505E+00	1.4538E-01	3.6878E+00	1.5855E-01	3.2155E+00
42	1.0626E-01	7.1047E+00	1.2945E-01	4.3117E+00	1.3938E-01	3.7400E+00	1.5195E-01	3.2603E+00
43	1.0281E-01	7.2149E+00	1.2431E-01	4.3720E+00	1.3375E-01	3.7913E+00	1.4576E-01	3.3043E+00
44	9.9531E-02	7.3235E+00	1.1947E-01	4.4314E+00	1.2847E-01	3.8418E+00	1.3995E-01	3.3476E+00
45	9.6396E-02	7.4307E+00	1.1493E-01	4.4899E+00	1.2350E-01	3.8915E+00	1.3449E-01	3.3902E+00
46	9.3398E-02	7.5365E+00	1.1065E-01	4.5475E+00	1.1883E-01	3.9405E+00	1.2935E-01	3.4322E+00
47	9.0523E-02	7.6410E+00	1.0661E-01	4.6042E+00	1.1443E-01	3.9888E+00	1.2452E-01	3.4736E+00
48	8.7761E-02	7.7442E+00	1.0281E-01	4.6602E+00	1.1028E-01	4.0363E+00	1.1996E-01	3.5144E+00
49	8.5104E-02	7.8463E+00	9.9216E-02	4.7153E+00	1.0637E-01	4.0833E+00	1.1566E-01	3.5547E+00
50	8.2543E-02	7.9473E+00	9.5819E-02	4.7697E+00	1.0268E-01	4.1295E+00	1.1160E-01	3.5944E+00
51	8.0072E-02	8.0474E+00	9.2604E-02	4.8234E+00	9.9183E-02	4.1752E+00	1.0777E-01	3.6335E+00
52	7.7685E-02	8.1465E+00	8.9558E-02	4.8763E+00	9.5875E-02	4.2202E+00	1.0414E-01	3.6722E+00
53	7.5375E-02	8.2449E+00	8.6670E-02	4.9286E+00	9.2741E-02	4.2647E+00	1.0069E-01	3.7104E+00
54	7.3140E-02	8.3426E+00	8.3928E-02	4.9802E+00	8.9769E-02	4.3086E+00	9.7431E-02	3.7480E+00
55	7.0976E-02	8.4396E+00	8.1322E-02	5.0312E+00	8.6946E-02	4.3519E+00	9.4334E-02	3.7852E+00
56	6.8879E-02	8.5362E+00	7.8843E-02	5.0815E+00	8.4262E-02	4.3947E+00	9.1390E-02	3.8220E+00
57	6.6847E-02	8.6324E+00	7.6482E-02	5.1313E+00	8.1709E-02	4.4370E+00	8.8590E-02	3.8583E+00
58	6.4878E-02	8.7283E+00	7.4232E-02	5.1805E+00	7.9277E-02	4.4788E+00	8.5923E-02	3.8942E+00
59	6.2970E-02	8.8240E+00	7.2085E-02	5.2291E+00	7.6958E-02	4.5201E+00	8.3381E-02	3.9296E+00
60	6.1124E-02	8.9197E+00	7.0035E-02	5.2772E+00	7.4745E-02	4.5609E+00	8.0956E-02	3.9646E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

Tl; Z = 81

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	9.2105E+00	3.9940E-01	1.1194E+01	2.9255E-01	1.1941E+01	2.6432E-01	1.2856E+01	2.3856E-01
1	7.9146E+00	4.5692E-01	9.7722E+00	3.3091E-01	1.0459E+01	2.9821E-01	1.1297E+01	2.6842E-01
2	5.7389E+00	6.0136E-01	7.3448E+00	4.2509E-01	7.9173E+00	3.8108E-01	8.6035E+00	3.4143E-01
3	4.0865E+00	7.8942E-01	5.4453E+00	5.4443E-01	5.9161E+00	4.8553E-01	6.4693E+00	4.3315E-01
4	2.9819E+00	9.9963E-01	4.1276E+00	6.7481E-01	4.5183E+00	5.9907E-01	4.9702E+00	5.3246E-01
5	2.2410E+00	1.2250E+00	3.2058E+00	8.1208E-01	3.5328E+00	7.1809E-01	3.9069E+00	6.3618E-01
6	1.7357E+00	1.4615E+00	2.5465E+00	9.5428E-01	2.8220E+00	8.4095E-01	3.1349E+00	7.4296E-01
7	1.3860E+00	1.7034E+00	2.0666E+00	1.0990E+00	2.2999E+00	9.6569E-01	2.5638E+00	8.5114E-01
8	1.1392E+00	1.9437E+00	1.7115E+00	1.2433E+00	1.9102E+00	1.0899E+00	2.1347E+00	9.5878E-01
9	9.5953E-01	2.1767E+00	1.4438E+00	1.3843E+00	1.6142E+00	1.2114E+00	1.8068E+00	1.0640E+00
10	8.2365E-01	2.3993E+00	1.2374E+00	1.5203E+00	1.3848E+00	1.3286E+00	1.5516E+00	1.1656E+00
11	7.1651E-01	2.6113E+00	1.0741E+00	1.6503E+00	1.2027E+00	1.4407E+00	1.3485E+00	1.2627E+00
12	6.3053E-01	2.8141E+00	9.4333E-01	1.7748E+00	1.0565E+00	1.5480E+00	1.1852E+00	1.3558E+00
13	5.5957E-01	3.0095E+00	8.3598E-01	1.8942E+00	9.3644E-01	1.6510E+00	1.0508E+00	1.4450E+00
14	5.0013E-01	3.1991E+00	7.4629E-01	2.0095E+00	8.3600E-01	1.7503E+00	9.3827E-01	1.5310E+00
15	4.5017E-01	3.3840E+00	6.7064E-01	2.1214E+00	7.5114E-01	1.8468E+00	8.4307E-01	1.6146E+00
16	4.0808E-01	3.5650E+00	6.0630E-01	2.2308E+00	6.7878E-01	1.9410E+00	7.6173E-01	1.6963E+00
17	3.7250E-01	3.7421E+00	5.5123E-01	2.3380E+00	6.1664E-01	2.0334E+00	6.9169E-01	1.7764E+00
18	3.4231E-01	3.9154E+00	5.0382E-01	2.4433E+00	5.6296E-01	2.1243E+00	6.3100E-01	1.8553E+00
19	3.1653E-01	4.0846E+00	4.6281E-01	2.5466E+00	5.1635E-01	2.2137E+00	5.7815E-01	1.9330E+00
20	2.9432E-01	4.2497E+00	4.2714E-01	2.6480E+00	4.7566E-01	2.3015E+00	5.3188E-01	2.0095E+00
21	2.7501E-01	4.4106E+00	3.9594E-01	2.7473E+00	4.3997E-01	2.3878E+00	4.9121E-01	2.0847E+00
22	2.5802E-01	4.5675E+00	3.6846E-01	2.8443E+00	4.0850E-01	2.4722E+00	4.5527E-01	2.1584E+00
23	2.4292E-01	4.7204E+00	3.4410E-01	2.9389E+00	3.8058E-01	2.5547E+00	4.2337E-01	2.2306E+00
24	2.2937E-01	4.8698E+00	3.2236E-01	3.0311E+00	3.5567E-01	2.6352E+00	3.9491E-01	2.3012E+00
25	2.1709E-01	5.0159E+00	3.0281E-01	3.1208E+00	3.3332E-01	2.7136E+00	3.6939E-01	2.3699E+00
26	2.0591E-01	5.1590E+00	2.8513E-01	3.2081E+00	3.1315E-01	2.7898E+00	3.4640E-01	2.4368E+00
27	1.9566E-01	5.2995E+00	2.6903E-01	3.2930E+00	2.9484E-01	2.8640E+00	3.2559E-01	2.5018E+00
28	1.8623E-01	5.4376E+00	2.5430E-01	3.3756E+00	2.7815E-01	2.9360E+00	3.0665E-01	2.5650E+00
29	1.7752E-01	5.5734E+00	2.4075E-01	3.4560E+00	2.6285E-01	3.0061E+00	2.8936E-01	2.6263E+00
30	1.6948E-01	5.7071E+00	2.2824E-01	3.5344E+00	2.4879E-01	3.0743E+00	2.7351E-01	2.6859E+00
31	1.6202E-01	5.8390E+00	2.1666E-01	3.6109E+00	2.3581E-01	3.1406E+00	2.5893E-01	2.7438E+00
32	1.5511E-01	5.9690E+00	2.0590E-01	3.6856E+00	2.2379E-01	3.2053E+00	2.4547E-01	2.8002E+00
33	1.4869E-01	6.0971E+00	1.9589E-01	3.7586E+00	2.1264E-01	3.2683E+00	2.3302E-01	2.8550E+00
34	1.4272E-01	6.2235E+00	1.8656E-01	3.8301E+00	2.0228E-01	3.3299E+00	2.2148E-01	2.9084E+00
35	1.3715E-01	6.3482E+00	1.7785E-01	3.9001E+00	1.9263E-01	3.3901E+00	2.1076E-01	2.9606E+00
36	1.3196E-01	6.4711E+00	1.6971E-01	3.9688E+00	1.8363E-01	3.4490E+00	2.0078E-01	3.0115E+00
37	1.2711E-01	6.5923E+00	1.6209E-01	4.0361E+00	1.7523E-01	3.5067E+00	1.9148E-01	3.0613E+00
38	1.2256E-01	6.7117E+00	1.5496E-01	4.1023E+00	1.6738E-01	3.5633E+00	1.8280E-01	3.1100E+00
39	1.1829E-01	6.8294E+00	1.4828E-01	4.1673E+00	1.6003E-01	3.6187E+00	1.7469E-01	3.1578E+00
40	1.1426E-01	6.9454E+00	1.4202E-01	4.2311E+00	1.5315E-01	3.6732E+00	1.6710E-01	3.2046E+00
41	1.1046E-01	7.0598E+00	1.3615E-01	4.2940E+00	1.4671E-01	3.7268E+00	1.6000E-01	3.2506E+00
42	1.0686E-01	7.1725E+00	1.3063E-01	4.3558E+00	1.4066E-01	3.7794E+00	1.5334E-01	3.2958E+00
43	1.0344E-01	7.2836E+00	1.2545E-01	4.4166E+00	1.3499E-01	3.8312E+00	1.4709E-01	3.3402E+00
44	1.0019E-01	7.3932E+00	1.2058E-01	4.4765E+00	1.2966E-01	3.8821E+00	1.4123E-01	3.3839E+00
45	9.7080E-02	7.5013E+00	1.1600E-01	4.5355E+00	1.2464E-01	3.9323E+00	1.3572E-01	3.4270E+00
46	9.4106E-02	7.6080E+00	1.1168E-01	4.5936E+00	1.1993E-01	3.9818E+00	1.3053E-01	3.4694E+00
47	9.1253E-02	7.7134E+00	1.0761E-01	4.6508E+00	1.1548E-01	4.0305E+00	1.2565E-01	3.5111E+00
48	8.8512E-02	7.8175E+00	1.0376E-01	4.7073E+00	1.1129E-01	4.0785E+00	1.2105E-01	3.5523E+00
49	8.5872E-02	7.9204E+00	1.0013E-01	4.7629E+00	1.0734E-01	4.1258E+00	1.1671E-01	3.5929E+00
50	8.3324E-02	8.0222E+00	9.6702E-02	4.8178E+00	1.0361E-01	4.1725E+00	1.1260E-01	3.6329E+00
51	8.0864E-02	8.1230E+00	9.3453E-02	4.8720E+00	1.0007E-01	4.2185E+00	1.0873E-01	3.6725E+00
52	7.8483E-02	8.2228E+00	9.0375E-02	4.9254E+00	9.6730E-02	4.2640E+00	1.0506E-01	3.7114E+00
53	7.6177E-02	8.3218E+00	8.7456E-02	4.9781E+00	9.3562E-02	4.3088E+00	1.0158E-01	3.7499E+00
54	7.3942E-02	8.4201E+00	8.4684E-02	5.0302E+00	9.0557E-02	4.3531E+00	9.8283E-02	3.7879E+00
55	7.1773E-02	8.5178E+00	8.2049E-02	5.0816E+00	8.7704E-02	4.3968E+00	9.5154E-02	3.8255E+00
56	6.9669E-02	8.6149E+00	7.9543E-02	5.1324E+00	8.4992E-02	4.4400E+00	9.2179E-02	3.8625E+00
57	6.7625E-02	8.7116E+00	7.7157E-02	5.1826E+00	8.2411E-02	4.4826E+00	8.9350E-02	3.8991E+00
58	6.5641E-02	8.8080E+00	7.4882E-02	5.2322E+00	7.9953E-02	4.5248E+00	8.6657E-02	3.9353E+00
59	6.3714E-02	8.9042E+00	7.2712E-02	5.2812E+00	7.7610E-02	4.5664E+00	8.4090E-02	3.9711E+00
60	6.1845E-02	9.0003E+00	7.0639E-02	5.3298E+00	7.5374E-02	4.6076E+00	8.1641E-02	4.0064E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Pb; $Z = 82$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	9.6136E+00	3.9757E-01	1.1662E+01	2.9059E-01	1.2436E+01	2.6253E-01	1.3386E+01	2.3696E-01
1	8.2645E+00	4.5390E-01	1.0184E+01	3.2827E-01	1.0895E+01	2.9585E-01	1.1765E+01	2.6634E-01
2	5.9257E+00	6.0212E-01	7.5761E+00	4.2504E-01	8.1652E+00	3.8106E-01	8.8720E+00	3.4146E-01
3	4.1547E+00	8.0058E-01	5.5382E+00	5.5077E-01	6.0180E+00	4.9111E-01	6.5818E+00	4.3812E-01
4	3.0066E+00	1.0203E+00	4.1641E+00	6.8679E-01	4.5595E+00	6.0954E-01	5.0171E+00	5.4170E-01
5	2.2543E+00	1.2507E+00	3.2252E+00	8.2711E-01	3.5553E+00	7.3123E-01	3.9331E+00	6.4777E-01
6	1.7456E+00	1.4887E+00	2.5609E+00	9.7046E-01	2.8389E+00	8.5513E-01	3.1548E+00	7.5548E-01
7	1.3935E+00	1.7310E+00	2.0783E+00	1.1157E+00	2.3139E+00	9.8034E-01	2.5806E+00	8.6411E-01
8	1.1445E+00	1.9721E+00	1.7208E+00	1.2606E+00	1.9216E+00	1.1052E+00	2.1485E+00	9.7231E-01
9	9.6355E-01	2.2067E+00	1.4510E+00	1.4028E+00	1.6232E+00	1.2277E+00	1.8179E+00	1.0785E+00
10	8.2709E-01	2.4314E+00	1.2430E+00	1.5404E+00	1.3918E+00	1.3463E+00	1.5604E+00	1.1813E+00
11	7.1981E-01	2.6456E+00	1.0787E+00	1.6722E+00	1.2085E+00	1.4600E+00	1.3557E+00	1.2799E+00
12	6.3387E-01	2.8503E+00	9.4731E-01	1.7984E+00	1.0614E+00	1.5689E+00	1.1911E+00	1.3743E+00
13	5.6292E-01	3.0471E+00	8.3957E-01	1.9193E+00	9.4072E-01	1.6732E+00	1.0560E+00	1.4647E+00
14	5.0333E-01	3.2378E+00	7.4962E-01	2.0357E+00	8.3990E-01	1.7736E+00	9.4293E-01	1.5517E+00
15	4.5309E-01	3.4234E+00	6.7374E-01	2.1485E+00	7.5476E-01	1.8708E+00	8.4738E-01	1.6360E+00
16	4.1061E-01	3.6050E+00	6.0917E-01	2.2584E+00	6.8217E-01	1.9655E+00	7.6576E-01	1.7181E+00
17	3.7460E-01	3.7827E+00	5.5386E-01	2.3659E+00	6.1980E-01	2.0582E+00	6.9549E-01	1.7985E+00
18	3.4397E-01	3.9566E+00	5.0621E-01	2.4714E+00	5.6589E-01	2.1493E+00	6.3458E-01	1.8775E+00
19	3.1780E-01	4.1266E+00	4.6495E-01	2.5750E+00	5.1905E-01	2.2388E+00	5.8150E-01	1.9552E+00
20	2.9526E-01	4.2926E+00	4.2906E-01	2.6765E+00	4.7816E-01	2.3267E+00	5.3503E-01	2.0318E+00
21	2.7568E-01	4.4544E+00	3.9766E-01	2.7761E+00	4.4228E-01	2.4131E+00	4.9415E-01	2.1071E+00
22	2.5850E-01	4.6122E+00	3.7002E-01	2.8734E+00	4.1064E-01	2.4978E+00	4.5803E-01	2.1810E+00
23	2.4326E-01	4.7661E+00	3.4555E-01	2.9685E+00	3.8258E-01	2.5806E+00	4.2597E-01	2.2535E+00
24	2.2961E-01	4.9165E+00	3.2372E-01	3.0611E+00	3.5756E-01	2.6615E+00	3.9737E-01	2.3244E+00
25	2.1729E-01	5.0635E+00	3.0412E-01	3.1514E+00	3.3512E-01	2.7404E+00	3.7173E-01	2.3935E+00
26	2.0608E-01	5.2076E+00	2.8640E-01	3.2393E+00	3.1489E-01	2.8172E+00	3.4863E-01	2.4609E+00
27	1.9582E-01	5.3489E+00	2.7030E-01	3.3249E+00	2.9653E-01	2.8920E+00	3.2773E-01	2.5265E+00
28	1.8640E-01	5.4877E+00	2.5557E-01	3.4081E+00	2.7981E-01	2.9647E+00	3.0873E-01	2.5903E+00
29	1.7771E-01	5.6244E+00	2.4203E-01	3.4893E+00	2.6449E-01	3.0354E+00	2.9138E-01	2.6523E+00
30	1.6968E-01	5.7589E+00	2.2954E-01	3.5684E+00	2.5041E-01	3.1042E+00	2.7548E-01	2.7125E+00
31	1.6225E-01	5.8916E+00	2.1797E-01	3.6455E+00	2.3741E-01	3.1713E+00	2.6084E-01	2.7711E+00
32	1.5536E-01	6.0223E+00	2.0722E-01	3.7209E+00	2.2538E-01	3.2366E+00	2.4734E-01	2.8281E+00
33	1.4897E-01	6.1513E+00	1.9722E-01	3.7946E+00	2.1421E-01	3.3003E+00	2.3485E-01	2.8836E+00
34	1.4302E-01	6.2786E+00	1.8789E-01	3.8667E+00	2.0383E-01	3.3625E+00	2.2326E-01	2.9377E+00
35	1.3748E-01	6.4041E+00	1.7918E-01	3.9373E+00	1.9416E-01	3.4233E+00	2.1249E-01	2.9904E+00
36	1.3232E-01	6.5279E+00	1.7103E-01	4.0065E+00	1.8513E-01	3.4828E+00	2.0247E-01	3.0419E+00
37	1.2750E-01	6.6500E+00	1.6340E-01	4.0745E+00	1.7670E-01	3.5411E+00	1.9312E-01	3.0923E+00
38	1.2298E-01	6.7704E+00	1.5625E-01	4.1412E+00	1.6882E-01	3.5982E+00	1.8439E-01	3.1415E+00
39	1.1874E-01	6.8891E+00	1.4955E-01	4.2068E+00	1.6143E-01	3.6542E+00	1.7623E-01	3.1898E+00
40	1.1474E-01	7.0061E+00	1.4326E-01	4.2712E+00	1.5451E-01	3.7092E+00	1.6860E-01	3.2372E+00
41	1.1098E-01	7.1214E+00	1.3735E-01	4.3346E+00	1.4803E-01	3.7633E+00	1.6144E-01	3.2836E+00
42	1.0741E-01	7.2351E+00	1.3181E-01	4.3969E+00	1.4194E-01	3.8164E+00	1.5473E-01	3.3293E+00
43	1.0402E-01	7.3471E+00	1.2659E-01	4.4583E+00	1.3622E-01	3.8687E+00	1.4844E-01	3.3741E+00
44	1.0080E-01	7.4577E+00	1.2169E-01	4.5187E+00	1.3084E-01	3.9201E+00	1.4252E-01	3.4183E+00
45	9.7720E-02	7.5667E+00	1.1707E-01	4.5782E+00	1.2579E-01	3.9707E+00	1.3696E-01	3.4617E+00
46	9.4775E-02	7.6743E+00	1.1271E-01	4.6368E+00	1.2103E-01	4.0206E+00	1.3173E-01	3.5045E+00
47	9.1949E-02	7.7806E+00	1.0860E-01	4.6946E+00	1.1654E-01	4.0697E+00	1.2679E-01	3.5466E+00
48	8.9231E-02	7.8855E+00	1.0472E-01	4.7516E+00	1.1231E-01	4.1182E+00	1.2215E-01	3.5882E+00
49	8.6612E-02	7.9892E+00	1.0106E-01	4.8077E+00	1.0832E-01	4.1659E+00	1.1776E-01	3.6291E+00
50	8.4083E-02	8.0918E+00	9.7593E-02	4.8631E+00	1.0454E-01	4.2130E+00	1.1362E-01	3.6695E+00
51	8.1637E-02	8.1933E+00	9.4312E-02	4.9177E+00	1.0098E-01	4.2595E+00	1.0970E-01	3.7093E+00
52	7.9268E-02	8.2939E+00	9.1202E-02	4.9716E+00	9.7596E-02	4.3053E+00	1.0599E-01	3.7487E+00
53	7.6970E-02	8.3936E+00	8.8252E-02	5.0248E+00	9.4394E-02	4.3505E+00	1.0247E-01	3.7875E+00
54	7.4739E-02	8.4925E+00	8.5450E-02	5.0773E+00	9.1356E-02	4.3952E+00	9.9143E-02	3.8258E+00
55	7.2571E-02	8.5907E+00	8.2787E-02	5.1291E+00	8.8471E-02	4.4393E+00	9.5980E-02	3.8636E+00
56	7.0463E-02	8.6884E+00	8.0254E-02	5.1803E+00	8.5730E-02	4.4828E+00	9.2975E-02	3.9010E+00
57	6.8412E-02	8.7856E+00	7.7842E-02	5.2310E+00	8.3122E-02	4.5258E+00	9.0117E-02	3.9379E+00
58	6.6416E-02	8.8825E+00	7.5542E-02	5.2810E+00	8.0638E-02	4.5683E+00	8.7396E-02	3.9744E+00
59	6.4474E-02	8.9791E+00	7.3349E-02	5.3305E+00	7.8270E-02	4.6103E+00	8.4803E-02	4.0104E+00
60	6.2586E-02	9.0756E+00	7.1254E-02	5.3794E+00	7.6011E-02	4.6519E+00	8.2330E-02	4.0461E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Bi; $Z = 83$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.0041E+01	3.9630E-01	1.2160E+01	2.8892E-01	1.2962E+01	2.6098E-01	1.3950E+01	2.3554E-01
1	8.6225E+00	4.5221E-01	1.0606E+01	3.2640E-01	1.1343E+01	2.9415E-01	1.2246E+01	2.6483E-01
2	6.1233E+00	6.0352E-01	7.8215E+00	4.2529E-01	8.4282E+00	3.8127E-01	9.1568E+00	3.4168E-01
3	4.2324E+00	8.1143E-01	5.6435E+00	5.5684E-01	6.1331E+00	4.9643E-01	6.7088E+00	4.4284E-01
4	3.0352E+00	1.0414E+00	4.2057E+00	6.9896E-01	4.6063E+00	6.2016E-01	5.0701E+00	5.5106E-01
5	2.2688E+00	1.2781E+00	3.2456E+00	8.4310E-01	3.5788E+00	7.4517E-01	3.9604E+00	6.6004E-01
6	1.7560E+00	1.5186E+00	2.5750E+00	9.8806E-01	2.8554E+00	8.7051E-01	3.1743E+00	7.6903E-01
7	1.4014E+00	1.7613E+00	2.0898E+00	1.1338E+00	2.3275E+00	9.9623E-01	2.5968E+00	8.7814E-01
8	1.1503E+00	2.0028E+00	1.7301E+00	1.2791E+00	1.9329E+00	1.1215E+00	2.1622E+00	9.8675E-01
9	9.6782E-01	2.2386E+00	1.4583E+00	1.4223E+00	1.6323E+00	1.2449E+00	1.8292E+00	1.0936E+00
10	8.3059E-01	2.4653E+00	1.2488E+00	1.5612E+00	1.3991E+00	1.3647E+00	1.5695E+00	1.1975E+00
11	7.2309E-01	2.6815E+00	1.0835E+00	1.6947E+00	1.2144E+00	1.4799E+00	1.3631E+00	1.2975E+00
12	6.3718E-01	2.8881E+00	9.5137E-01	1.8226E+00	1.0664E+00	1.5903E+00	1.1973E+00	1.3933E+00
13	5.6627E-01	3.0865E+00	8.4322E-01	1.9451E+00	9.4508E-01	1.6961E+00	1.0612E+00	1.4850E+00
14	5.0660E-01	3.2783E+00	7.5299E-01	2.0628E+00	8.4386E-01	1.7976E+00	9.4765E-01	1.5731E+00
15	4.5614E-01	3.4648E+00	6.7689E-01	2.1765E+00	7.5842E-01	1.8957E+00	8.5170E-01	1.6581E+00
16	4.1331E-01	3.6470E+00	6.1210E-01	2.2871E+00	6.8558E-01	1.9910E+00	7.6979E-01	1.7408E+00
17	3.7689E-01	3.8254E+00	5.5654E-01	2.3951E+00	6.2297E-01	2.0841E+00	6.9927E-01	1.8215E+00
18	3.4584E-01	3.9999E+00	5.0864E-01	2.5008E+00	5.6884E-01	2.1754E+00	6.3813E-01	1.9007E+00
19	3.1926E-01	4.1707E+00	4.6714E-01	2.6046E+00	5.2177E-01	2.2650E+00	5.8483E-01	1.9786E+00
20	2.9638E-01	4.3374E+00	4.3102E-01	2.7064E+00	4.8066E-01	2.3531E+00	5.3815E-01	2.0552E+00
21	2.7651E-01	4.5002E+00	3.9941E-01	2.8062E+00	4.4458E-01	2.4397E+00	4.9707E-01	2.1306E+00
22	2.5910E-01	4.6590E+00	3.7161E-01	2.9039E+00	4.1276E-01	2.5246E+00	4.6077E-01	2.2047E+00
23	2.4370E-01	4.8139E+00	3.4699E-01	2.9993E+00	3.8456E-01	2.6077E+00	4.2853E-01	2.2774E+00
24	2.2994E-01	4.9653E+00	3.2506E-01	3.0925E+00	3.5942E-01	2.6890E+00	3.9979E-01	2.3485E+00
25	2.1755E-01	5.1132E+00	3.0540E-01	3.1833E+00	3.3689E-01	2.7683E+00	3.7402E-01	2.4181E+00
26	2.0629E-01	5.2582E+00	2.8764E-01	3.2718E+00	3.1658E-01	2.8456E+00	3.5082E-01	2.4859E+00
27	1.9601E-01	5.4004E+00	2.7152E-01	3.3579E+00	2.9818E-01	2.9209E+00	3.2983E-01	2.5520E+00
28	1.8658E-01	5.5401E+00	2.5678E-01	3.4419E+00	2.8141E-01	2.9942E+00	3.1076E-01	2.6164E+00
29	1.7789E-01	5.6775E+00	2.4325E-01	3.5236E+00	2.6607E-01	3.0656E+00	2.9334E-01	2.6790E+00
30	1.6987E-01	5.8128E+00	2.3077E-01	3.6034E+00	2.5197E-01	3.1351E+00	2.7739E-01	2.7398E+00
31	1.6246E-01	5.9462E+00	2.1922E-01	3.6812E+00	2.3896E-01	3.2027E+00	2.6271E-01	2.7991E+00
32	1.5558E-01	6.0778E+00	2.0849E-01	3.7572E+00	2.2692E-01	3.2687E+00	2.4917E-01	2.8567E+00
33	1.4921E-01	6.2077E+00	1.9850E-01	3.8315E+00	2.1574E-01	3.3330E+00	2.3664E-01	2.9128E+00
34	1.4328E-01	6.3357E+00	1.8917E-01	3.9042E+00	2.0534E-01	3.3959E+00	2.2501E-01	2.9675E+00
35	1.3777E-01	6.4621E+00	1.8046E-01	3.9755E+00	1.9565E-01	3.4573E+00	2.1420E-01	3.0208E+00
36	1.3263E-01	6.5868E+00	1.7231E-01	4.0453E+00	1.8660E-01	3.5174E+00	2.0413E-01	3.0729E+00
37	1.2784E-01	6.7098E+00	1.6467E-01	4.1139E+00	1.7815E-01	3.5762E+00	1.9474E-01	3.1238E+00
38	1.2335E-01	6.8311E+00	1.5751E-01	4.1811E+00	1.7023E-01	3.6339E+00	1.8597E-01	3.1737E+00
39	1.1913E-01	6.9507E+00	1.5079E-01	4.2473E+00	1.6281E-01	3.6904E+00	1.7776E-01	3.2225E+00
40	1.1517E-01	7.0687E+00	1.4447E-01	4.3122E+00	1.5586E-01	3.7460E+00	1.7008E-01	3.2703E+00
41	1.1144E-01	7.1850E+00	1.3855E-01	4.3762E+00	1.4934E-01	3.8005E+00	1.6288E-01	3.3172E+00
42	1.0791E-01	7.2996E+00	1.3297E-01	4.4390E+00	1.4321E-01	3.8542E+00	1.5612E-01	3.3633E+00
43	1.0455E-01	7.4127E+00	1.2772E-01	4.5009E+00	1.3745E-01	3.9069E+00	1.4978E-01	3.4086E+00
44	1.0136E-01	7.5242E+00	1.2278E-01	4.5619E+00	1.3204E-01	3.9588E+00	1.4381E-01	3.4532E+00
45	9.8317E-02	7.6341E+00	1.1813E-01	4.6219E+00	1.2694E-01	4.0099E+00	1.3820E-01	3.4970E+00
46	9.5402E-02	7.7426E+00	1.1374E-01	4.6810E+00	1.2214E-01	4.0602E+00	1.3292E-01	3.5402E+00
47	9.2606E-02	7.8498E+00	1.0960E-01	4.7393E+00	1.1761E-01	4.1098E+00	1.2794E-01	3.5827E+00
48	8.9916E-02	7.9555E+00	1.0569E-01	4.7968E+00	1.1334E-01	4.1586E+00	1.2325E-01	3.6246E+00
49	8.7322E-02	8.0601E+00	1.0199E-01	4.8534E+00	1.0930E-01	4.2068E+00	1.1882E-01	3.6659E+00
50	8.4816E-02	8.1634E+00	9.8492E-02	4.9092E+00	1.0549E-01	4.2543E+00	1.1463E-01	3.7067E+00
51	8.2389E-02	8.2657E+00	9.5178E-02	4.9643E+00	1.0189E-01	4.3011E+00	1.1067E-01	3.7469E+00
52	8.0036E-02	8.3670E+00	9.2037E-02	5.0187E+00	9.8471E-02	4.3474E+00	1.0693E-01	3.7865E+00
53	7.7751E-02	8.4673E+00	8.9057E-02	5.0723E+00	9.5235E-02	4.3930E+00	1.0338E-01	3.8256E+00
54	7.5528E-02	8.5669E+00	8.6226E-02	5.1253E+00	9.2164E-02	4.4380E+00	1.0001E-01	3.8643E+00
55	7.3365E-02	8.6657E+00	8.3536E-02	5.1776E+00	8.9249E-02	4.4825E+00	9.6814E-02	3.9025E+00
56	7.1258E-02	8.7639E+00	8.0976E-02	5.2292E+00	8.6478E-02	4.5264E+00	9.3778E-02	3.9401E+00
57	6.9203E-02	8.8616E+00	7.8537E-02	5.2803E+00	8.3842E-02	4.5698E+00	9.0890E-02	3.9774E+00
58	6.7200E-02	8.9589E+00	7.6213E-02	5.3307E+00	8.1331E-02	4.6126E+00	8.8141E-02	4.0141E+00
59	6.5247E-02	9.0560E+00	7.3996E-02	5.3806E+00	7.8938E-02	4.6550E+00	8.5522E-02	4.0505E+00
60	6.3343E-02	9.1529E+00	7.1878E-02	5.4299E+00	7.6655E-02	4.6969E+00	8.3024E-02	4.0864E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*
Po; Z = 84

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	1.0207E+01	4.0280E-01	1.2373E+01	2.9270E-01	1.3191E+01	2.6430E-01	1.4198E+01	2.3850E-01
1	8.8298E+00	4.5584E-01	1.0863E+01	3.2830E-01	1.1618E+01	2.9582E-01	1.2543E+01	2.6633E-01
2	6.2962E+00	6.0432E-01	8.0395E+00	4.2550E-01	8.6624E+00	3.8151E-01	9.4112E+00	3.4197E-01
3	4.3175E+00	8.1693E-01	5.7595E+00	5.6004E-01	6.2598E+00	4.9932E-01	6.8483E+00	4.4549E-01
4	3.0694E+00	1.0565E+00	4.2558E+00	7.0787E-01	4.6624E+00	6.2802E-01	5.1332E+00	5.5805E-01
5	2.2853E+00	1.3011E+00	3.2688E+00	8.5672E-01	3.6053E+00	7.5712E-01	3.9910E+00	6.7060E-01
6	1.7672E+00	1.5453E+00	2.5894E+00	1.0041E+00	2.8721E+00	8.8462E-01	3.1938E+00	7.8150E-01
7	1.4100E+00	1.7891E+00	2.1010E+00	1.1507E+00	2.3407E+00	1.0112E+00	2.6125E+00	8.9136E-01
8	1.1566E+00	2.0309E+00	1.7393E+00	1.2965E+00	1.9439E+00	1.1368E+00	2.1755E+00	1.0003E+00
9	9.7242E-01	2.2676E+00	1.4657E+00	1.4403E+00	1.6414E+00	1.2608E+00	1.8403E+00	1.1078E+00
10	8.3420E-01	2.4959E+00	1.2547E+00	1.5803E+00	1.4065E+00	1.3816E+00	1.5787E+00	1.2125E+00
11	7.2632E-01	2.7139E+00	1.0883E+00	1.7153E+00	1.2204E+00	1.4982E+00	1.3706E+00	1.3137E+00
12	6.4039E-01	2.9225E+00	9.5548E-01	1.8449E+00	1.0714E+00	1.6101E+00	1.2035E+00	1.4108E+00
13	5.6954E-01	3.1224E+00	8.4690E-01	1.9689E+00	9.4950E-01	1.7172E+00	1.0666E+00	1.5039E+00
14	5.0985E-01	3.3154E+00	7.5639E-01	2.0880E+00	8.4785E-01	1.8200E+00	9.5243E-01	1.5931E+00
15	4.5923E-01	3.5028E+00	6.8006E-01	2.2028E+00	7.6210E-01	1.9191E+00	8.5606E-01	1.6790E+00
16	4.1612E-01	3.6858E+00	6.1506E-01	2.3141E+00	6.8900E-01	2.0152E+00	7.7383E-01	1.7623E+00
17	3.7933E-01	3.8647E+00	5.5928E-01	2.4227E+00	6.2617E-01	2.1088E+00	7.0304E-01	1.8435E+00
18	3.4788E-01	4.0400E+00	5.1114E-01	2.5288E+00	5.7180E-01	2.2004E+00	6.4166E-01	1.9230E+00
19	3.2092E-01	4.2114E+00	4.6939E-01	2.6329E+00	5.2451E-01	2.2902E+00	5.8815E-01	2.0010E+00
20	2.9767E-01	4.3791E+00	4.3303E-01	2.7349E+00	4.8318E-01	2.3785E+00	5.4125E-01	2.0777E+00
21	2.7751E-01	4.5427E+00	4.0121E-01	2.8350E+00	4.4690E-01	2.4652E+00	4.9997E-01	2.1532E+00
22	2.5986E-01	4.7025E+00	3.7321E-01	2.9329E+00	4.1489E-01	2.5503E+00	4.6347E-01	2.2274E+00
23	2.4427E-01	4.8585E+00	3.4845E-01	3.0288E+00	3.8653E-01	2.6336E+00	4.3107E-01	2.3003E+00
24	2.3037E-01	5.0108E+00	3.2641E-01	3.1224E+00	3.6126E-01	2.7152E+00	4.0217E-01	2.3717E+00
25	2.1787E-01	5.1597E+00	3.0666E-01	3.2137E+00	3.3862E-01	2.7949E+00	3.7628E-01	2.4416E+00
26	2.0655E-01	5.3056E+00	2.8885E-01	3.3027E+00	3.1824E-01	2.8727E+00	3.5297E-01	2.5099E+00
27	1.9623E-01	5.4487E+00	2.7270E-01	3.3895E+00	2.9978E-01	2.9485E+00	3.3189E-01	2.5764E+00
28	1.8677E-01	5.5892E+00	2.5795E-01	3.4740E+00	2.8297E-01	3.0224E+00	3.1274E-01	2.6413E+00
29	1.7808E-01	5.7275E+00	2.4442E-01	3.5564E+00	2.6760E-01	3.0944E+00	2.9526E-01	2.7044E+00
30	1.7006E-01	5.8636E+00	2.3195E-01	3.6368E+00	2.5348E-01	3.1645E+00	2.7925E-01	2.7659E+00
31	1.6264E-01	5.9978E+00	2.2041E-01	3.7152E+00	2.4046E-01	3.2328E+00	2.6453E-01	2.8257E+00
32	1.5578E-01	6.1302E+00	2.0970E-01	3.7919E+00	2.2841E-01	3.2993E+00	2.5095E-01	2.8840E+00
33	1.4942E-01	6.2608E+00	1.9972E-01	3.8668E+00	2.1722E-01	3.3643E+00	2.3838E-01	2.9407E+00
34	1.4351E-01	6.3898E+00	1.9040E-01	3.9401E+00	2.0681E-01	3.4278E+00	2.2672E-01	2.9960E+00
35	1.3802E-01	6.5170E+00	1.8170E-01	4.0120E+00	1.9710E-01	3.4898E+00	2.1587E-01	3.0499E+00
36	1.3290E-01	6.6426E+00	1.7354E-01	4.0824E+00	1.8804E-01	3.5504E+00	2.0577E-01	3.1026E+00
37	1.2813E-01	6.7665E+00	1.6590E-01	4.1515E+00	1.7956E-01	3.6098E+00	1.9634E-01	3.1541E+00
38	1.2366E-01	6.8887E+00	1.5873E-01	4.2193E+00	1.7162E-01	3.6681E+00	1.8753E-01	3.2044E+00
39	1.1948E-01	7.0093E+00	1.5200E-01	4.2860E+00	1.6418E-01	3.7252E+00	1.7928E-01	3.2538E+00
40	1.1555E-01	7.1282E+00	1.4567E-01	4.3515E+00	1.5719E-01	3.7812E+00	1.7155E-01	3.3021E+00
41	1.1185E-01	7.2454E+00	1.3972E-01	4.4160E+00	1.5064E-01	3.8363E+00	1.6431E-01	3.3495E+00
42	1.0835E-01	7.3610E+00	1.3412E-01	4.4794E+00	1.4447E-01	3.8904E+00	1.5750E-01	3.3961E+00
43	1.0503E-01	7.4750E+00	1.2884E-01	4.5418E+00	1.3868E-01	3.9436E+00	1.5111E-01	3.4418E+00
44	1.0188E-01	7.5874E+00	1.2388E-01	4.6033E+00	1.3322E-01	3.9960E+00	1.4510E-01	3.4868E+00
45	9.8866E-02	7.6983E+00	1.1919E-01	4.6638E+00	1.2809E-01	4.0475E+00	1.3945E-01	3.5311E+00
46	9.5986E-02	7.8078E+00	1.1477E-01	4.7234E+00	1.2325E-01	4.0983E+00	1.3412E-01	3.5746E+00
47	9.3223E-02	7.9158E+00	1.1060E-01	4.7822E+00	1.1868E-01	4.1483E+00	1.2910E-01	3.6175E+00
48	9.0564E-02	8.0224E+00	1.0666E-01	4.8401E+00	1.1437E-01	4.1975E+00	1.2436E-01	3.6598E+00
49	8.7999E-02	8.1278E+00	1.0293E-01	4.8973E+00	1.1030E-01	4.2461E+00	1.1988E-01	3.7015E+00
50	8.5519E-02	8.2319E+00	9.9396E-02	4.9536E+00	1.0645E-01	4.2940E+00	1.1566E-01	3.7425E+00
51	8.3116E-02	8.3350E+00	9.6052E-02	5.0091E+00	1.0281E-01	4.3413E+00	1.1166E-01	3.7831E+00
52	8.0783E-02	8.4369E+00	9.2880E-02	5.0640E+00	9.9356E-02	4.3879E+00	1.0787E-01	3.8231E+00
53	7.8515E-02	8.5380E+00	8.9871E-02	5.1181E+00	9.6086E-02	4.4339E+00	1.0429E-01	3.8625E+00
54	7.6306E-02	8.6381E+00	8.7012E-02	5.1715E+00	9.2983E-02	4.4793E+00	1.0088E-01	3.9015E+00
55	7.4152E-02	8.7375E+00	8.4294E-02	5.2242E+00	9.0037E-02	4.5242E+00	9.7656E-02	3.9400E+00
56	7.2050E-02	8.8363E+00	8.1707E-02	5.2763E+00	8.7236E-02	4.5684E+00	9.4588E-02	3.9780E+00
57	6.9997E-02	8.9345E+00	7.9243E-02	5.3278E+00	8.4572E-02	4.6122E+00	9.1670E-02	4.0155E+00
58	6.7991E-02	9.0323E+00	7.6895E-02	5.3787E+00	8.2034E-02	4.6554E+00	8.8893E-02	4.0526E+00
59	6.6030E-02	9.1297E+00	7.4654E-02	5.4289E+00	7.9616E-02	4.6981E+00	8.6247E-02	4.0892E+00
60	6.4114E-02	9.2270E+00	7.2514E-02	5.4787E+00	7.7309E-02	4.7403E+00	8.3724E-02	4.1254E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

At; Z = 85

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	1.0239E+01	4.1248E-01	1.2437E+01	2.9883E-01	1.3265E+01	2.6974E-01	1.4283E+01	2.4336E-01
1	8.9380E+00	4.6234E-01	1.1010E+01	3.3233E-01	1.1777E+01	2.9940E-01	1.2718E+01	2.6955E-01
2	6.4388E+00	6.0566E-01	8.2238E+00	4.2631E-01	8.8612E+00	3.8231E-01	9.6278E+00	3.4277E-01
3	4.4043E+00	8.1918E-01	5.8788E+00	5.6154E-01	6.3903E+00	5.0078E-01	6.9920E+00	4.4692E-01
4	3.1079E+00	1.0666E+00	4.3131E+00	7.1406E-01	4.7264E+00	6.3357E-01	5.2052E+00	5.6307E-01
5	2.3038E+00	1.3199E+00	3.2955E+00	8.6805E-01	3.6357E+00	7.6713E-01	4.0258E+00	6.7952E-01
6	1.7794E+00	1.5693E+00	2.6047E+00	1.0187E+00	2.8896E+00	8.9751E-01	3.2143E+00	7.9294E-01
7	1.4192E+00	1.8149E+00	2.1122E+00	1.1668E+00	2.3537E+00	1.0253E+00	2.6278E+00	9.0395E-01
8	1.1636E+00	2.0573E+00	1.7484E+00	1.3130E+00	1.9547E+00	1.1515E+00	2.1885E+00	1.0134E+00
9	9.7745E-01	2.2946E+00	1.4731E+00	1.4572E+00	1.6504E+00	1.2759E+00	1.8513E+00	1.1212E+00
10	8.3802E-01	2.5240E+00	1.2607E+00	1.5982E+00	1.4139E+00	1.3974E+00	1.5879E+00	1.2267E+00
11	7.2958E-01	2.7438E+00	1.0932E+00	1.7345E+00	1.2265E+00	1.5151E+00	1.3782E+00	1.3288E+00
12	6.4352E-01	2.9541E+00	9.5963E-01	1.8656E+00	1.0766E+00	1.6285E+00	1.2099E+00	1.4272E+00
13	5.7271E-01	3.1556E+00	8.5058E-01	1.9912E+00	9.5397E-01	1.7371E+00	1.0721E+00	1.5215E+00
14	5.1304E-01	3.3499E+00	7.5978E-01	2.1116E+00	8.5186E-01	1.8412E+00	9.5726E-01	1.6119E+00
15	4.6233E-01	3.5383E+00	6.8324E-01	2.2276E+00	7.6580E-01	1.9413E+00	8.6044E-01	1.6989E+00
16	4.1900E-01	3.7220E+00	6.1804E-01	2.3398E+00	6.9244E-01	2.0382E+00	7.7787E-01	1.7830E+00
17	3.8190E-01	3.9016E+00	5.6205E-01	2.4490E+00	6.2938E-01	2.1324E+00	7.0681E-01	1.8647E+00
18	3.5008E-01	4.0775E+00	5.1368E-01	2.5556E+00	5.7478E-01	2.2244E+00	6.4520E-01	1.9445E+00
19	3.2273E-01	4.2497E+00	4.7169E-01	2.6600E+00	5.2727E-01	2.3145E+00	5.9145E-01	2.0227E+00
20	2.9914E-01	4.4181E+00	4.3510E-01	2.7624E+00	4.8572E-01	2.4030E+00	5.4434E-01	2.0996E+00
21	2.7866E-01	4.5827E+00	4.0305E-01	2.8627E+00	4.4923E-01	2.4899E+00	5.0285E-01	2.1752E+00
22	2.6074E-01	4.7435E+00	3.7486E-01	2.9610E+00	4.1703E-01	2.5751E+00	4.6616E-01	2.2496E+00
23	2.4495E-01	4.9005E+00	3.4993E-01	3.0572E+00	3.8850E-01	2.6588E+00	4.3358E-01	2.3226E+00
24	2.3089E-01	5.0538E+00	3.2776E-01	3.1512E+00	3.6309E-01	2.7407E+00	4.0453E-01	2.3943E+00
25	2.1828E-01	5.2037E+00	3.0791E-01	3.2430E+00	3.4034E-01	2.8207E+00	3.7850E-01	2.4644E+00
26	2.0687E-01	5.3506E+00	2.9004E-01	3.3325E+00	3.1986E-01	2.8989E+00	3.5508E-01	2.5330E+00
27	1.9649E-01	5.4946E+00	2.7384E-01	3.4199E+00	3.0134E-01	2.9753E+00	3.3390E-01	2.6000E+00
28	1.8700E-01	5.6360E+00	2.5908E-01	3.5050E+00	2.8449E-01	3.0496E+00	3.1467E-01	2.6654E+00
29	1.7828E-01	5.7751E+00	2.4555E-01	3.5880E+00	2.6908E-01	3.1222E+00	2.9713E-01	2.7290E+00
30	1.7025E-01	5.9120E+00	2.3308E-01	3.6690E+00	2.5494E-01	3.1928E+00	2.8107E-01	2.7910E+00
31	1.6283E-01	6.0470E+00	2.2155E-01	3.7480E+00	2.4191E-01	3.2617E+00	2.6631E-01	2.8514E+00
32	1.5596E-01	6.1802E+00	2.1085E-01	3.8253E+00	2.2984E-01	3.3289E+00	2.5269E-01	2.9103E+00
33	1.4961E-01	6.3117E+00	2.0089E-01	3.9008E+00	2.1865E-01	3.3945E+00	2.4008E-01	2.9676E+00
34	1.4371E-01	6.4414E+00	1.9158E-01	3.9747E+00	2.0823E-01	3.4585E+00	2.2839E-01	3.0235E+00
35	1.3823E-01	6.5695E+00	1.8289E-01	4.0472E+00	1.9851E-01	3.5211E+00	2.1751E-01	3.0780E+00
36	1.3313E-01	6.6959E+00	1.7474E-01	4.1182E+00	1.8944E-01	3.5823E+00	2.0737E-01	3.1312E+00
37	1.2838E-01	6.8207E+00	1.6709E-01	4.1878E+00	1.8094E-01	3.6423E+00	1.9791E-01	3.1833E+00
38	1.2394E-01	6.9438E+00	1.5992E-01	4.2562E+00	1.7298E-01	3.7011E+00	1.8906E-01	3.2342E+00
39	1.1978E-01	7.0653E+00	1.5317E-01	4.3234E+00	1.6552E-01	3.7587E+00	1.8077E-01	3.2840E+00
40	1.1588E-01	7.1852E+00	1.4683E-01	4.3895E+00	1.5851E-01	3.8152E+00	1.7301E-01	3.3328E+00
41	1.1221E-01	7.3034E+00	1.4086E-01	4.4544E+00	1.5192E-01	3.8708E+00	1.6572E-01	3.3807E+00
42	1.0874E-01	7.4200E+00	1.3524E-01	4.5184E+00	1.4572E-01	3.9254E+00	1.5888E-01	3.4278E+00
43	1.0546E-01	7.5349E+00	1.2995E-01	4.5813E+00	1.3990E-01	3.9791E+00	1.5244E-01	3.4740E+00
44	1.0234E-01	7.6483E+00	1.2496E-01	4.6433E+00	1.3441E-01	4.0319E+00	1.4639E-01	3.5194E+00
45	9.9368E-02	7.7601E+00	1.2025E-01	4.7043E+00	1.2923E-01	4.0839E+00	1.4069E-01	3.5640E+00
46	9.6525E-02	7.8705E+00	1.1580E-01	4.7644E+00	1.2435E-01	4.1351E+00	1.3532E-01	3.6080E+00
47	9.3797E-02	7.9794E+00	1.1159E-01	4.8237E+00	1.1975E-01	4.1856E+00	1.3025E-01	3.6513E+00
48	9.1172E-02	8.0869E+00	1.0762E-01	4.8821E+00	1.1540E-01	4.2353E+00	1.2547E-01	3.6939E+00
49	8.8640E-02	8.1931E+00	1.0386E-01	4.9397E+00	1.1130E-01	4.2843E+00	1.2096E-01	3.7360E+00
50	8.6190E-02	8.2980E+00	1.0030E-01	4.9965E+00	1.0741E-01	4.3326E+00	1.1669E-01	3.7774E+00
51	8.3815E-02	8.4018E+00	9.6930E-02	5.0525E+00	1.0373E-01	4.3802E+00	1.1265E-01	3.8183E+00
52	8.1507E-02	8.5045E+00	9.3730E-02	5.1078E+00	1.0025E-01	4.4273E+00	1.0883E-01	3.8586E+00
53	7.9260E-02	8.6062E+00	9.0692E-02	5.1624E+00	9.6946E-02	4.4736E+00	1.0521E-01	3.8984E+00
54	7.7068E-02	8.7070E+00	8.7806E-02	5.2162E+00	9.3811E-02	4.5194E+00	1.0177E-01	3.9377E+00
55	7.4928E-02	8.8070E+00	8.5061E-02	5.2694E+00	9.0834E-02	4.5647E+00	9.8507E-02	3.9765E+00
56	7.2836E-02	8.9063E+00	8.2448E-02	5.3220E+00	8.8004E-02	4.6093E+00	9.5407E-02	4.0148E+00
57	7.0789E-02	9.0050E+00	7.9959E-02	5.3739E+00	8.5311E-02	4.6534E+00	9.2459E-02	4.0526E+00
58	6.8784E-02	9.1032E+00	7.7586E-02	5.4251E+00	8.2747E-02	4.6970E+00	8.9653E-02	4.0900E+00
59	6.6821E-02	9.2011E+00	7.5322E-02	5.4759E+00	8.0303E-02	4.7400E+00	8.6980E-02	4.1269E+00
60	6.4897E-02	9.2987E+00	7.3159E-02	5.5260E+00	7.7972E-02	4.7826E+00	8.4431E-02	4.1635E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Rn; $Z = 86$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.0192E+01	4.2365E-01	1.2415E+01	3.0614E-01	1.3248E+01	2.7626E-01	1.4271E+01	2.4921E-01
1	8.9775E+00	4.7052E-01	1.1080E+01	3.3764E-01	1.1857E+01	3.0415E-01	1.2808E+01	2.7383E-01
2	6.5512E+00	6.0787E-01	8.3738E+00	4.2787E-01	9.0241E+00	3.8379E-01	9.8062E+00	3.4420E-01
3	4.4885E+00	8.1955E-01	5.9962E+00	5.6211E-01	6.5188E+00	5.0146E-01	7.1338E+00	4.4769E-01
4	3.1495E+00	1.0726E+00	4.3761E+00	7.1803E-01	4.7967E+00	6.3723E-01	5.2840E+00	5.6648E-01
5	2.3241E+00	1.3345E+00	3.3258E+00	8.7715E-01	3.6702E+00	7.7525E-01	4.0653E+00	6.8681E-01
6	1.7923E+00	1.5903E+00	2.6213E+00	1.0318E+00	2.9086E+00	9.0910E-01	3.2363E+00	8.0328E-01
7	1.4292E+00	1.8388E+00	2.1237E+00	1.1819E+00	2.3668E+00	1.0387E+00	2.6432E+00	9.1590E-01
8	1.1712E+00	2.0821E+00	1.7575E+00	1.3289E+00	1.9653E+00	1.1656E+00	2.2011E+00	1.0260E+00
9	9.8302E-01	2.3199E+00	1.4805E+00	1.4735E+00	1.6593E+00	1.2904E+00	1.8621E+00	1.1342E+00
10	8.4213E-01	2.5503E+00	1.2667E+00	1.6151E+00	1.4214E+00	1.4125E+00	1.5970E+00	1.2402E+00
11	7.3293E-01	2.7715E+00	1.0981E+00	1.7524E+00	1.2327E+00	1.5312E+00	1.3859E+00	1.3432E+00
12	6.4661E-01	2.9835E+00	9.6379E-01	1.8849E+00	1.0818E+00	1.6457E+00	1.2164E+00	1.4426E+00
13	5.7577E-01	3.1866E+00	8.5425E-01	2.0120E+00	9.5847E-01	1.7557E+00	1.0776E+00	1.5382E+00
14	5.1614E-01	3.3821E+00	7.6315E-01	2.1339E+00	8.5589E-01	1.8611E+00	9.6214E-01	1.6298E+00
15	4.6539E-01	3.5715E+00	6.8641E-01	2.2511E+00	7.6950E-01	1.9624E+00	8.6484E-01	1.7178E+00
16	4.2191E-01	3.7560E+00	6.2103E-01	2.3643E+00	6.9589E-01	2.0603E+00	7.8193E-01	1.8072E+00
17	3.8454E-01	3.9363E+00	5.6485E-01	2.4743E+00	6.3260E-01	2.1552E+00	7.1058E-01	1.8851E+00
18	3.5240E-01	4.1129E+00	5.1626E-01	2.5815E+00	5.7779E-01	2.2477E+00	6.4872E-01	1.9654E+00
19	3.2470E-01	4.2858E+00	4.7405E-01	2.6863E+00	5.3005E-01	2.3382E+00	5.9475E-01	2.0439E+00
20	3.0075E-01	4.4551E+00	4.3722E-01	2.7890E+00	4.8828E-01	2.4269E+00	5.4742E-01	2.1210E+00
21	2.7996E-01	4.6206E+00	4.0495E-01	2.8896E+00	4.5158E-01	2.5139E+00	5.0573E-01	2.1968E+00
22	2.6177E-01	4.7823E+00	3.7655E-01	2.9882E+00	4.1919E-01	2.5994E+00	4.6884E-01	2.2712E+00
23	2.4575E-01	4.9403E+00	3.5145E-01	3.0847E+00	3.9048E-01	2.6833E+00	4.3608E-01	2.3444E+00
24	2.3152E-01	5.0946E+00	3.2913E-01	3.1792E+00	3.6492E-01	2.7654E+00	4.0687E-01	2.4163E+00
25	2.1877E-01	5.2456E+00	3.0917E-01	3.2714E+00	3.4205E-01	2.8458E+00	3.8070E-01	2.4867E+00
26	2.0726E-01	5.3934E+00	2.9122E-01	3.3614E+00	3.2147E-01	2.9244E+00	3.5715E-01	2.5556E+00
27	1.9681E-01	5.5383E+00	2.7497E-01	3.4493E+00	3.0287E-01	3.0012E+00	3.3588E-01	2.6230E+00
28	1.8727E-01	5.6807E+00	2.6017E-01	3.5350E+00	2.8597E-01	3.0761E+00	3.1657E-01	2.6888E+00
29	1.7851E-01	5.8206E+00	2.4663E-01	3.6186E+00	2.7053E-01	3.1491E+00	2.9896E-01	2.7529E+00
30	1.7045E-01	5.9584E+00	2.3416E-01	3.7002E+00	2.5636E-01	3.2203E+00	2.8285E-01	2.8154E+00
31	1.6301E-01	6.0942E+00	2.2264E-01	3.7798E+00	2.4331E-01	3.2898E+00	2.6804E-01	2.8764E+00
32	1.5614E-01	6.2282E+00	2.1195E-01	3.8577E+00	2.3123E-01	3.3576E+00	2.5438E-01	2.9358E+00
33	1.4978E-01	6.3605E+00	2.0200E-01	3.9338E+00	2.2003E-01	3.4237E+00	2.4174E-01	2.9937E+00
34	1.4388E-01	6.4910E+00	1.9271E-01	4.0083E+00	2.0961E-01	3.4883E+00	2.3001E-01	3.0501E+00
35	1.3841E-01	6.6199E+00	1.8402E-01	4.0813E+00	1.9988E-01	3.5515E+00	2.1911E-01	3.1052E+00
36	1.3332E-01	6.7472E+00	1.7588E-01	4.1528E+00	1.9080E-01	3.6133E+00	2.0894E-01	3.1590E+00
37	1.2859E-01	6.8729E+00	1.6825E-01	4.2230E+00	1.8229E-01	3.6738E+00	1.9945E-01	3.2116E+00
38	1.2417E-01	6.9970E+00	1.6107E-01	4.2920E+00	1.7431E-01	3.7331E+00	1.9057E-01	3.2630E+00
39	1.2004E-01	7.1194E+00	1.5432E-01	4.3597E+00	1.6683E-01	3.7912E+00	1.8225E-01	3.3134E+00
40	1.1616E-01	7.2402E+00	1.4797E-01	4.4263E+00	1.5979E-01	3.8483E+00	1.7445E-01	3.3627E+00
41	1.1252E-01	7.3593E+00	1.4199E-01	4.4918E+00	1.5318E-01	3.9044E+00	1.6712E-01	3.4111E+00
42	1.0909E-01	7.4769E+00	1.3635E-01	4.5562E+00	1.4696E-01	3.9594E+00	1.6024E-01	3.4586E+00
43	1.0584E-01	7.5928E+00	1.3104E-01	4.6196E+00	1.4110E-01	4.0136E+00	1.5377E-01	3.5052E+00
44	1.0276E-01	7.7071E+00	1.2602E-01	4.6821E+00	1.3558E-01	4.0669E+00	1.4767E-01	3.5510E+00
45	9.9822E-02	7.8199E+00	1.2129E-01	4.7436E+00	1.3037E-01	4.1193E+00	1.4193E-01	3.5961E+00
46	9.7016E-02	7.9312E+00	1.1681E-01	4.8043E+00	1.2546E-01	4.1710E+00	1.3652E-01	3.6405E+00
47	9.4326E-02	8.0409E+00	1.1259E-01	4.8640E+00	1.2082E-01	4.2219E+00	1.3141E-01	3.6842E+00
48	9.1738E-02	8.1493E+00	1.0859E-01	4.9229E+00	1.1644E-01	4.2720E+00	1.2659E-01	3.7272E+00
49	8.9241E-02	8.2564E+00	1.0480E-01	4.9810E+00	1.1230E-01	4.3214E+00	1.2204E-01	3.7696E+00
50	8.6825E-02	8.3621E+00	1.0121E-01	5.0383E+00	1.0838E-01	4.3701E+00	1.1773E-01	3.8114E+00
51	8.4481E-02	8.4667E+00	9.7812E-02	5.0948E+00	1.0467E-01	4.4182E+00	1.1365E-01	3.8526E+00
52	8.2202E-02	8.5701E+00	9.4584E-02	5.1505E+00	1.0115E-01	4.4656E+00	1.0979E-01	3.8933E+00
53	7.9981E-02	8.6725E+00	9.1519E-02	5.2055E+00	9.7815E-02	4.5124E+00	1.0613E-01	3.9334E+00
54	7.7812E-02	8.7739E+00	8.8607E-02	5.2598E+00	9.4649E-02	4.5585E+00	1.0266E-01	3.9730E+00
55	7.5690E-02	8.8745E+00	8.5836E-02	5.3135E+00	9.1641E-02	4.6041E+00	9.9366E-02	4.0121E+00
56	7.3613E-02	8.9744E+00	8.3198E-02	5.3664E+00	8.8782E-02	4.6491E+00	9.6235E-02	4.0507E+00
57	7.1576E-02	9.0736E+00	8.0684E-02	5.4187E+00	8.6061E-02	4.6936E+00	9.3256E-02	4.0889E+00
58	6.9578E-02	9.1723E+00	7.8287E-02	5.4704E+00	8.3470E-02	4.7375E+00	9.0421E-02	4.1266E+00
59	6.7616E-02	9.2705E+00	7.6000E-02	5.5216E+00	8.1000E-02	4.7809E+00	8.7720E-02	4.1638E+00
60	6.5689E-02	9.3685E+00	7.3815E-02	5.5721E+00	7.8644E-02	4.8238E+00	8.5145E-02	4.2006E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

Fr; Z = 87

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	1.4986E+01	3.2129E-01	1.7704E+01	2.3520E-01	1.8776E+01	2.1286E-01	2.0130E+01	1.9247E-01
1	1.0705E+01	4.3797E-01	1.3040E+01	3.1288E-01	1.3917E+01	2.8171E-01	1.5001E+01	2.5356E-01
2	6.7315E+00	6.4961E-01	8.6029E+00	4.4955E-01	9.2706E+00	4.0203E-01	1.0074E+01	3.5974E-01
3	4.5441E+00	8.7458E-01	6.0739E+00	5.9164E-01	6.6045E+00	5.2651E-01	7.2291E+00	4.6919E-01
4	3.1886E+00	1.1283E+00	4.4328E+00	7.4805E-01	4.8599E+00	6.6277E-01	5.3550E+00	5.8845E-01
5	2.3471E+00	1.3946E+00	3.3598E+00	9.0990E-01	3.7086E+00	8.0318E-01	4.1091E+00	7.1090E-01
6	1.8070E+00	1.6564E+00	2.6408E+00	1.0683E+00	2.9307E+00	9.4031E-01	3.2618E+00	8.3024E-01
7	1.4404E+00	1.9089E+00	2.1365E+00	1.2211E+00	2.3813E+00	1.0724E+00	2.6600E+00	9.4499E-01
8	1.1799E+00	2.1539E+00	1.7672E+00	1.3695E+00	1.9764E+00	1.2004E+00	2.2141E+00	1.0562E+00
9	9.8953E-01	2.3926E+00	1.4883E+00	1.5147E+00	1.6684E+00	1.3258E+00	1.8730E+00	1.1649E+00
10	8.4708E-01	2.6240E+00	1.2730E+00	1.6570E+00	1.4289E+00	1.4486E+00	1.6062E+00	1.2715E+00
11	7.3670E-01	2.8464E+00	1.1033E+00	1.7951E+00	1.2390E+00	1.5679E+00	1.3937E+00	1.3751E+00
12	6.4997E-01	3.0600E+00	9.6811E-01	1.9288E+00	1.0871E+00	1.6836E+00	1.2230E+00	1.4756E+00
13	5.7898E-01	3.2646E+00	8.5801E-01	2.0572E+00	9.6304E-01	1.7948E+00	1.0833E+00	1.5722E+00
14	5.1929E-01	3.4614E+00	7.6656E-01	2.1804E+00	8.5997E-01	1.9014E+00	9.6709E-01	1.6649E+00
15	4.6848E-01	3.6519E+00	6.8959E-01	2.2989E+00	7.7322E-01	2.0040E+00	8.6929E-01	1.7540E+00
16	4.2487E-01	3.8372E+00	6.2403E-01	2.4132E+00	6.9935E-01	2.1028E+00	7.8601E-01	1.8399E+00
17	3.8729E-01	4.0182E+00	5.6766E-01	2.5240E+00	6.3583E-01	2.1985E+00	7.1437E-01	1.9230E+00
18	3.5485E-01	4.1954E+00	5.1889E-01	2.6319E+00	5.8081E-01	2.2916E+00	6.5226E-01	2.0038E+00
19	3.2682E-01	4.3690E+00	4.7646E-01	2.7372E+00	5.3286E-01	2.3825E+00	5.9806E-01	2.0827E+00
20	3.0254E-01	4.5391E+00	4.3940E-01	2.8403E+00	4.9088E-01	2.4715E+00	5.5052E-01	2.1601E+00
21	2.8143E-01	4.7054E+00	4.0691E-01	2.9413E+00	4.5397E-01	2.5588E+00	5.0861E-01	2.2360E+00
22	2.6297E-01	4.8681E+00	3.7831E-01	3.0402E+00	4.2138E-01	2.6445E+00	4.7153E-01	2.3106E+00
23	2.4671E-01	5.0271E+00	3.5302E-01	3.1371E+00	3.9249E-01	2.7286E+00	4.3859E-01	2.3840E+00
24	2.3229E-01	5.1825E+00	3.3054E-01	3.2319E+00	3.6677E-01	2.8111E+00	4.0921E-01	2.4560E+00
25	2.1939E-01	5.3345E+00	3.1046E-01	3.3246E+00	3.4376E-01	2.8918E+00	3.8289E-01	2.5266E+00
26	2.0776E-01	5.4833E+00	2.9241E-01	3.4151E+00	3.2308E-01	2.9708E+00	3.5922E-01	2.5959E+00
27	1.9722E-01	5.6292E+00	2.7609E-01	3.5035E+00	3.0439E-01	3.0479E+00	3.3784E-01	2.6636E+00
28	1.8760E-01	5.7724E+00	2.6125E-01	3.5897E+00	2.8743E-01	3.1233E+00	3.1844E-01	2.7297E+00
29	1.7879E-01	5.9132E+00	2.4768E-01	3.6739E+00	2.7194E-01	3.1968E+00	3.0076E-01	2.7943E+00
30	1.7069E-01	6.0519E+00	2.3521E-01	3.7561E+00	2.5774E-01	3.2685E+00	2.8458E-01	2.8574E+00
31	1.6323E-01	6.1885E+00	2.2369E-01	3.8363E+00	2.4467E-01	3.3385E+00	2.6973E-01	2.9188E+00
32	1.5634E-01	6.3233E+00	2.1301E-01	3.9147E+00	2.3258E-01	3.4069E+00	2.5603E-01	2.9787E+00
33	1.4996E-01	6.4564E+00	2.0307E-01	3.9914E+00	2.2137E-01	3.4736E+00	2.4336E-01	3.0372E+00
34	1.4406E-01	6.5878E+00	1.9379E-01	4.0665E+00	2.1094E-01	3.5387E+00	2.3160E-01	3.0942E+00
35	1.3859E-01	6.7175E+00	1.8512E-01	4.1400E+00	2.0121E-01	3.6024E+00	2.2067E-01	3.1498E+00
36	1.3350E-01	6.8457E+00	1.7699E-01	4.2121E+00	1.9211E-01	3.6648E+00	2.1048E-01	3.2042E+00
37	1.2878E-01	6.9722E+00	1.6935E-01	4.2828E+00	1.8360E-01	3.7258E+00	2.0096E-01	3.2573E+00
38	1.2437E-01	7.0972E+00	1.6218E-01	4.3523E+00	1.7561E-01	3.7856E+00	1.9205E-01	3.3092E+00
39	1.2026E-01	7.2205E+00	1.5543E-01	4.4205E+00	1.6811E-01	3.8443E+00	1.8370E-01	3.3601E+00
40	1.1641E-01	7.3422E+00	1.4907E-01	4.4876E+00	1.6106E-01	3.9019E+00	1.7586E-01	3.4099E+00
41	1.1279E-01	7.4623E+00	1.4308E-01	4.5536E+00	1.5443E-01	3.9584E+00	1.6851E-01	3.4588E+00
42	1.0939E-01	7.5808E+00	1.3743E-01	4.6186E+00	1.4818E-01	4.0140E+00	1.6159E-01	3.5067E+00
43	1.0618E-01	7.6977E+00	1.3210E-01	4.6825E+00	1.4229E-01	4.0686E+00	1.5508E-01	3.5538E+00
44	1.0313E-01	7.8130E+00	1.2707E-01	4.7455E+00	1.3674E-01	4.1224E+00	1.4895E-01	3.6001E+00
45	1.0023E-01	7.9267E+00	1.2232E-01	4.8075E+00	1.3151E-01	4.1753E+00	1.4317E-01	3.6456E+00
46	9.7461E-02	8.0389E+00	1.1782E-01	4.8686E+00	1.2656E-01	4.2273E+00	1.3772E-01	3.6903E+00
47	9.4809E-02	8.1496E+00	1.1357E-01	4.9288E+00	1.2190E-01	4.2786E+00	1.3257E-01	3.7344E+00
48	9.2260E-02	8.2588E+00	1.0955E-01	4.9882E+00	1.1748E-01	4.3292E+00	1.2771E-01	3.7778E+00
49	8.9800E-02	8.3667E+00	1.0573E-01	5.0467E+00	1.1330E-01	4.3790E+00	1.2312E-01	3.8206E+00
50	8.7420E-02	8.4732E+00	1.0212E-01	5.1045E+00	1.0935E-01	4.4281E+00	1.1877E-01	3.8627E+00
51	8.5111E-02	8.5786E+00	9.8693E-02	5.1614E+00	1.0561E-01	4.4766E+00	1.1466E-01	3.9043E+00
52	8.2863E-02	8.6827E+00	9.5441E-02	5.2176E+00	1.0206E-01	4.5244E+00	1.1076E-01	3.9453E+00
53	8.0671E-02	8.7858E+00	9.2350E-02	5.2731E+00	9.8691E-02	4.5716E+00	1.0707E-01	3.9858E+00
54	7.8528E-02	8.8878E+00	8.9412E-02	5.3278E+00	9.5494E-02	4.6181E+00	1.0356E-01	4.0257E+00
55	7.6429E-02	8.9890E+00	8.6616E-02	5.3819E+00	9.2457E-02	4.6641E+00	1.0023E-01	4.0651E+00
56	7.4370E-02	9.0894E+00	8.3953E-02	5.4353E+00	8.9569E-02	4.7094E+00	9.7071E-02	4.1041E+00
57	7.2348E-02	9.1891E+00	8.1416E-02	5.4880E+00	8.6820E-02	4.7543E+00	9.4062E-02	4.1425E+00
58	7.0360E-02	9.2883E+00	7.8996E-02	5.5402E+00	8.4202E-02	4.7986E+00	9.1198E-02	4.1805E+00
59	6.8404E-02	9.3869E+00	7.6686E-02	5.5917E+00	8.1707E-02	4.8423E+00	8.8469E-02	4.2180E+00
60	6.6477E-02	9.4853E+00	7.4480E-02	5.6426E+00	7.9326E-02	4.8856E+00	8.5867E-02	4.2551E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Ra; $Z = 88$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.6691E+01	3.1495E-01	1.9618E+01	2.2844E-01	2.0782E+01	2.0642E-01	2.2262E+01	1.8643E-01
1	1.1932E+01	4.2553E-01	1.4444E+01	3.0237E-01	1.5393E+01	2.7202E-01	1.6574E+01	2.4470E-01
2	7.0122E+00	6.6802E-01	8.9517E+00	4.5834E-01	9.6437E+00	4.0928E-01	1.0477E+01	3.6584E-01
3	4.6033E+00	9.1683E-01	6.1543E+00	6.1453E-01	6.6928E+00	5.4600E-01	7.3270E+00	4.8598E-01
4	3.2239E+00	1.1739E+00	4.4825E+00	7.7296E-01	4.9152E+00	6.8404E-01	5.4172E+00	6.0682E-01
5	2.3704E+00	1.4419E+00	3.3942E+00	9.3596E-01	3.7474E+00	8.2550E-01	4.1533E+00	7.3023E-01
6	1.8223E+00	1.7079E+00	2.6623E+00	1.0971E+00	2.9553E+00	9.6506E-01	3.2901E+00	8.5171E-01
7	1.4518E+00	1.9649E+00	2.1504E+00	1.2529E+00	2.3972E+00	1.0997E+00	2.6785E+00	9.6875E-01
8	1.1891E+00	2.2127E+00	1.7773E+00	1.4033E+00	1.9878E+00	1.2297E+00	2.2274E+00	1.0816E+00
9	9.9688E-01	2.4528E+00	1.4963E+00	1.5497E+00	1.6775E+00	1.3560E+00	1.8837E+00	1.1913E+00
10	8.5269E-01	2.6853E+00	1.2794E+00	1.6926E+00	1.4364E+00	1.4794E+00	1.6152E+00	1.2984E+00
11	7.4116E-01	2.9089E+00	1.1085E+00	1.8315E+00	1.2453E+00	1.5995E+00	1.4014E+00	1.4026E+00
12	6.5362E-01	3.1238E+00	9.7251E-01	1.9661E+00	1.0924E+00	1.7160E+00	1.2295E+00	1.5038E+00
13	5.8225E-01	3.3298E+00	8.6181E-01	2.0957E+00	9.6765E-01	1.8282E+00	1.0890E+00	1.6014E+00
14	5.2244E-01	3.5279E+00	7.6997E-01	2.2202E+00	8.6405E-01	1.9361E+00	9.7207E-01	1.6952E+00
15	4.7155E-01	3.7194E+00	6.9275E-01	2.3399E+00	7.7694E-01	2.0397E+00	8.7376E-01	1.7854E+00
16	4.2783E-01	3.9056E+00	6.2701E-01	2.4553E+00	7.0280E-01	2.1396E+00	7.9009E-01	1.8722E+00
17	3.9006E-01	4.0874E+00	5.7048E-01	2.5670E+00	6.3907E-01	2.2361E+00	7.1816E-01	1.9561E+00
18	3.5737E-01	4.2652E+00	5.2152E-01	2.6756E+00	5.8384E-01	2.3299E+00	6.5580E-01	2.0375E+00
19	3.2905E-01	4.4395E+00	4.7889E-01	2.7815E+00	5.3569E-01	2.4214E+00	6.0138E-01	2.1169E+00
20	3.0445E-01	4.6103E+00	4.4163E-01	2.8851E+00	4.9350E-01	2.5108E+00	5.5361E-01	2.1946E+00
21	2.8304E-01	4.7775E+00	4.0892E-01	2.9864E+00	4.5638E-01	2.5984E+00	5.1150E-01	2.2708E+00
22	2.6430E-01	4.9411E+00	3.8011E-01	3.0858E+00	4.2360E-01	2.6844E+00	4.7422E-01	2.3456E+00
23	2.4780E-01	5.1010E+00	3.5463E-01	3.1830E+00	3.9453E-01	2.7687E+00	4.4110E-01	2.4191E+00
24	2.3317E-01	5.2574E+00	3.3199E-01	3.2782E+00	3.6864E-01	2.8514E+00	4.1154E-01	2.4913E+00
25	2.2010E-01	5.4104E+00	3.1177E-01	3.3713E+00	3.4549E-01	2.9324E+00	3.8507E-01	2.5622E+00
26	2.0834E-01	5.5603E+00	2.9361E-01	3.4623E+00	3.2469E-01	3.0117E+00	3.6127E-01	2.6316E+00
27	1.9769E-01	5.7072E+00	2.7721E-01	3.5512E+00	3.0591E-01	3.0893E+00	3.3977E-01	2.6997E+00
28	1.8799E-01	5.8513E+00	2.6232E-01	3.6380E+00	2.8886E-01	3.1650E+00	3.2028E-01	2.7662E+00
29	1.7912E-01	5.9931E+00	2.4871E-01	3.7227E+00	2.7333E-01	3.2390E+00	3.0253E-01	2.8312E+00
30	1.7097E-01	6.1326E+00	2.3622E-01	3.8054E+00	2.5909E-01	3.3113E+00	2.8629E-01	2.8946E+00
31	1.6347E-01	6.2701E+00	2.2470E-01	3.8862E+00	2.4599E-01	3.3818E+00	2.7138E-01	2.9566E+00
32	1.5655E-01	6.4057E+00	2.1402E-01	3.9652E+00	2.3389E-01	3.4507E+00	2.5764E-01	3.0170E+00
33	1.5015E-01	6.5396E+00	2.0409E-01	4.0425E+00	2.2266E-01	3.5179E+00	2.4494E-01	3.0760E+00
34	1.4424E-01	6.6718E+00	1.9482E-01	4.1181E+00	2.1233E-01	3.5836E+00	2.3315E-01	3.1335E+00
35	1.3875E-01	6.8024E+00	1.8616E-01	4.1922E+00	2.0249E-01	3.6479E+00	2.2220E-01	3.1897E+00
36	1.3367E-01	6.9314E+00	1.7804E-01	4.2648E+00	1.9339E-01	3.7107E+00	2.1198E-01	3.2445E+00
37	1.2894E-01	7.0589E+00	1.7042E-01	4.3360E+00	1.8487E-01	3.7723E+00	2.0243E-01	3.2982E+00
38	1.2455E-01	7.1847E+00	1.6325E-01	4.4060E+00	1.7687E-01	3.8326E+00	1.9350E-01	3.3507E+00
39	1.2045E-01	7.3090E+00	1.5650E-01	4.4748E+00	1.6936E-01	3.8918E+00	1.8512E-01	3.4020E+00
40	1.1662E-01	7.4316E+00	1.5014E-01	4.5424E+00	1.6229E-01	3.9499E+00	1.7726E-01	3.4523E+00
41	1.1303E-01	7.5527E+00	1.4415E-01	4.6089E+00	1.5564E-01	4.0069E+00	1.6987E-01	3.5017E+00
42	1.0965E-01	7.6721E+00	1.3849E-01	4.6743E+00	1.4938E-01	4.0629E+00	1.6292E-01	3.5501E+00
43	1.0647E-01	7.7899E+00	1.3315E-01	4.7387E+00	1.4347E-01	4.1180E+00	1.5638E-01	3.5976E+00
44	1.0345E-01	7.9062E+00	1.2810E-01	4.8021E+00	1.3790E-01	4.1722E+00	1.5022E-01	3.6443E+00
45	1.0059E-01	8.0208E+00	1.2333E-01	4.8646E+00	1.3263E-01	4.2255E+00	1.4440E-01	3.6902E+00
46	9.7861E-02	8.1339E+00	1.1881E-01	4.9262E+00	1.2766E-01	4.2780E+00	1.3891E-01	3.7354E+00
47	9.5248E-02	8.2455E+00	1.1454E-01	4.9869E+00	1.2296E-01	4.3298E+00	1.3373E-01	3.7799E+00
48	9.2738E-02	8.3557E+00	1.1050E-01	5.0468E+00	1.1852E-01	4.3808E+00	1.2883E-01	3.8236E+00
49	9.0318E-02	8.4644E+00	1.0666E-01	5.1058E+00	1.1431E-01	4.4310E+00	1.2421E-01	3.8668E+00
50	8.7977E-02	8.5718E+00	1.0303E-01	5.1640E+00	1.1033E-01	4.4805E+00	1.1982E-01	3.9093E+00
51	8.5704E-02	8.6778E+00	9.9575E-02	5.2214E+00	1.0655E-01	4.5294E+00	1.1567E-01	3.9512E+00
52	8.3492E-02	8.7827E+00	9.6298E-02	5.2781E+00	1.0297E-01	4.5776E+00	1.1174E-01	3.9926E+00
53	8.1333E-02	8.8865E+00	9.3183E-02	5.3340E+00	9.9573E-02	4.6251E+00	1.0801E-01	4.0333E+00
54	7.9219E-02	8.9893E+00	9.0221E-02	5.3892E+00	9.6347E-02	4.6720E+00	1.0447E-01	4.0736E+00
55	7.7147E-02	9.0910E+00	8.7402E-02	5.4437E+00	9.3281E-02	4.7184E+00	1.0111E-01	4.1133E+00
56	7.5112E-02	9.1920E+00	8.4716E-02	5.4975E+00	9.0364E-02	4.7641E+00	9.7915E-02	4.1526E+00
57	7.3109E-02	9.2922E+00	8.2156E-02	5.5507E+00	8.7588E-02	4.8093E+00	9.4876E-02	4.1914E+00
58	7.1135E-02	9.3918E+00	7.9713E-02	5.6032E+00	8.4944E-02	4.8540E+00	9.1983E-02	4.2297E+00
59	6.9190E-02	9.4909E+00	7.7381E-02	5.6551E+00	8.2423E-02	4.8980E+00	8.9226E-02	4.2675E+00
60	6.7270E-02	9.5896E+00	7.5153E-02	5.7064E+00	8.0018E-02	4.9416E+00	8.6598E-02	4.3049E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Ac; $Z = 89$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.6519E+01	3.3109E-01	1.9489E+01	2.3865E-01	2.0660E+01	2.1539E-01	2.2143E+01	1.9437E-01
1	1.2277E+01	4.2997E-01	1.4870E+01	3.0467E-01	1.5848E+01	2.7397E-01	1.7065E+01	2.4639E-01
2	7.2733E+00	6.6761E-01	9.2827E+00	4.5758E-01	9.9986E+00	4.0858E-01	1.0862E+01	3.6523E-01
3	4.6917E+00	9.3102E-01	6.2761E+00	6.2243E-01	6.8259E+00	5.5281E-01	7.4737E+00	4.9195E-01
4	3.2633E+00	1.1975E+00	4.5384E+00	7.8641E-01	4.9773E+00	6.9568E-01	5.4867E+00	6.1702E-01
5	2.3938E+00	1.4703E+00	3.4272E+00	9.5233E-01	3.7845E+00	8.3972E-01	4.1955E+00	7.4270E-01
6	1.8379E+00	1.7405E+00	2.6832E+00	1.1162E+00	2.9789E+00	9.8161E-01	3.3173E+00	8.6624E-01
7	1.4635E+00	2.0010E+00	2.1645E+00	1.2744E+00	2.4132E+00	1.1184E+00	2.6969E+00	9.8522E-01
8	1.1985E+00	2.2513E+00	1.7877E+00	1.4266E+00	1.9996E+00	1.2500E+00	2.2411E+00	1.0995E+00
9	1.0043E+00	2.4929E+00	1.5044E+00	1.5741E+00	1.6868E+00	1.3774E+00	1.8946E+00	1.2101E+00
10	8.5840E-01	2.7265E+00	1.2860E+00	1.7178E+00	1.4441E+00	1.5015E+00	1.6244E+00	1.3179E+00
11	7.4568E-01	2.9514E+00	1.1139E+00	1.8575E+00	1.2517E+00	1.6223E+00	1.4091E+00	1.4228E+00
12	6.5733E-01	3.1676E+00	9.7696E-01	1.9930E+00	1.0978E+00	1.7396E+00	1.2361E+00	1.5247E+00
13	5.8556E-01	3.3750E+00	8.6564E-01	2.1237E+00	9.7230E-01	1.8529E+00	1.0947E+00	1.6232E+00
14	5.2559E-01	3.5744E+00	7.7340E-01	2.2495E+00	8.6816E-01	1.9619E+00	9.7708E-01	1.7180E+00
15	4.7463E-01	3.7670E+00	6.9592E-01	2.3704E+00	7.8067E-01	2.0667E+00	8.7825E-01	1.8092E+00
16	4.3081E-01	3.9541E+00	6.2998E-01	2.4869E+00	7.0625E-01	2.1676E+00	7.9419E-01	1.8970E+00
17	3.9288E-01	4.1366E+00	5.7329E-01	2.5996E+00	6.4229E-01	2.2650E+00	7.2195E-01	1.9818E+00
18	3.5996E-01	4.3151E+00	5.2417E-01	2.7090E+00	5.8687E-01	2.3596E+00	6.5934E-01	2.0639E+00
19	3.3136E-01	4.4901E+00	4.8135E-01	2.8155E+00	5.3852E-01	2.4516E+00	6.0468E-01	2.1438E+00
20	3.0647E-01	4.6616E+00	4.4388E-01	2.9195E+00	4.9613E-01	2.5414E+00	5.5670E-01	2.2218E+00
21	2.8475E-01	4.8295E+00	4.1097E-01	3.0214E+00	4.5881E-01	2.6294E+00	5.1439E-01	2.2983E+00
22	2.6574E-01	4.9940E+00	3.8195E-01	3.1211E+00	4.2583E-01	2.7157E+00	4.7691E-01	2.3733E+00
23	2.4899E-01	5.1549E+00	3.5628E-01	3.2187E+00	3.9658E-01	2.8002E+00	4.4360E-01	2.4470E+00
24	2.3415E-01	5.3124E+00	3.3347E-01	3.3143E+00	3.7052E-01	2.8832E+00	4.1387E-01	2.5194E+00
25	2.2090E-01	5.4664E+00	3.1310E-01	3.4079E+00	3.4722E-01	2.9645E+00	3.8725E-01	2.5905E+00
26	2.0900E-01	5.6173E+00	2.9482E-01	3.4993E+00	3.2629E-01	3.0442E+00	3.6331E-01	2.6602E+00
27	1.9823E-01	5.7652E+00	2.7833E-01	3.5887E+00	3.0741E-01	3.1221E+00	3.4170E-01	2.7285E+00
28	1.8844E-01	5.9103E+00	2.6338E-01	3.6760E+00	2.9029E-01	3.1983E+00	3.2210E-01	2.7954E+00
29	1.7949E-01	6.0530E+00	2.4973E-01	3.7613E+00	2.7469E-01	3.2727E+00	3.0427E-01	2.8608E+00
30	1.7128E-01	6.1934E+00	2.3721E-01	3.8445E+00	2.6041E-01	3.3454E+00	2.8796E-01	2.9247E+00
31	1.6373E-01	6.3318E+00	2.2567E-01	3.9259E+00	2.4728E-01	3.4165E+00	2.7300E-01	2.9870E+00
32	1.5677E-01	6.4682E+00	2.1499E-01	4.0054E+00	2.3516E-01	3.4858E+00	2.5922E-01	3.0480E+00
33	1.5035E-01	6.6030E+00	2.0507E-01	4.0832E+00	2.2392E-01	3.5536E+00	2.4648E-01	3.1074E+00
34	1.4441E-01	6.7360E+00	1.9581E-01	4.1594E+00	2.1348E-01	3.6198E+00	2.3467E-01	3.1655E+00
35	1.3891E-01	6.8674E+00	1.8716E-01	4.2340E+00	2.0373E-01	3.6846E+00	2.2368E-01	3.2211E+00
36	1.3382E-01	6.9973E+00	1.7905E-01	4.3071E+00	1.9463E-01	3.7480E+00	2.1344E-01	3.2775E+00
37	1.2909E-01	7.1256E+00	1.7144E-01	4.3789E+00	1.8610E-01	3.8101E+00	2.0387E-01	3.3317E+00
38	1.2470E-01	7.2524E+00	1.6428E-01	4.4494E+00	1.7810E-01	3.8709E+00	1.9492E-01	3.3846E+00
39	1.2061E-01	7.3776E+00	1.5754E-01	4.5187E+00	1.7058E-01	3.9305E+00	1.8652E-01	3.4365E+00
40	1.1679E-01	7.5012E+00	1.5118E-01	4.5868E+00	1.6350E-01	3.9891E+00	1.7863E-01	3.4873E+00
41	1.1322E-01	7.6232E+00	1.4518E-01	4.6537E+00	1.5684E-01	4.0466E+00	1.7122E-01	3.5371E+00
42	1.0987E-01	7.7436E+00	1.3952E-01	4.7196E+00	1.5056E-01	4.1031E+00	1.6424E-01	3.5859E+00
43	1.0671E-01	7.8624E+00	1.3417E-01	4.7845E+00	1.4463E-01	4.1586E+00	1.5767E-01	3.6339E+00
44	1.0373E-01	7.9796E+00	1.2911E-01	4.8484E+00	1.3903E-01	4.2133E+00	1.5147E-01	3.6810E+00
45	1.0091E-01	8.0952E+00	1.2432E-01	4.9114E+00	1.3375E-01	4.2670E+00	1.4562E-01	3.7274E+00
46	9.8214E-02	8.2092E+00	1.1979E-01	4.9735E+00	1.2875E-01	4.3200E+00	1.4010E-01	3.7729E+00
47	9.5641E-02	8.3217E+00	1.1550E-01	5.0346E+00	1.2402E-01	4.3721E+00	1.3489E-01	3.8178E+00
48	9.3172E-02	8.4328E+00	1.1144E-01	5.0949E+00	1.1955E-01	4.4235E+00	1.2996E-01	3.8620E+00
49	9.0794E-02	8.5424E+00	1.0758E-01	5.1544E+00	1.1531E-01	4.4742E+00	1.2529E-01	3.9055E+00
50	8.8493E-02	8.6506E+00	1.0393E-01	5.2131E+00	1.1130E-01	4.5241E+00	1.2087E-01	3.9484E+00
51	8.6261E-02	8.7575E+00	1.0045E-01	5.2709E+00	1.0750E-01	4.5734E+00	1.1669E-01	3.9906E+00
52	8.4087E-02	8.8631E+00	9.7155E-02	5.3280E+00	1.0389E-01	4.6220E+00	1.1272E-01	4.0323E+00
53	8.1964E-02	8.9676E+00	9.4018E-02	5.3844E+00	1.0046E-01	4.6699E+00	1.0896E-01	4.0735E+00
54	7.9885E-02	9.0710E+00	9.1034E-02	5.4400E+00	9.7207E-02	4.7172E+00	1.0539E-01	4.1140E+00
55	7.7844E-02	9.1734E+00	8.8192E-02	5.4950E+00	9.4112E-02	4.7639E+00	1.0199E-01	4.1541E+00
56	7.5836E-02	9.2749E+00	8.5484E-02	5.5492E+00	9.1168E-02	4.8100E+00	9.8768E-02	4.1937E+00
57	7.3856E-02	9.3757E+00	8.2902E-02	5.6028E+00	8.8365E-02	4.8556E+00	9.5699E-02	4.2327E+00
58	7.1903E-02	9.4757E+00	8.0437E-02	5.6557E+00	8.5695E-02	4.9005E+00	9.2777E-02	4.2713E+00
59	6.9972E-02	9.5752E+00	7.8084E-02	5.7081E+00	8.3148E-02	4.9450E+00	8.9993E-02	4.3095E+00
60	6.8063E-02	9.6743E+00	7.5835E-02	5.7598E+00	8.0719E-02	4.9889E+00	8.7338E-02	4.3471E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Th; $Z = 90$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.6064E+01	3.4887E-01	1.9046E+01	2.5047E-01	2.0209E+01	2.2590E-01	2.1675E+01	2.0375E-01
1	1.2347E+01	4.3840E-01	1.4991E+01	3.1016E-01	1.5984E+01	2.7884E-01	1.7217E+01	2.5075E-01
2	7.4837E+00	6.6515E-01	9.5564E+00	4.5620E-01	1.0294E+01	4.0745E-01	1.1182E+01	3.6433E-01
3	4.7871E+00	9.3543E-01	6.4103E+00	6.2512E-01	6.9729E+00	5.5525E-01	7.6358E+00	4.9420E-01
4	3.3061E+00	1.2117E+00	4.6007E+00	7.9490E-01	5.0467E+00	7.0314E-01	5.5644E+00	6.2365E-01
5	2.4180E+00	1.4911E+00	3.4615E+00	9.6477E-01	3.8231E+00	8.5062E-01	4.2393E+00	7.5236E-01
6	1.8542E+00	1.7660E+00	2.7045E+00	1.1316E+00	3.0029E+00	9.9517E-01	3.3448E+00	8.7824E-01
7	1.4758E+00	2.0301E+00	2.1789E+00	1.2923E+00	2.4294E+00	1.1342E+00	2.7156E+00	9.9916E-01
8	1.2083E+00	2.2829E+00	1.7983E+00	1.4463E+00	2.0115E+00	1.2674E+00	2.2549E+00	1.1149E+00
9	1.0120E+00	2.5260E+00	1.5128E+00	1.5950E+00	1.6962E+00	1.3959E+00	1.9057E+00	1.2265E+00
10	8.6437E-01	2.7608E+00	1.2927E+00	1.7394E+00	1.4519E+00	1.5207E+00	1.6336E+00	1.3349E+00
11	7.5037E-01	2.9869E+00	1.1194E+00	1.8800E+00	1.2581E+00	1.6422E+00	1.4168E+00	1.4404E+00
12	6.6114E-01	3.2045E+00	9.8150E-01	2.0163E+00	1.1032E+00	1.7602E+00	1.2428E+00	1.5430E+00
13	5.8891E-01	3.4132E+00	8.6951E-01	2.1480E+00	9.7696E-01	1.8744E+00	1.1004E+00	1.6423E+00
14	5.2873E-01	3.6140E+00	7.7683E-01	2.2750E+00	8.7227E-01	1.9845E+00	9.8210E-01	1.7382E+00
15	4.7768E-01	3.8077E+00	6.9907E-01	2.3971E+00	7.8439E-01	2.0904E+00	8.8274E-01	1.8304E+00
16	4.3376E-01	3.9957E+00	6.3294E-01	2.5148E+00	7.0969E-01	2.1924E+00	7.9828E-01	1.9192E+00
17	3.9570E-01	4.1789E+00	5.7609E-01	2.6284E+00	6.4551E-01	2.2908E+00	7.2573E-01	2.0048E+00
18	3.6259E-01	4.3582E+00	5.2681E-01	2.7387E+00	5.8989E-01	2.3861E+00	6.6286E-01	2.0877E+00
19	3.3374E-01	4.5337E+00	4.8383E-01	2.8459E+00	5.4135E-01	2.4788E+00	6.0798E-01	2.1681E+00
20	3.0857E-01	4.7059E+00	4.4617E-01	2.9505E+00	4.9878E-01	2.5691E+00	5.5979E-01	2.2466E+00
21	2.8657E-01	4.8747E+00	4.1305E-01	3.0528E+00	4.6126E-01	2.6575E+00	5.1728E-01	2.3234E+00
22	2.6728E-01	5.0400E+00	3.8384E-01	3.1529E+00	4.2809E-01	2.7441E+00	4.7961E-01	2.3987E+00
23	2.5029E-01	5.2019E+00	3.5797E-01	3.2510E+00	3.9865E-01	2.8290E+00	4.4611E-01	2.4726E+00
24	2.3523E-01	5.3603E+00	3.3498E-01	3.3470E+00	3.7242E-01	2.9122E+00	4.1621E-01	2.5452E+00
25	2.2180E-01	5.5153E+00	3.1446E-01	3.4410E+00	3.4897E-01	2.9938E+00	3.8942E-01	2.6165E+00
26	2.0974E-01	5.6672E+00	2.9605E-01	3.5329E+00	3.2791E-01	3.0738E+00	3.6534E-01	2.6865E+00
27	1.9885E-01	5.8161E+00	2.7946E-01	3.6227E+00	3.0891E-01	3.1521E+00	3.4360E-01	2.7550E+00
28	1.8895E-01	5.9623E+00	2.6443E-01	3.7105E+00	2.9170E-01	3.2287E+00	3.2391E-01	2.8222E+00
29	1.7992E-01	6.1059E+00	2.5073E-01	3.7963E+00	2.7603E-01	3.3035E+00	3.0598E-01	2.8879E+00
30	1.7164E-01	6.2472E+00	2.3818E-01	3.8801E+00	2.6170E-01	3.3767E+00	2.8961E-01	2.9522E+00
31	1.6403E-01	6.3864E+00	2.2662E-01	3.9620E+00	2.4854E-01	3.4482E+00	2.7459E-01	3.0150E+00
32	1.5702E-01	6.5238E+00	2.1593E-01	4.0421E+00	2.3639E-01	3.5181E+00	2.6076E-01	3.0764E+00
33	1.5056E-01	6.6594E+00	2.0601E-01	4.1205E+00	2.2514E-01	3.5863E+00	2.4799E-01	3.1363E+00
34	1.4459E-01	6.7933E+00	1.9677E-01	4.1972E+00	2.1468E-01	3.6531E+00	2.3615E-01	3.1948E+00
35	1.3907E-01	6.9256E+00	1.8812E-01	4.2723E+00	2.0494E-01	3.7183E+00	2.2514E-01	3.2520E+00
36	1.3396E-01	7.0563E+00	1.8002E-01	4.3460E+00	1.9583E-01	3.7822E+00	2.1487E-01	3.3079E+00
37	1.2922E-01	7.1855E+00	1.7242E-01	4.4183E+00	1.8730E-01	3.8448E+00	2.0528E-01	3.3625E+00
38	1.2482E-01	7.3132E+00	1.6527E-01	4.4893E+00	1.7929E-01	3.9061E+00	1.9631E-01	3.4160E+00
39	1.2074E-01	7.4393E+00	1.5853E-01	4.5590E+00	1.7176E-01	3.9663E+00	1.8789E-01	3.4683E+00
40	1.1693E-01	7.5638E+00	1.5218E-01	4.6276E+00	1.6468E-01	4.0253E+00	1.7998E-01	3.5196E+00
41	1.1337E-01	7.6868E+00	1.4618E-01	4.6950E+00	1.5800E-01	4.0833E+00	1.7254E-01	3.5699E+00
42	1.1005E-01	7.8082E+00	1.4052E-01	4.7614E+00	1.5171E-01	4.1402E+00	1.6554E-01	3.6192E+00
43	1.0692E-01	7.9279E+00	1.3516E-01	4.8268E+00	1.4577E-01	4.1962E+00	1.5894E-01	3.6676E+00
44	1.0397E-01	8.0461E+00	1.3009E-01	4.8911E+00	1.4015E-01	4.2513E+00	1.5271E-01	3.7152E+00
45	1.0117E-01	8.1627E+00	1.2530E-01	4.9546E+00	1.3484E-01	4.3055E+00	1.4684E-01	3.7619E+00
46	9.8520E-02	8.2777E+00	1.2076E-01	5.0171E+00	1.2982E-01	4.3589E+00	1.4129E-01	3.8079E+00
47	9.5988E-02	8.3912E+00	1.1645E-01	5.0787E+00	1.2507E-01	4.4114E+00	1.3604E-01	3.8531E+00
48	9.3560E-02	8.5031E+00	1.1237E-01	5.1395E+00	1.2058E-01	4.4633E+00	1.3108E-01	3.8977E+00
49	9.1224E-02	8.6136E+00	1.0850E-01	5.1994E+00	1.1632E-01	4.5143E+00	1.2638E-01	3.9416E+00
50	8.8967E-02	8.7227E+00	1.0482E-01	5.2585E+00	1.1228E-01	4.5646E+00	1.2193E-01	3.9848E+00
51	8.6777E-02	8.8304E+00	1.0133E-01	5.3168E+00	1.0844E-01	4.6143E+00	1.1771E-01	4.0274E+00
52	8.4644E-02	8.9368E+00	9.8010E-02	5.3744E+00	1.0481E-01	4.6632E+00	1.1371E-01	4.0695E+00
53	8.2561E-02	9.0420E+00	9.4852E-02	5.4312E+00	1.0135E-01	4.7116E+00	1.0991E-01	4.1109E+00
54	8.0520E-02	9.1461E+00	9.1847E-02	5.4872E+00	9.8071E-02	4.7593E+00	1.0631E-01	4.1519E+00
55	7.8514E-02	9.2492E+00	8.8984E-02	5.5426E+00	9.4949E-02	4.8063E+00	1.0288E-01	4.1922E+00
56	7.6537E-02	9.3513E+00	8.6255E-02	5.5973E+00	9.1979E-02	4.8528E+00	9.9629E-02	4.2321E+00
57	7.4586E-02	9.4525E+00	8.3652E-02	5.6513E+00	8.9150E-02	4.8987E+00	9.6530E-02	4.2715E+00
58	7.2657E-02	9.5531E+00	8.1167E-02	5.7046E+00	8.6454E-02	4.9440E+00	9.3579E-02	4.3104E+00
59	7.0746E-02	9.6530E+00	7.8794E-02	5.7574E+00	8.3883E-02	4.9889E+00	9.0768E-02	4.3488E+00
60	6.8853E-02	9.7524E+00	7.6525E-02	5.8095E+00	8.1430E-02	5.0331E+00	8.8086E-02	4.3868E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*Pa; $Z = 91$

s	10 keV		40 keV		60 keV		90 keV	
	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$	$ f(s) $	$\eta(s)$
0	1.5526E+01	3.4745E-01	1.8450E+01	2.5180E-01	1.9588E+01	2.2756E-01	2.1020E+01	2.0560E-01
1	1.1835E+01	4.4153E-01	1.4422E+01	3.1463E-01	1.5390E+01	2.8330E-01	1.6590E+01	2.5511E-01
2	7.2413E+00	6.6824E-01	9.2829E+00	4.6070E-01	1.0008E+01	4.1196E-01	1.0880E+01	3.6876E-01
3	4.7331E+00	9.2483E-01	6.3574E+00	6.2151E-01	6.9197E+00	5.5276E-01	7.5818E+00	4.9254E-01
4	3.3065E+00	1.1884E+00	4.6188E+00	7.8388E-01	5.0696E+00	6.9432E-01	5.5927E+00	6.1655E-01
5	2.4253E+00	1.4621E+00	3.4894E+00	9.5045E-01	3.8568E+00	8.3902E-01	4.2794E+00	7.4289E-01
6	1.8596E+00	1.7373E+00	2.7269E+00	1.1174E+00	3.0304E+00	9.8370E-01	3.3778E+00	8.6892E-01
7	1.4799E+00	2.0048E+00	2.1948E+00	1.2801E+00	2.4490E+00	1.1245E+00	2.7395E+00	9.9145E-01
8	1.2123E+00	2.2614E+00	1.8096E+00	1.4369E+00	2.0255E+00	1.2601E+00	2.2720E+00	1.1093E+00
9	1.0163E+00	2.5080E+00	1.5212E+00	1.5882E+00	1.7065E+00	1.3909E+00	1.9182E+00	1.2230E+00
10	8.6865E-01	2.7455E+00	1.2994E+00	1.7348E+00	1.4598E+00	1.5178E+00	1.6432E+00	1.3331E+00
11	7.5447E-01	2.9739E+00	1.1247E+00	1.8771E+00	1.2645E+00	1.6409E+00	1.4245E+00	1.4401E+00
12	6.6496E-01	3.1932E+00	9.8603E-01	2.0150E+00	1.1085E+00	1.7603E+00	1.2492E+00	1.5440E+00
13	5.9246E-01	3.4036E+00	8.7343E-01	2.1480E+00	9.8151E-01	1.8757E+00	1.1058E+00	1.6444E+00
14	5.3205E-01	3.6057E+00	7.8029E-01	2.2761E+00	8.7627E-01	1.9868E+00	9.8689E-01	1.7411E+00
15	4.8080E-01	3.8007E+00	7.0220E-01	2.3993E+00	7.8799E-01	2.0937E+00	8.8702E-01	1.8342E+00
16	4.3670E-01	3.9897E+00	6.3582E-01	2.5179E+00	7.1298E-01	2.1966E+00	8.0217E-01	1.9238E+00
17	3.9842E-01	4.1737E+00	5.7875E-01	2.6324E+00	6.4856E-01	2.2958E+00	7.2932E-01	2.0101E+00
18	3.6508E-01	4.3537E+00	5.2928E-01	2.7433E+00	5.9273E-01	2.3918E+00	6.6620E-01	2.0936E+00
19	3.3597E-01	4.5300E+00	4.8611E-01	2.8512E+00	5.4400E-01	2.4850E+00	6.1111E-01	2.1746E+00
20	3.1054E-01	4.7028E+00	4.4827E-01	2.9563E+00	5.0124E-01	2.5758E+00	5.6272E-01	2.2535E+00
21	2.8828E-01	4.8723E+00	4.1497E-01	3.0591E+00	4.6355E-01	2.6645E+00	5.2002E-01	2.3306E+00
22	2.6874E-01	5.0384E+00	3.8557E-01	3.1596E+00	4.3020E-01	2.7514E+00	4.8217E-01	2.4062E+00
23	2.5151E-01	5.2011E+00	3.5953E-01	3.2581E+00	4.0059E-01	2.8366E+00	4.4850E-01	2.4803E+00
24	2.3625E-01	5.3604E+00	3.3638E-01	3.3545E+00	3.7421E-01	2.9202E+00	4.1844E-01	2.5531E+00
25	2.2264E-01	5.5164E+00	3.1572E-01	3.4490E+00	3.5062E-01	3.0021E+00	3.9151E-01	2.6247E+00
26	2.1043E-01	5.6693E+00	2.9721E-01	3.5413E+00	3.2945E-01	3.0824E+00	3.6730E-01	2.6948E+00
27	1.9941E-01	5.8191E+00	2.8052E-01	3.6317E+00	3.1035E-01	3.1610E+00	3.4545E-01	2.7637E+00
28	1.8940E-01	5.9662E+00	2.6542E-01	3.7200E+00	2.9306E-01	3.2380E+00	3.2566E-01	2.8312E+00
29	1.8028E-01	6.1107E+00	2.5167E-01	3.8063E+00	2.7732E-01	3.3133E+00	3.0765E-01	2.8972E+00
30	1.7193E-01	6.2529E+00	2.3908E-01	3.8906E+00	2.6294E-01	3.3869E+00	2.9121E-01	2.9619E+00
31	1.6427E-01	6.3931E+00	2.2751E-01	3.9731E+00	2.4974E-01	3.4588E+00	2.7613E-01	3.0251E+00
32	1.5721E-01	6.5313E+00	2.1681E-01	4.0537E+00	2.3757E-01	3.5292E+00	2.6226E-01	3.0869E+00
33	1.5070E-01	6.6677E+00	2.0689E-01	4.1326E+00	2.2630E-01	3.5979E+00	2.4945E-01	3.1473E+00
34	1.4470E-01	6.8024E+00	1.9765E-01	4.2098E+00	2.1584E-01	3.6652E+00	2.3758E-01	3.2063E+00
35	1.3916E-01	6.9356E+00	1.8902E-01	4.2855E+00	2.0609E-01	3.7309E+00	2.2654E-01	3.2639E+00
36	1.3403E-01	7.0672E+00	1.8093E-01	4.3597E+00	1.9698E-01	3.7953E+00	2.1626E-01	3.3203E+00
37	1.2928E-01	7.1974E+00	1.7334E-01	4.4325E+00	1.8844E-01	3.8584E+00	2.0665E-01	3.3754E+00
38	1.2488E-01	7.3259E+00	1.6620E-01	4.5039E+00	1.8044E-01	3.9202E+00	1.9765E-01	3.4293E+00
39	1.2079E-01	7.4530E+00	1.5947E-01	4.5742E+00	1.7290E-01	3.9808E+00	1.8922E-01	3.4821E+00
40	1.1699E-01	7.5785E+00	1.5313E-01	4.6432E+00	1.6582E-01	4.0403E+00	1.8129E-01	3.5339E+00
41	1.1345E-01	7.7025E+00	1.4713E-01	4.7111E+00	1.5913E-01	4.0987E+00	1.7383E-01	3.5846E+00
42	1.1014E-01	7.8249E+00	1.4147E-01	4.7780E+00	1.5283E-01	4.1561E+00	1.6681E-01	3.6344E+00
43	1.0704E-01	7.9457E+00	1.3611E-01	4.8438E+00	1.4687E-01	4.2126E+00	1.6019E-01	3.6832E+00
44	1.0412E-01	8.0649E+00	1.3104E-01	4.9087E+00	1.4124E-01	4.2681E+00	1.5394E-01	3.7312E+00
45	1.0137E-01	8.1825E+00	1.2624E-01	4.9725E+00	1.3592E-01	4.3227E+00	1.4803E-01	3.7784E+00
46	9.8752E-02	8.2985E+00	1.2169E-01	5.0355E+00	1.3088E-01	4.3765E+00	1.4245E-01	3.8247E+00
47	9.6262E-02	8.4129E+00	1.1737E-01	5.0976E+00	1.2611E-01	4.4295E+00	1.3718E-01	3.8704E+00
48	9.3879E-02	8.5258E+00	1.1328E-01	5.1588E+00	1.2159E-01	4.4817E+00	1.3219E-01	3.9153E+00
49	9.1589E-02	8.6372E+00	1.0939E-01	5.2192E+00	1.1731E-01	4.5332E+00	1.2746E-01	3.9596E+00
50	8.9379E-02	8.7472E+00	1.0570E-01	5.2787E+00	1.1324E-01	4.5839E+00	1.2298E-01	4.0032E+00
51	8.7236E-02	8.8558E+00	1.0219E-01	5.3375E+00	1.0939E-01	4.6340E+00	1.1873E-01	4.0462E+00
52	8.5151E-02	8.9630E+00	9.8857E-02	5.3955E+00	1.0573E-01	4.6833E+00	1.1470E-01	4.0886E+00
53	8.3113E-02	9.0690E+00	9.5682E-02	5.4527E+00	1.0225E-01	4.7320E+00	1.1087E-01	4.1304E+00
54	8.1115E-02	9.1738E+00	9.2658E-02	5.5092E+00	9.8939E-02	4.7801E+00	1.0724E-01	4.1716E+00
55	7.9150E-02	9.2775E+00	8.9776E-02	5.5650E+00	9.5792E-02	4.8275E+00	1.0378E-01	4.2123E+00
56	7.7212E-02	9.3802E+00	8.7029E-02	5.6201E+00	9.2796E-02	4.8744E+00	1.0050E-01	4.2525E+00
57	7.5296E-02	9.4821E+00	8.4407E-02	5.6745E+00	8.9943E-02	4.9206E+00	9.7371E-02	4.2922E+00
58	7.3398E-02	9.5831E+00	8.1904E-02	5.7283E+00	8.7223E-02	4.9663E+00	9.4392E-02	4.3314E+00
59	7.1514E-02	9.6834E+00	7.9511E-02	5.7814E+00	8.4628E-02	5.0115E+00	9.1554E-02	4.3701E+00
60	6.9643E-02	9.7833E+00	7.7224E-02	5.8340E+00	8.2152E-02	5.0561E+00	8.8847E-02	4.4084E+00

4.3. ELECTRON DIFFRACTION

Table 4.3.3.1. *Partial wave elastic scattering factors for neutral atoms (cont.)*

U; Z = 92

s	10 keV		40 keV		60 keV		90 keV	
	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$	f(s)	$\eta(s)$
0	1.5083E+01	3.5370E-01	1.7980E+01	2.5724E-01	1.9103E+01	2.3266E-01	2.0511E+01	2.1038E-01
1	1.1598E+01	4.4626E-01	1.4175E+01	3.1909E-01	1.5136E+01	2.8755E-01	1.6325E+01	2.5913E-01
2	7.1875E+00	6.6900E-01	9.2358E+00	4.6273E-01	9.9621E+00	4.1411E-01	1.0835E+01	3.7094E-01
3	4.7328E+00	9.2179E-01	6.3709E+00	6.2130E-01	6.9374E+00	5.5299E-01	7.6043E+00	4.9309E-01
4	3.3185E+00	1.1823E+00	4.6467E+00	7.8195E-01	5.1024E+00	6.9312E-01	5.6313E+00	6.1589E-01
5	2.4367E+00	1.4547E+00	3.5159E+00	9.4777E-01	3.8880E+00	8.3721E-01	4.3160E+00	7.4175E-01
6	1.8679E+00	1.7309E+00	2.7474E+00	1.1153E+00	3.0548E+00	9.8244E-01	3.4068E+00	8.6830E-01
7	1.4862E+00	2.0009E+00	2.2097E+00	1.2797E+00	2.4670E+00	1.1247E+00	2.7610E+00	9.9213E-01
8	1.2177E+00	2.2604E+00	1.8206E+00	1.4385E+00	2.0387E+00	1.2622E+00	2.2879E+00	1.1116E+00
9	1.0212E+00	2.5096E+00	1.5296E+00	1.5917E+00	1.7165E+00	1.3947E+00	1.9303E+00	1.2269E+00
10	8.7314E-01	2.7492E+00	1.3060E+00	1.7400E+00	1.4677E+00	1.5231E+00	1.6528E+00	1.3384E+00
11	7.5850E-01	2.9795E+00	1.1302E+00	1.8838E+00	1.2709E+00	1.6475E+00	1.4323E+00	1.4466E+00
12	6.6860E-01	3.2005E+00	9.9061E-01	2.0229E+00	1.1140E+00	1.7681E+00	1.2557E+00	1.5515E+00
13	5.9581E-01	3.4124E+00	8.7737E-01	2.1572E+00	9.8616E-01	1.8846E+00	1.1115E+00	1.6529E+00
14	5.3522E-01	3.6160E+00	7.8378E-01	2.2864E+00	8.8035E-01	1.9968E+00	9.9181E-01	1.7506E+00
15	4.8384E-01	3.8121E+00	7.0535E-01	2.4108E+00	7.9165E-01	2.1048E+00	8.9140E-01	1.8447E+00
16	4.3961E-01	4.0022E+00	6.3873E-01	2.5305E+00	7.1634E-01	2.2087E+00	8.0615E-01	1.9352E+00
17	4.0120E-01	4.1871E+00	5.8148E-01	2.6459E+00	6.5167E-01	2.3087E+00	7.3298E-01	2.0223E+00
18	3.6767E-01	4.3678E+00	5.3183E-01	2.7576E+00	5.9564E-01	2.4055E+00	6.6961E-01	2.1065E+00
19	3.3835E-01	4.5447E+00	4.8849E-01	2.8662E+00	5.4672E-01	2.4994E+00	6.1429E-01	2.1881E+00
20	3.1267E-01	4.7182E+00	4.5047E-01	2.9719E+00	5.0378E-01	2.5907E+00	5.6570E-01	2.2675E+00
21	2.9015E-01	4.8885E+00	4.1698E-01	3.0752E+00	4.6591E-01	2.6799E+00	5.2280E-01	2.3450E+00
22	2.7036E-01	5.0553E+00	3.8740E-01	3.1762E+00	4.3238E-01	2.7672E+00	4.8477E-01	2.4209E+00
23	2.5290E-01	5.2189E+00	3.6118E-01	3.2752E+00	4.0260E-01	2.8527E+00	4.5093E-01	2.4953E+00
24	2.3742E-01	5.3791E+00	3.3786E-01	3.3721E+00	3.7606E-01	2.9366E+00	4.2070E-01	2.5683E+00
25	2.2363E-01	5.5360E+00	3.1706E-01	3.4669E+00	3.5232E-01	3.0188E+00	3.9362E-01	2.6400E+00
26	2.1125E-01	5.6898E+00	2.9841E-01	3.5597E+00	3.3101E-01	3.0994E+00	3.6927E-01	2.7104E+00
27	2.0009E-01	5.8406E+00	2.8162E-01	3.6505E+00	3.1181E-01	3.1784E+00	3.4730E-01	2.7796E+00
28	1.8979E-01	5.9886E+00	2.6643E-01	3.7394E+00	2.9442E-01	3.2557E+00	3.2740E-01	2.8473E+00
29	1.8075E-01	6.1341E+00	2.5261E-01	3.8262E+00	2.7861E-01	3.3314E+00	3.0931E-01	2.9137E+00
30	1.7232E-01	6.2773E+00	2.3998E-01	3.9110E+00	2.6417E-01	3.4055E+00	2.9279E-01	2.9787E+00
31	1.6458E-01	6.4183E+00	2.2838E-01	3.9940E+00	2.5093E-01	3.4778E+00	2.7765E-01	3.0423E+00
32	1.5746E-01	6.5574E+00	2.1767E-01	4.0752E+00	2.3873E-01	3.5486E+00	2.6373E-01	3.1045E+00
33	1.5091E-01	6.6947E+00	2.0774E-01	4.1546E+00	2.2744E-01	3.6179E+00	2.5088E-01	3.1653E+00
34	1.4486E-01	6.8303E+00	1.9851E-01	4.2323E+00	2.1696E-01	3.6856E+00	2.3898E-01	3.2247E+00
35	1.3928E-01	6.9643E+00	1.8988E-01	4.3085E+00	2.0721E-01	3.7518E+00	2.2792E-01	3.2828E+00
36	1.3412E-01	7.0968E+00	1.8181E-01	4.3832E+00	1.9809E-01	3.8167E+00	2.1761E-01	3.3397E+00
37	1.2935E-01	7.2278E+00	1.7422E-01	4.4565E+00	1.8956E-01	3.8802E+00	2.0798E-01	3.3952E+00
38	1.2494E-01	7.3574E+00	1.6710E-01	4.5285E+00	1.8155E-01	3.9425E+00	1.9897E-01	3.4496E+00
39	1.2085E-01	7.4854E+00	1.6038E-01	4.5992E+00	1.7401E-01	4.0036E+00	1.9052E-01	3.5029E+00
40	1.1705E-01	7.6119E+00	1.5404E-01	4.6687E+00	1.6692E-01	4.0635E+00	1.8257E-01	3.5551E+00
41	1.1352E-01	7.7368E+00	1.4805E-01	4.7371E+00	1.6023E-01	4.1224E+00	1.7510E-01	3.6063E+00
42	1.1022E-01	7.8602E+00	1.4239E-01	4.8044E+00	1.5392E-01	4.1803E+00	1.6806E-01	3.6565E+00
43	1.0714E-01	7.9820E+00	1.3704E-01	4.8707E+00	1.4795E-01	4.2372E+00	1.6141E-01	3.7057E+00
44	1.0425E-01	8.1023E+00	1.3196E-01	4.9360E+00	1.4231E-01	4.2931E+00	1.5514E-01	3.7542E+00
45	1.0152E-01	8.2209E+00	1.2716E-01	5.0003E+00	1.3698E-01	4.3482E+00	1.4921E-01	3.8017E+00
46	9.8945E-02	8.3379E+00	1.2260E-01	5.0637E+00	1.3192E-01	4.4024E+00	1.4361E-01	3.8485E+00
47	9.6495E-02	8.4534E+00	1.1828E-01	5.1263E+00	1.2713E-01	4.4558E+00	1.3831E-01	3.8946E+00
48	9.4155E-02	8.5672E+00	1.1417E-01	5.1879E+00	1.2260E-01	4.5084E+00	1.3329E-01	3.9399E+00
49	9.1910E-02	8.6796E+00	1.1028E-01	5.2487E+00	1.1829E-01	4.5602E+00	1.2853E-01	3.9845E+00
50	8.9747E-02	8.7905E+00	1.0657E-01	5.3087E+00	1.1421E-01	4.6114E+00	1.2402E-01	4.0285E+00
51	8.7652E-02	8.8999E+00	1.0305E-01	5.3679E+00	1.1033E-01	4.6618E+00	1.1975E-01	4.0718E+00
52	8.5614E-02	9.0080E+00	9.9696E-02	5.4264E+00	1.0664E-01	4.7115E+00	1.1569E-01	4.1145E+00
53	8.3623E-02	9.1147E+00	9.6504E-02	5.4840E+00	1.0314E-01	4.7606E+00	1.1183E-01	4.1567E+00
54	8.1671E-02	9.2203E+00	9.3464E-02	5.5409E+00	9.9807E-02	4.8091E+00	1.0817E-01	4.1983E+00
55	7.9750E-02	9.3247E+00	9.0565E-02	5.5972E+00	9.6636E-02	4.8569E+00	1.0468E-01	4.2393E+00
56	7.7854E-02	9.4280E+00	8.7800E-02	5.6527E+00	9.3616E-02	4.9041E+00	1.0137E-01	4.2798E+00
57	7.5976E-02	9.5304E+00	8.5161E-02	5.7075E+00	9.0739E-02	4.9507E+00	9.8216E-02	4.3198E+00
58	7.4113E-02	9.6320E+00	8.2640E-02	5.7617E+00	8.7996E-02	4.9968E+00	9.5211E-02	4.3593E+00
59	7.2260E-02	9.7328E+00	8.0230E-02	5.8152E+00	8.5378E-02	5.0423E+00	9.2346E-02	4.3984E+00
60	7.0415E-02	9.8330E+00	7.7924E-02	5.8682E+00	8.2879E-02	5.0872E+00	8.9613E-02	4.4369E+00

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.2. *Inelastic scattering factors*

Element Z s	H 1	He 2	Li 3	Be 4	B 5	C 6	N 7	O 8	F 9
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1	0.23712	0.20585	0.88290	1.11410	0.97969	0.82589	0.70270	0.64471	0.58625
2	0.62750	0.67665	1.29649	2.05741	2.35860	2.30155	2.12384	2.05154	1.93281
3	0.85836	1.15502	1.58907	2.33547	3.03124	3.35857	3.37855	3.44994	3.38314
4	0.95050	1.50584	1.89856	2.54347	3.31571	3.92722	4.23128	4.52527	4.60924
5	0.98252	1.72314	2.17978	2.76339	3.50570	4.23471	4.76279	5.26209	5.53803
6	0.99349	1.84691	2.41052	2.97864	3.68270	4.43840	5.09842	5.74264	6.19823
7	0.99740	1.91496	2.58662	3.17603	3.85613	4.60589	5.32971	6.05888	6.65331
8	0.99889	1.95208	2.71445	3.34823	4.02198	4.75972	5.50893	6.28032	6.96851
9	0.99949	1.97248	2.80427	3.49247	4.17553	4.90533	5.66203	6.45035	7.19556
10	0.99976	1.98385	2.86613	3.60942	4.31351	5.04263	5.80060	6.59304	7.36980
11	0.99988	1.99032	2.90828	3.70189	4.43432	5.17019	5.92915	6.72061	7.51316
12	0.99993	1.99407	2.93687	3.77366	4.53780	5.28663	6.04900	6.83868	7.63830
13	0.99996	1.99629	2.95627	3.82863	4.62485	5.39115	6.16020	6.94951	7.75211
14	0.99998	1.99763	2.96947	3.87036	4.69701	5.48356	6.26247	7.05375	7.85802
15	0.99999	1.99846	2.97851	3.90185	4.75615	5.56419	6.35555	7.15137	7.95762
16	0.99999	1.99898	2.98474	3.92555	4.80418	5.63375	6.43942	7.24214	8.05146
17	1.00000	1.99931	2.98907	3.94336	4.84294	5.69320	6.51429	7.32588	8.13968
18	1.00000	1.99953	2.99209	3.95676	4.87406	5.74363	6.58055	7.40250	8.22220
19	1.00000	1.99968	2.99423	3.96686	4.89897	5.78614	6.63878	7.47210	8.29896
20	1.00000	1.99977	2.99576	3.97448	4.91886	5.82179	6.68961	7.53488	8.36993
21	1.00000	1.99984	2.99685	3.98027	4.93474	5.85157	6.73375	7.59117	8.43516
22	1.00000	1.99988	2.99764	3.98466	4.94741	5.87639	6.77191	7.64136	8.49480
23	1.00000	1.99991	2.99822	3.98802	4.95752	5.89702	6.80478	7.68590	8.54904
24	1.00000	1.99994	2.99865	3.99060	4.96560	5.91415	6.83300	7.72528	8.59816
25	1.00000	1.99995	2.99897	3.99259	4.97207	5.92836	6.85718	7.75997	8.64246
26	1.00000	1.99996	2.99920	3.99413	4.97726	5.94015	6.87785	7.79043	8.68227
27	1.00000	1.99997	2.99938	3.99532	4.98143	5.94992	6.89550	7.81712	8.71793
28	1.00000	1.99998	2.99952	3.99626	4.98479	5.95804	6.91055	7.84046	8.74980
29	1.00000	1.99998	2.99962	3.99699	4.98750	5.96477	6.92339	7.86084	8.77820
30	1.00000	1.99999	2.99970	3.99757	4.98970	5.97038	6.93433	7.87860	8.80347
31	1.00000	1.99999	2.99976	3.99803	4.99149	5.97504	6.94365	7.89407	8.82591
32	1.00000	1.99999	2.99981	3.99840	4.99294	5.97893	6.95160	7.90753	8.84581
33	1.00000	1.99999	2.99985	3.99869	4.99413	5.98217	6.95838	7.91925	8.86344
34	1.00000	2.00000	2.99988	3.99892	4.99510	5.98489	6.96416	7.92943	8.87904
35	1.00000	2.00000	2.99990	3.99911	4.99590	5.98716	6.96910	7.93829	8.89284
36	1.00000	2.00000	2.99992	3.99927	4.99656	5.98907	6.97332	7.94600	8.90503
37	1.00000	2.00000	2.99993	3.99939	4.99711	5.99068	6.97693	7.95270	8.91581
38	1.00000	2.00000	2.99994	3.99949	4.99756	5.99203	6.98003	7.95854	8.92532
39	1.00000	2.00000	2.99995	3.99958	4.99794	5.99318	6.98268	7.96362	8.93373
40	1.00000	2.00000	2.99996	3.99964	4.99825	5.99414	6.98496	7.96804	8.94116
41	1.00000	2.00000	2.99997	3.99970	4.99851	5.99496	6.98692	7.97190	8.94772
42	1.00000	2.00000	2.99997	3.99975	4.99873	5.99566	6.98860	7.97526	8.95352
43	1.00000	2.00000	2.99998	3.99979	4.99891	5.99625	6.99006	7.97820	8.95864
44	1.00000	2.00000	2.99998	3.99982	4.99907	5.99675	6.99131	7.98077	8.96317
45	1.00000	2.00000	2.99998	3.99984	4.99920	5.99719	6.99240	7.98301	8.96718
46	1.00000	2.00000	2.99999	3.99987	4.99931	5.99755	6.99334	7.98498	8.97073
47	1.00000	2.00000	2.99999	3.99989	4.99940	5.99787	6.99415	7.98670	8.97387
48	1.00000	2.00000	2.99999	3.99990	4.99948	5.99814	6.99486	7.98822	8.97666
49	1.00000	2.00000	2.99999	3.99992	4.99955	5.99838	6.99547	7.98954	8.97913
50	1.00000	2.00000	2.99999	3.99993	4.99961	5.99858	6.99601	7.99071	8.98132
51	1.00000	2.00000	2.99999	3.99994	4.99966	5.99876	6.99647	7.99174	8.98327
52	1.00000	2.00000	2.99999	3.99995	4.99970	5.99891	6.99688	7.99264	8.98500
53	1.00000	2.00000	3.00000	3.99995	4.99974	5.99904	6.99724	7.99344	8.98654
54	1.00000	2.00000	3.00000	3.99996	4.99977	5.99915	6.99755	7.99415	8.98791
55	1.00000	2.00000	3.00000	3.99996	4.99980	5.99925	6.99783	7.99477	8.98913
56	1.00000	2.00000	3.00000	3.99997	4.99983	5.99934	6.99807	7.99532	8.99021
57	1.00000	2.00000	3.00000	3.99997	4.99985	5.99941	6.99828	7.99581	8.99119
58	1.00000	2.00000	3.00000	3.99998	4.99986	5.99948	6.99846	7.99624	8.99205
59	1.00000	2.00000	3.00000	3.99998	4.99988	5.99954	6.99863	7.99663	8.99283
60	1.00000	2.00000	3.00000	3.99998	4.99989	5.99959	6.99877	7.99697	8.99352

4.3. ELECTRON DIFFRACTION

Table 4.3.3.2. *Inelastic scattering factors (cont.)*

Element Z s	Ne 10	Na 11	Mg 12	Al 13	Si 14	P 15	S 16	Cl 17	Ar 18
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1	0.53234	1.20747	1.61544	1.72194	1.65386	1.53700	1.49816	1.42156	1.33265
2	1.80053	2.28779	2.94235	3.50721	3.78096	3.80549	3.95432	3.94695	3.84282
3	3.24475	3.49193	3.94530	4.52834	5.07436	5.40954	5.80343	6.00685	6.03450
4	4.54966	4.70014	5.01729	5.47022	6.01322	6.52767	7.06849	7.48589	7.72422
5	5.61925	5.77806	6.03833	6.41063	6.88008	7.40945	7.98702	8.53330	8.96990
6	6.44652	6.68058	6.94760	7.29048	7.71078	8.20204	8.75585	9.33634	9.88639
7	7.06089	7.40330	7.72396	8.07744	8.48211	8.94372	9.46405	10.03048	10.61498
8	7.50742	7.96372	8.36460	8.75902	9.17588	9.62983	10.12957	10.67346	11.25279
9	7.83224	8.39028	8.87926	9.33363	9.78380	10.25033	10.74677	11.27732	11.84272
10	8.07400	8.71388	9.28563	9.80759	10.30489	10.79947	11.30797	11.83831	12.39562
11	8.26134	8.96233	9.60450	10.19272	10.74365	11.27657	11.80888	12.35087	12.90995
12	8.41386	9.15796	9.85601	10.50348	11.10840	11.68496	12.24905	12.81180	13.38195
13	8.54414	9.31737	10.05748	10.75458	11.40955	12.03077	12.63101	13.22075	13.80922
14	8.65993	9.45219	10.22270	10.95937	11.65803	12.32173	12.95942	13.57972	14.19149
15	8.76576	9.57025	10.36206	11.12908	11.86416	12.56614	13.24013	13.89228	14.53031
16	8.86416	9.67661	10.48302	11.27266	12.03702	12.77207	13.47958	14.16303	14.82851
17	8.95646	9.77440	10.59078	11.39691	12.18418	12.94685	13.68412	14.39702	15.08974
18	9.04331	9.86554	10.68886	11.50688	12.31167	13.09681	13.85970	14.59936	15.31806
19	9.12498	9.95113	10.77955	11.60616	12.42419	13.22723	14.01162	14.77489	15.51761
20	9.20160	10.03176	10.86431	11.69727	12.52524	13.34234	14.14443	14.92805	15.69240
21	9.27319	10.10777	10.94406	11.78195	12.61744	13.44547	14.26190	15.06274	15.84616
22	9.33982	10.17933	11.01935	11.86133	12.70264	13.53918	14.36711	15.18230	15.98223
23	9.40157	10.24653	11.09051	11.93618	12.78217	13.62538	14.46250	15.28952	16.10354
24	9.45854	10.30944	11.15772	12.00698	12.85695	13.70552	14.54998	15.38669	16.21260
25	9.51090	10.36817	11.22111	12.07405	12.92761	13.78062	14.63102	15.47564	16.31151
26	9.55885	10.42279	11.28077	12.13758	12.99459	13.85143	14.70673	15.55783	16.40201
27	9.60262	10.47344	11.33679	12.19771	13.05816	13.91849	14.77793	15.63441	16.48552
28	9.64244	10.52026	11.38925	12.25454	13.11853	13.98216	14.84524	15.70626	16.56318
29	9.67857	10.56342	11.43824	12.30814	13.17583	14.04271	14.90911	15.77405	16.63589
30	9.71128	10.60310	11.48389	12.35861	13.23017	14.10034	14.96988	15.83830	16.70436
31	9.74083	10.63950	11.52631	12.40603	13.28163	14.15517	15.02777	15.89938	16.76915
32	9.76748	10.67281	11.56565	12.45048	13.33028	14.20732	15.08297	15.95759	16.83069
33	9.79146	10.70323	11.60205	12.49206	13.37621	14.25686	15.13561	16.01315	16.88931
34	9.81302	10.73097	11.63566	12.53089	13.41949	14.30387	15.18580	16.06621	16.94527
35	9.83238	10.75622	11.66665	12.56708	13.46020	14.34842	15.23360	16.11691	16.99876
36	9.84974	10.77917	11.69517	12.60075	13.49843	14.39057	15.27911	16.16535	17.04993
37	9.86530	10.80002	11.72137	12.63202	13.53427	14.43041	15.32237	16.21159	17.09890
38	9.87924	10.81893	11.74542	12.66102	13.56783	14.46799	15.36345	16.25573	17.14577
39	9.89171	10.83606	11.76747	12.68789	13.59919	14.50341	15.40243	16.29780	17.19062
40	9.90287	10.85158	11.78765	12.71273	13.62846	14.53673	15.43935	16.33789	17.23350
41	9.91286	10.86562	11.80612	12.73569	13.65576	14.56805	15.47428	16.37603	17.27449
42	9.92179	10.87832	11.82300	12.75688	13.68117	14.59744	15.50730	16.41229	17.31364
43	9.92977	10.88980	11.83842	12.77642	13.70481	14.62500	15.53847	16.44672	17.35099
44	9.93691	10.90018	11.85250	12.79442	13.72678	14.65080	15.56786	16.47938	17.38661
45	9.94330	10.90956	11.86534	12.81100	13.74718	14.67494	15.59554	16.51033	17.42053
46	9.94901	10.91803	11.87705	12.82625	13.76610	14.69750	15.62159	16.53964	17.45281
47	9.95412	10.92569	11.88773	12.84028	13.78364	14.71857	15.64608	16.56736	17.48351
48	9.95870	10.93260	11.89747	12.85317	13.79988	14.73823	15.66909	16.59355	17.51267
49	9.96279	10.93885	11.90634	12.86501	13.81492	14.75656	15.69068	16.61828	17.54035
50	9.96646	10.94449	11.91442	12.87589	13.82884	14.77364	15.71093	16.64161	17.56660
51	9.96974	10.94959	11.92178	12.88588	13.84172	14.78955	15.72991	16.66360	17.59148
52	9.97269	10.95420	11.92849	12.89505	13.85362	14.80435	15.74768	16.68431	17.61504
53	9.97533	10.95837	11.93460	12.90346	13.86462	14.81813	15.76432	16.70381	17.63733
54	9.97770	10.96214	11.94017	12.91118	13.87478	14.83093	15.77989	16.72216	17.65841
55	9.97983	10.96555	11.94525	12.91827	13.88417	14.84284	15.79444	16.73941	17.67833
56	9.98174	10.96863	11.94987	12.92477	13.89284	14.85390	15.80804	16.75562	17.69714
57	9.98346	10.97143	11.95409	12.93074	13.90085	14.86418	15.82075	16.77085	17.71490
58	9.98500	10.97396	11.95793	12.93621	13.90824	14.87373	15.83262	16.78514	17.73166
59	9.98639	10.97625	11.96143	12.94124	13.91507	14.88259	15.84370	16.79856	17.74746
60	9.98765	10.97832	11.96463	12.94585	13.92137	14.89082	15.85405	16.81114	17.76235

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.2. *Inelastic scattering factors (cont.)*

Element Z s	K 19	Ca 20	Sc 21	Ti 22	V 23	Cr 24	Mn 25	Fe 26	Co 27
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1	1.95409	2.48962	2.47505	2.41147	2.34470	1.87338	2.20760	2.15605	2.09981
2	4.16743	4.63722	4.74095	4.73155	4.71014	4.31232	4.61890	4.62675	4.60110
3	6.28656	6.63788	6.79142	6.81860	6.82580	6.58097	6.75751	6.80527	6.79526
4	8.01589	8.34650	8.56715	8.67221	8.74208	8.59326	8.76139	8.86447	8.88855
5	9.37354	9.75686	10.05075	10.24289	10.38420	10.33687	10.51832	10.68060	10.75511
6	10.40504	10.88531	11.27230	11.56360	11.78746	11.84876	12.05425	12.27171	12.40221
7	11.20105	11.76628	12.24977	12.64663	12.96597	13.14017	13.39278	13.66798	13.86069
8	11.85904	12.47072	13.02927	13.51955	13.93468	14.22015	14.54015	14.87959	15.14206
9	12.44416	13.06908	13.67229	14.23079	14.72718	15.11304	15.50762	15.91441	16.25102
10	12.98647	13.60753	14.23080	14.83118	15.38717	15.85527	16.31906	16.78966	17.19864
11	13.49465	14.10800	14.73745	15.35997	15.95492	16.48500	17.00553	17.53092	18.00479
12	13.96833	14.57744	15.20828	15.84156	16.46015	17.03426	17.59751	18.16629	18.69422
13	14.40504	15.01608	15.64906	16.28847	16.92150	17.52612	18.12000	18.72120	19.29164
14	14.80303	15.42228	16.06067	16.70589	17.34908	17.97537	18.59107	19.21579	19.81842
15	15.16201	15.79475	16.44246	17.09532	17.74762	18.39057	19.02256	19.66452	20.29119
16	15.48312	16.13321	16.79376	17.45682	18.11901	18.77626	19.42164	20.07700	20.72194
17	15.76851	16.43845	17.11456	17.79031	18.46388	19.13474	19.79241	20.45925	21.11878
18	16.02103	16.71212	17.40559	18.09602	18.78257	19.46719	20.13716	20.81484	21.48693
19	16.24393	16.95643	17.66824	18.37470	19.07558	19.77444	20.45724	21.14592	21.82968
20	16.44057	17.17399	17.90434	18.62758	19.34372	20.05728	20.75361	21.45382	22.14909
21	16.61428	17.36753	18.11606	18.85623	19.58811	20.31668	21.02715	21.73952	22.44651
22	16.76819	17.53980	18.30570	19.06249	19.81018	20.55380	21.27883	22.00392	22.72298
23	16.90520	17.69348	18.47561	19.24834	20.01151	20.77001	21.50974	22.24793	22.97940
24	17.02787	17.83103	18.62806	19.41579	20.19384	20.96677	21.72111	22.47258	23.21667
25	17.13845	17.95471	18.76522	19.56682	20.35893	21.14567	21.91428	22.67895	23.43574
26	17.23887	18.06655	18.89088	19.70334	20.50852	21.30828	22.09062	22.86824	23.63764
27	17.33077	18.16830	19.00144	19.82710	20.64429	21.45620	22.25155	23.04170	23.82343
28	17.41550	18.26148	19.10390	19.93973	20.76783	21.59092	22.39849	23.20059	23.99424
29	17.49419	18.34738	19.19786	20.04268	20.88059	21.71390	22.53279	23.34616	24.15122
30	17.56774	18.42708	19.28454	20.13724	20.98391	21.82646	22.65576	23.47965	24.29549
31	17.63689	18.50150	19.36496	20.22456	21.07897	21.92983	22.76860	23.60223	24.42819
32	17.70222	18.57136	19.44000	20.30560	21.16684	22.02511	22.87245	23.71501	24.55037
33	17.76420	18.63728	19.51040	20.38121	21.24845	22.11329	22.96833	23.81902	24.66306
34	17.82320	18.69974	19.57676	20.45211	21.32459	22.19525	23.05717	23.91523	24.76720
35	17.87951	18.75913	19.63959	20.51889	21.39596	22.27176	23.13979	24.00449	24.86369
36	17.93334	18.81578	19.69928	20.58206	21.46316	22.34348	23.21694	24.08758	24.95334
37	17.98488	18.86994	19.75618	20.64204	21.52669	22.41099	23.28926	24.16522	25.03688
38	18.03427	18.92181	19.81056	20.69918	21.58697	22.47478	23.35731	24.23800	25.11498
39	18.08161	18.97154	19.86264	20.75377	21.64436	22.53529	23.42158	24.30650	25.18823
40	18.12700	19.01926	19.91259	20.80603	21.69915	22.59286	23.48250	24.37117	25.25716
41	18.17051	19.06508	19.96056	20.85616	21.75159	22.64781	23.54043	24.43245	25.32224
42	18.21221	19.10909	20.00667	20.90432	21.80189	22.70038	23.59568	24.49069	25.38389
43	18.25215	19.15135	20.05100	20.95063	21.85021	22.75079	23.64851	24.54620	25.44246
44	18.29039	19.19192	20.09364	20.99521	21.89670	22.79921	23.69914	24.59926	25.49826
45	18.32697	19.23087	20.13466	21.03813	21.94146	22.84580	23.74777	24.65009	25.55156
46	18.36193	19.26822	20.17411	21.07948	21.98460	22.89069	23.79455	24.69889	25.60260
47	18.39533	19.30404	20.21204	21.11931	22.02620	22.93396	23.83961	24.74583	25.65158
48	18.42720	19.33836	20.24849	21.15767	22.06632	22.97572	23.88308	24.79104	25.69868
49	18.45760	19.37122	20.28352	21.19462	22.10502	23.01604	23.92503	24.83464	25.74404
50	18.48657	19.40267	20.31714	21.23020	22.14236	23.05497	23.96556	24.87675	25.78778
51	18.51415	19.43274	20.34941	21.26443	22.17837	23.09258	24.00473	24.91744	25.83002
52	18.54040	19.46147	20.38036	21.29737	22.21309	23.12890	24.04261	24.95678	25.87085
53	18.56535	19.48890	20.41003	21.32904	22.24656	23.16398	24.07923	24.99485	25.91035
54	18.58906	19.51509	20.43845	21.35948	22.27882	23.19785	24.11464	25.03170	25.94858
55	18.61157	19.54005	20.46565	21.38871	22.30989	23.23056	24.14889	25.06736	25.98561
56	18.63294	19.56385	20.49168	21.41677	22.33980	23.26212	24.18200	25.10189	26.02148
57	18.65319	19.58651	20.51656	21.44370	22.36859	23.29257	24.21401	25.13532	26.05624
58	18.67240	19.60808	20.54034	21.46952	22.39628	23.32193	24.24495	25.16768	26.08992
59	18.69058	19.62860	20.56305	21.49427	22.42290	23.35024	24.27484	25.19900	26.12257
60	18.70781	19.64811	20.58472	21.51797	22.44848	23.37752	24.30371	25.22931	26.15420

4.3. ELECTRON DIFFRACTION

Table 4.3.3.2. *Inelastic scattering factors (cont.)*

Element Z s	Ni 28	Cu 29	Zn 30	Ga 31	Ge 32	As 33	Se 34	Br 35	Kr 36
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1	2.04471	1.69573	1.93762	2.05186	2.02388	1.94862	1.96187	1.92529	1.86388
2	4.57025	4.20291	4.48366	4.79699	4.96356	4.96762	5.16391	5.22242	5.17677
3	6.78094	6.60632	6.71087	6.99727	7.31756	7.53254	7.87187	8.08782	8.15809
4	8.90504	8.78952	8.87296	9.07164	9.37130	9.69780	10.09282	10.44730	10.70005
5	10.81621	10.72987	10.85168	11.03258	11.28885	11.60839	11.98915	12.39473	12.77835
6	12.51132	12.47751	12.62492	12.81781	13.06230	13.35790	13.70612	14.09835	14.51642
7	14.02217	14.05989	14.22287	14.42883	14.67729	14.96447	15.29281	15.66034	16.06428
8	15.36345	15.48041	15.66617	15.88673	16.14378	16.43328	16.75585	17.10934	17.49432
9	16.53914	16.73670	16.96032	17.20429	17.47556	17.77364	18.09916	18.44981	18.82545
10	17.55583	17.83189	18.10676	18.38602	18.68056	18.99403	19.32906	19.68468	20.06045
11	18.42792	18.77754	19.11098	19.43536	19.76289	20.09987	20.45124	20.81812	21.20099
12	19.17588	19.59174	19.98462	20.35933	20.72723	21.09536	21.47006	21.85427	22.24990
13	19.82231	20.29556	20.74392	21.16939	21.58126	21.98591	22.38987	22.79705	23.21055
14	20.38840	20.90979	21.40691	21.87992	22.33572	22.77927	23.21633	23.65097	24.08679
15	20.89193	21.45278	21.99101	22.50626	23.00321	23.48524	23.95687	24.42167	24.88315
16	21.34665	21.93949	22.51151	23.06295	23.59669	24.11476	24.62031	25.11610	25.60513
17	21.76253	22.38138	22.98092	23.56269	24.12833	24.67882	25.21613	25.74214	26.25912
18	22.14646	22.78682	23.40889	24.01592	24.60873	25.18761	25.75365	26.30797	26.85209
19	22.50302	23.16168	23.80261	24.43082	25.04664	25.65004	26.24150	26.82157	27.39114
20	22.83520	23.51000	24.16724	24.81353	25.44900	26.07350	26.68718	27.29024	27.88309
21	23.14497	23.83452	24.50642	25.16859	25.82113	26.46391	27.09700	27.72039	28.33419
22	23.43371	24.13716	24.82271	25.49929	26.16701	26.82591	27.47606	28.11740	28.74992
23	23.70247	24.41932	25.11795	25.80799	26.48960	27.16300	27.82837	28.48569	29.13493
24	23.95219	24.68209	25.39353	26.09645	26.79109	27.47786	28.15706	28.82879	29.49305
25	24.18376	24.92646	25.65055	26.36601	27.07314	27.77250	28.46453	29.14946	29.82740
26	24.39808	25.15335	25.88998	26.61776	27.33704	28.04847	28.75264	29.44989	30.14045
27	24.59612	25.36367	26.11272	26.85266	27.58385	28.30702	29.02284	29.73179	30.43417
28	24.77888	25.55837	26.31965	27.07158	27.81449	28.54916	29.27632	29.99650	30.71014
29	24.94740	25.73841	26.51166	27.27537	28.02983	28.77579	29.51404	30.24515	30.96963
30	25.10270	25.90478	26.68965	27.46487	28.23066	28.98774	29.73688	30.47868	31.21369
31	25.24584	26.05845	26.85452	27.64092	28.41779	29.18578	29.94561	30.69790	31.44321
32	25.37784	26.20040	27.00720	27.80439	28.59202	29.37066	30.14099	30.90357	31.65898
33	25.49968	26.33158	27.14857	27.95609	28.75413	29.54314	30.32373	31.09639	31.86171
34	25.61229	26.45293	27.27951	28.09689	28.90492	29.70396	30.49453	31.27706	32.05209
35	25.71658	26.56530	27.40089	28.22758	29.04515	29.85384	30.65409	31.44623	32.23076
36	25.81336	26.66955	27.51352	28.34897	29.17560	29.99353	30.80309	31.60456	32.39834
37	25.90339	26.76643	27.61817	28.46182	29.29699	30.12372	30.94223	31.75270	32.55546
38	25.98737	26.85668	27.71557	28.56685	29.41005	30.24510	31.07215	31.89127	32.70272
39	26.06594	26.94095	27.80641	28.66476	29.51546	30.35836	31.19351	32.02090	32.84072
40	26.13966	27.01985	27.89131	28.75617	29.61385	30.46411	31.30692	32.14220	32.97004
41	26.20905	27.09393	27.97085	28.84170	29.70584	30.56298	31.41300	32.25575	33.09125
42	26.27456	27.16367	28.04555	28.92188	29.79200	30.65553	31.51232	32.36212	33.20489
43	26.33659	27.22952	28.11590	28.99724	29.87284	30.74230	31.60540	32.46184	33.31151
44	26.39551	27.29187	28.18232	29.06822	29.94886	30.82380	31.69278	32.55544	33.41161
45	26.45162	27.35108	28.24521	29.13525	30.02050	30.90049	31.77492	32.64339	33.50568
46	26.50519	27.40746	28.30490	29.19870	30.08816	30.97279	31.85227	32.72615	33.59417
47	26.55647	27.46126	28.36171	29.25892	30.15222	31.04111	31.92524	32.80415	33.67753
48	26.60565	27.51275	28.41590	29.31621	30.21302	31.10580	31.99422	32.87778	33.75616
49	26.65293	27.56211	28.46773	29.37085	30.27084	31.16719	32.05955	32.94742	33.83044
50	26.69844	27.60954	28.51740	29.42307	30.32596	31.22558	32.12156	33.01340	33.90072
51	26.74233	27.65519	28.56509	29.47310	30.37863	31.28122	32.18052	33.07602	33.96734
52	26.78471	27.69920	28.61097	29.52111	30.42906	31.33437	32.23672	33.13559	34.03060
53	26.82567	27.74169	28.65519	29.56728	30.47743	31.38524	32.29038	33.19235	34.09077
54	26.86530	27.78276	28.69787	29.61175	30.52393	31.43403	32.34172	33.24654	34.14811
55	26.90368	27.82249	28.73910	29.65465	30.56870	31.48089	32.39094	33.29838	34.20285
56	26.94086	27.86098	28.77900	29.69610	30.61187	31.52600	32.43820	33.34806	34.25521
57	26.97690	27.89827	28.81764	29.73619	30.65357	31.56948	32.48367	33.39576	34.30537
58	27.01185	27.93444	28.85509	29.77501	30.69389	31.61145	32.52749	33.44162	34.35352
59	27.04575	27.96953	28.89142	29.81264	30.73292	31.65203	32.56977	33.48580	34.39980
60	27.07863	28.00358	28.92667	29.84914	30.77075	31.69130	32.61063	33.52842	34.44437

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.2. *Inelastic scattering factors (cont.)*

Element Z s	Rb 37	Sr 38	Y 39	Zr 40	Nb 41	Mo 42	Tc 43	Ru 44	Rh 45
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1	2.47108	3.04685	3.14857	3.13536	2.71132	2.62807	2.98330	2.57466	2.52855
2	5.52799	5.98984	6.23152	6.31697	6.07762	6.02878	6.36677	6.13781	6.12994
3	8.42971	8.78804	9.05817	9.20196	9.10320	9.08596	9.36034	9.30184	9.34697
4	10.98758	11.30230	11.58543	11.79126	11.80981	11.84206	12.07333	12.11783	12.19330
5	13.15459	13.52254	13.85142	14.12392	14.25176	14.35492	14.55835	14.70247	14.80976
6	14.95100	15.38843	15.79296	16.15287	16.39784	16.60221	16.83500	17.06754	17.22869
7	16.50508	16.96971	17.42770	17.86266	18.21807	18.53376	18.84164	19.15747	19.39679
8	17.91915	18.37743	18.85174	19.32606	19.75964	20.16607	20.55607	20.94877	21.27607
9	19.23525	19.67796	20.14726	20.63128	21.10549	21.56834	22.02040	22.47422	22.88053
10	20.46323	20.89436	21.35427	21.83462	22.32362	22.81354	23.30155	23.79566	24.26063
11	21.60452	22.03122	22.48536	22.96037	23.45249	23.95215	24.45652	24.97275	25.47475
12	22.66058	23.08945	23.54310	24.01599	24.50867	25.01107	25.52134	26.04805	26.57052
13	23.63390	24.07058	24.52855	25.00342	25.49806	26.00220	26.51474	27.04651	27.57948
14	24.52760	24.97699	25.44341	25.92401	26.42303	26.93042	27.44542	27.98082	28.51972
15	25.34529	25.81159	26.29007	26.77965	27.28544	27.79829	28.31748	28.85706	29.40064
16	26.09128	26.57772	27.07138	27.57279	28.08753	28.60801	29.13355	29.67848	30.22717
17	26.77063	27.27935	27.79065	28.30631	28.83193	29.36203	29.89596	30.44747	31.00229
18	27.38906	27.92103	28.45165	28.98346	29.52168	30.06306	30.60716	31.16636	31.72846
19	27.95268	28.50783	29.05861	29.60784	30.16004	30.71409	31.26982	31.83769	32.40810
20	28.46765	29.04513	29.61611	30.18338	30.75055	31.31829	31.88675	32.46417	33.04374
21	28.93986	29.53825	30.12888	30.71422	31.29692	31.87899	32.46091	33.04863	33.63805
22	29.37468	29.99232	30.60160	31.20455	31.80291	32.39960	32.99536	33.59396	34.19377
23	29.77685	30.41201	31.03868	31.65846	32.27225	32.88351	33.49318	34.10309	34.71364
24	30.15044	30.80144	31.44418	32.07980	32.70854	33.33406	33.95743	34.57888	35.20037
25	30.49879	31.16418	31.82168	32.47208	33.11511	33.75438	34.39106	35.02411	35.65660
26	30.82469	31.50320	32.17429	32.83842	33.49499	34.14739	34.79684	35.44141	36.08482
27	31.13035	31.82098	32.50463	33.18153	33.85088	34.51575	35.17737	35.83324	36.48738
28	31.41757	32.11952	32.81489	33.50371	34.18512	34.86180	35.53497	36.20184	36.86647
29	31.68781	32.40048	33.10687	33.80689	34.49971	35.18758	35.87171	36.54925	37.22407
30	31.94225	32.66518	33.38206	34.09271	34.79636	35.49488	36.18941	36.87726	37.56196
31	32.18187	32.91474	33.64170	34.36249	35.07650	35.78518	36.48965	37.18746	37.88172
32	32.40754	33.15010	33.88680	34.61738	35.34134	36.05979	36.77377	37.48122	38.18473
33	32.61999	33.37204	34.11825	34.85831	35.59190	36.31977	37.04294	37.75971	38.47222
34	32.81991	33.58129	34.33679	35.08610	35.82904	36.56607	37.29814	38.02398	38.74524
35	33.00795	33.77849	34.54311	35.30147	36.05353	36.79949	37.54022	38.27490	39.00470
36	33.18470	33.96426	34.73782	35.50504	36.26602	37.02072	37.76993	38.51325	39.25140
37	33.35077	34.13916	34.92149	35.69741	36.46712	37.23038	37.98791	38.73969	39.48604
38	33.50674	34.30375	35.09466	35.87911	36.65738	37.42904	38.19475	38.95482	39.70923
39	33.65317	34.45859	35.25788	36.05068	36.83731	37.61721	38.39097	39.15918	39.92152
40	33.79063	34.60420	35.41165	36.21259	37.00740	37.79540	38.57707	39.35328	40.12342
41	33.91965	34.74111	35.55648	36.36536	37.16815	37.96406	38.75351	39.53756	40.31539
42	34.04078	34.86983	35.69286	36.50944	37.31999	38.12364	38.92072	39.71247	40.49786
43	34.15452	34.99086	35.82127	36.64531	37.46339	38.27458	39.07914	39.87842	40.67125
44	34.26139	35.10468	35.94218	36.77342	37.59879	38.41732	39.22917	40.03581	40.83593
45	34.36186	35.21178	36.05605	36.89421	37.72663	38.55226	39.37123	40.18504	40.99231
46	34.45640	35.31260	36.16334	37.00813	37.84731	38.67981	39.50570	40.32650	41.14075
47	34.54543	35.40758	36.26446	37.11559	37.96126	38.80039	39.63297	40.46055	41.28160
48	34.62938	35.49713	36.35984	37.21700	38.06888	38.91438	39.75343	40.58757	41.41524
49	34.70863	35.58165	36.44986	37.31275	38.17056	39.02216	39.86744	40.70792	41.54201
50	34.78356	35.66151	36.53491	37.40322	38.26666	39.12409	39.97536	40.82195	41.66225
51	34.85449	35.73706	36.61534	37.48878	38.35755	39.22055	40.07755	40.93001	41.77630
52	34.92175	35.80863	36.69148	37.56975	38.44358	39.31186	40.17434	41.03243	41.88449
53	34.98564	35.87653	36.76366	37.64647	38.52507	39.39836	40.26607	41.12953	41.98714
54	35.04642	35.94105	36.83217	37.71924	38.60233	39.48037	40.35304	41.22163	42.08455
55	35.10435	36.00244	36.89729	37.78834	38.67566	39.55818	40.43556	41.30903	42.17703
56	35.15964	36.06095	36.95927	37.85405	38.74534	39.63208	40.51392	41.39202	42.26486
57	35.21253	36.11682	37.01836	37.91662	38.81162	39.70233	40.58838	41.47088	42.34833
58	35.26319	36.17023	37.07477	37.97628	38.87475	39.76919	40.65921	41.54587	42.42770
59	35.31180	36.22140	37.12872	38.03324	38.93497	39.83290	40.72666	41.61725	42.50322
60	35.35851	36.27048	37.18038	38.08771	38.99247	39.89368	40.79095	41.68524	42.57515

4.3. ELECTRON DIFFRACTION

Table 4.3.3.2. *Inelastic scattering factors (cont.)*

Element Z s	Pd 46	Ag 47	Cd 48	In 49	Sn 50	Sb 51	Te 52	I 53	Xe 54
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1	2.13081	2.42343	2.70975	2.83441	2.81535	2.73816	2.77296	2.74654	2.68555
2	5.95961	6.03591	6.30459	6.63451	6.84114	6.87653	7.11536	7.21010	7.17883
3	9.23632	9.33858	9.51999	9.81909	10.16026	10.44583	10.81525	11.09773	11.24839
4	12.07598	12.23784	12.46054	12.72978	13.05475	13.41599	13.82032	14.22622	14.58946
5	14.75560	14.90041	15.11768	15.37682	15.67918	16.02031	16.40069	16.81256	17.24286
6	17.27178	17.40539	17.59096	17.82417	18.10185	18.41562	18.76463	19.14401	19.55212
7	19.54545	19.71426	19.90073	20.11901	20.37444	20.66395	20.98609	21.33615	21.71173
8	21.52940	21.77057	22.00282	22.24093	22.49751	22.77720	23.08280	23.41315	23.76633
9	23.22845	23.55443	23.85882	24.14878	24.43757	24.73296	25.04189	25.36736	25.71067
10	24.68459	25.08751	25.46742	25.82409	26.16687	26.50212	26.83738	27.17764	27.52690
11	25.95299	26.41494	26.85884	27.28022	27.68354	28.07182	28.45037	28.82353	29.19578
12	27.08363	27.58563	28.07659	28.55092	29.00920	29.45143	29.87984	30.29667	30.70506
13	28.11340	28.64026	29.16253	29.67532	30.17704	30.66588	31.14154	31.60411	32.05470
14	29.06590	29.60758	30.14943	30.68802	31.22095	31.74576	32.26075	32.76453	33.25645
15	29.95479	30.50579	31.05985	31.61513	32.16920	32.71973	33.26464	33.80183	34.32964
16	30.78766	31.34559	31.90798	32.47438	33.04260	33.61083	34.17721	34.73959	35.29596
17	31.56892	32.13323	32.70240	33.27702	33.85522	34.43575	35.01722	35.59782	36.17566
18	32.30163	32.87265	33.44836	34.03004	34.61612	35.20579	35.79817	36.39189	36.98544
19	32.98838	33.56677	34.14941	34.73796	35.33110	35.92835	36.52924	37.13281	37.73796
20	33.63173	34.21817	34.80832	35.40399	36.00409	36.60835	37.21658	37.82815	38.44232
21	34.23429	34.82936	35.42759	36.03077	36.63803	37.24925	37.86439	38.48306	39.10481
22	34.79871	35.40286	36.00964	36.62069	37.23540	37.85373	38.47574	39.10122	39.72986
23	35.32765	35.94119	36.55686	37.17607	37.79848	38.42413	39.05314	39.68537	40.32066
24	35.82374	36.44685	37.07161	37.69917	38.32947	38.96261	39.59874	40.23781	40.87972
25	36.28950	36.92226	37.55620	38.19222	38.83052	39.47124	40.11461	40.76059	41.40916
26	36.72736	37.36974	38.01286	38.65737	39.30370	39.95205	40.60268	41.25563	41.91088
27	37.13958	37.79149	38.44370	39.09668	39.75100	40.40697	41.06486	41.72476	42.38669
28	37.52826	38.18955	38.85072	39.51207	40.17433	40.83784	41.50293	42.16973	42.83831
29	37.89533	38.56581	39.23576	39.90537	40.57546	41.24642	41.91862	42.59223	43.26737
30	38.24253	38.92198	39.60052	40.27825	40.95605	41.63434	42.31353	42.99385	43.67544
31	38.57142	39.25963	39.94654	40.63222	41.31759	42.00309	42.68916	43.37606	44.06399
32	38.88338	39.58012	40.27521	40.96869	41.66149	42.35407	43.04689	43.74024	44.43437
33	39.17963	39.88470	40.58776	41.28889	41.98898	42.68851	43.38796	44.08765	44.78786
34	39.46123	40.17445	40.88531	41.59393	42.30118	43.00755	43.71351	44.41943	45.12561
35	39.72910	40.45030	41.16881	41.88479	42.59909	43.31218	44.02456	44.73661	45.44865
36	39.98406	40.71310	41.43912	42.16236	42.88359	43.60332	44.32203	45.04011	45.75792
37	40.22683	40.96359	41.69700	42.42739	43.15548	43.88176	44.60672	45.33077	46.05429
38	40.45802	41.20239	41.94311	42.68057	43.41544	44.14821	44.87936	45.60932	46.33848
39	40.67820	41.43009	42.17803	42.92249	43.66408	44.40329	45.14059	45.87642	46.61118
40	40.88788	41.64720	42.40230	43.15369	43.90195	44.64756	45.39097	46.13264	46.87297
41	41.08751	41.85418	42.61638	43.37466	44.12954	44.88151	45.63102	46.37851	47.12440
42	41.27753	42.05147	42.82071	43.58582	44.34730	45.10560	45.86118	46.61449	47.36592
43	41.45833	42.23947	43.01568	43.78758	44.55561	45.32023	46.08187	46.84098	47.59796
44	41.63032	42.41855	43.20167	43.98031	44.75486	45.52577	46.29346	47.05837	47.82090
45	41.79386	42.58909	43.37904	44.16435	44.94538	45.72255	46.49628	47.26699	48.03509
46	41.94930	42.75142	43.54813	44.34004	45.12751	45.91091	46.69066	47.46717	48.24083
47	42.09701	42.90589	43.70925	44.50771	45.30155	46.09115	46.87690	47.65920	48.43843
48	42.23733	43.05284	43.86275	44.66765	45.46779	46.26354	47.05527	47.84334	48.62815
49	42.37059	43.19258	44.00892	44.82017	45.62655	46.42839	47.22605	48.01988	48.81026
50	42.49714	43.32545	44.14808	44.96556	45.77809	46.58596	47.38950	48.18906	48.98499
51	42.61729	43.45175	44.28053	45.10413	45.92270	46.73651	47.54589	48.35114	49.15259
52	42.73137	43.57180	44.40658	45.23615	46.06065	46.88032	47.69546	48.50634	49.31330
53	42.83969	43.68589	44.52650	45.36191	46.19222	47.01765	47.83846	48.65492	49.46733
54	42.94256	43.79434	44.64060	45.48169	46.31767	47.14874	47.97514	48.79711	49.61492
55	43.04027	43.89743	44.74916	45.59576	46.43727	47.27386	48.10575	48.93314	49.75629
56	43.13311	43.99544	44.85245	45.70439	46.55128	47.39326	48.23052	49.06324	49.89165
57	43.22136	44.08864	44.95074	45.80784	46.65995	47.50718	48.34969	49.18764	50.02123
58	43.30529	44.17732	45.04430	45.90638	46.76355	47.61588	48.46350	49.30657	50.14524
59	43.38515	44.26171	45.13338	46.00026	46.86231	47.71958	48.57219	49.42024	50.26389
60	43.46119	44.34207	45.21823	46.08971	46.95647	47.81853	48.67597	49.52889	50.37741

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.2. *Inelastic scattering factors (cont.)*

Element Z s	Cs 55	Ba 56	La 57	Ce 58	Pr 59	Nd 60	Pm 61	Sm 62	Eu 63
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1	3.26056	3.86513	3.98173	3.82992	3.79780	3.76602	3.73391	3.70093	3.66574
2	7.51043	7.93796	8.16628	7.95853	7.92593	7.89361	7.86055	7.81853	7.76614
3	11.50727	11.82172	12.07836	11.89091	11.86936	11.85347	11.84146	11.81226	11.76155
4	14.94313	15.29163	15.59334	15.41466	15.40728	15.40977	15.42104	15.40725	15.35978
5	17.68653	18.13325	18.54373	18.38275	18.42223	18.46877	18.52393	18.54486	18.51896
6	19.99684	20.46851	20.94271	20.84073	20.93672	21.03547	21.14100	21.20679	21.21677
7	22.12327	22.56799	23.03816	23.01484	23.15493	23.29454	23.43911	23.54344	23.58933
8	24.14779	24.55922	25.00033	25.04584	25.21725	25.38565	25.55681	25.69054	25.76819
9	26.07414	26.46226	26.87743	26.97495	27.17051	27.36050	27.55050	27.70729	27.81321
10	27.88767	28.26625	28.66647	28.80594	29.02323	29.23184	29.43711	29.61325	29.74482
11	29.57070	29.95527	30.35349	30.53305	30.77376	31.00189	31.22252	31.41694	31.57265
12	31.10881	31.51424	31.92398	32.14682	32.41595	32.66791	32.90744	33.12205	33.30236
13	32.49628	32.93352	33.36671	33.63749	33.94154	34.22365	34.48807	34.72733	34.93493
14	33.73826	34.21247	34.67707	34.99934	35.34403	35.66263	35.95863	36.22826	36.46740
15	34.84870	35.35955	35.85864	36.23339	36.62203	36.98171	37.31495	37.62034	37.89555
16	35.84631	36.38969	36.92200	37.34741	37.78028	38.18301	38.55691	38.90190	39.21679
17	36.75052	37.32054	37.88201	38.35393	38.82863	39.27368	39.68908	40.07535	40.43188
18	37.57867	38.16937	38.75472	39.26759	39.77988	40.26438	40.71987	41.14694	41.54518
19	38.34476	38.95105	39.55512	40.10283	40.64762	41.16740	41.65990	42.12558	42.56396
20	39.05936	39.67740	40.29583	40.87249	41.44464	41.99498	42.52055	43.02149	43.49721
21	39.73002	40.35724	40.98674	41.58717	42.18196	42.75827	43.31265	43.84501	44.35455
22	40.36211	40.99692	41.63525	42.25515	42.86863	43.46675	44.04590	44.60572	45.14531
23	40.95944	41.60099	42.24674	42.88273	43.51172	44.12817	44.72844	45.31205	45.87800
24	41.52485	42.17275	42.82512	43.47463	44.11671	44.74866	45.36699	45.97111	46.56001
25	42.06062	42.71475	43.37330	44.03444	44.68778	45.33303	45.96689	46.58874	47.19760
26	42.56873	43.22905	43.89358	44.56494	45.22821	45.88506	46.53242	47.16970	47.79597
27	43.05095	43.71747	44.38788	45.06842	45.74062	46.40777	47.06702	47.71785	48.35940
28	43.50897	44.18169	44.85790	45.54682	46.22720	46.90364	47.57351	48.23636	48.89142
29	43.94439	44.62325	45.30520	46.00186	46.68983	47.37476	48.05422	48.72785	49.39496
30	44.35873	45.04367	45.73127	46.43513	47.13020	47.82296	48.51119	49.19458	49.87253
31	44.75343	45.44433	46.13749	46.84809	47.54986	48.24990	48.94618	49.63849	50.32626
32	45.12986	45.82660	46.52519	47.24213	47.95022	48.65706	49.36081	50.06129	50.75804
33	45.48926	46.19170	46.89561	47.61852	48.33261	49.04583	49.75652	50.46456	51.16953
34	45.83279	46.54079	47.24991	47.97846	48.69825	49.41747	50.13464	50.84968	51.56224
35	46.16150	46.87495	47.58915	48.32305	49.04827	49.77315	50.49640	51.21796	51.93753
36	46.47636	47.19512	47.91432	48.65331	49.38372	50.11396	50.84292	51.57057	52.29665
37	46.77820	47.50220	48.22631	48.97016	49.70555	50.44089	51.17523	51.90859	52.64073
38	47.06781	47.79696	48.52592	49.27443	50.01462	50.75482	51.49427	52.23300	52.97081
39	47.34587	48.08010	48.81386	49.56689	50.31171	51.05658	51.80089	52.54470	53.28783
40	47.61299	48.35226	49.09079	49.84820	50.59753	51.34690	52.09586	52.84449	53.59264
41	47.86970	48.61399	49.35727	50.11898	50.87271	51.62645	52.37989	53.13312	53.88602
42	48.11650	48.86579	49.61382	50.37975	51.13781	51.89581	52.65358	53.41122	54.16865
43	48.35382	49.10810	49.86090	50.63099	51.39333	52.15551	52.91750	53.67940	54.44116
44	48.58204	49.34133	50.09891	50.87315	51.63972	52.40602	53.17213	53.93818	54.70412
45	48.80151	49.56583	50.32821	51.10658	51.87737	52.64775	53.41794	54.18803	54.95801
46	49.01255	49.78191	50.54913	51.33164	52.10664	52.88109	53.65529	54.42936	55.20329
47	49.21545	49.98988	50.76197	51.54863	52.32785	53.10636	53.88456	54.66254	55.44034
48	49.41048	50.19001	50.96700	51.75783	52.54128	53.32387	54.10604	54.88791	55.66953
49	49.59791	50.38254	51.16446	51.95950	52.74720	53.53388	54.32003	55.10577	55.89117
50	49.77796	50.56773	51.35460	52.15386	52.94584	53.73663	54.52677	55.31637	56.10553
51	49.95088	50.74578	51.53763	52.34116	53.13743	53.93236	54.72650	55.51997	56.31287
52	50.11688	50.91692	51.71377	52.52158	53.32217	54.12127	54.91942	55.71677	56.51342
53	50.27620	51.08137	51.88321	52.69532	53.50027	54.30355	55.10575	55.90699	56.70740
54	50.42903	51.23932	52.04615	52.86259	53.67190	54.47940	55.28566	56.09081	56.89499
55	50.57560	51.39097	52.20279	53.02357	53.83725	54.64898	55.45932	56.26840	57.07636
56	50.71611	51.53654	52.35332	53.17843	53.99650	54.81247	55.62691	56.43994	57.25170
57	50.85077	51.67621	52.49792	53.32736	54.14981	54.97004	55.78858	56.60557	57.42115
58	50.97979	51.81018	52.63677	53.47053	54.29736	55.12184	55.94450	56.76546	57.58487
59	51.10338	51.93866	52.77008	53.60813	54.43931	55.26804	56.09482	56.91976	57.74301
60	51.22173	52.06182	52.89802	53.74033	54.57584	55.40880	56.23968	57.06860	57.89571

4.3. ELECTRON DIFFRACTION

Table 4.3.3.2. *Inelastic scattering factors (cont.)*

Element Z s	Gd 64	Tb 65	Dy 66	Ho 67	Er 68	Tm 69	Yb 70	Lu 71	Hf 72
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1	3.71361	3.61003	3.58129	3.55174	3.52320	3.49352	3.46493	3.55150	3.53769
2	7.85846	7.71283	7.67561	7.63634	7.60049	7.56010	7.51513	7.64243	7.65165
3	11.87023	11.75719	11.73154	11.70630	11.68736	11.65817	11.61547	11.69634	11.69972
4	15.51039	15.40658	15.39347	15.38593	15.38890	15.37564	15.33913	15.42634	15.47770
5	18.74647	18.64177	18.65196	18.67051	18.70234	18.71081	18.68517	18.82076	18.94311
6	21.51468	21.43284	21.47837	21.53281	21.60137	21.64017	21.63498	21.83614	22.03782
7	23.91627	23.88725	23.96877	24.05874	24.16249	24.23254	24.25196	24.49728	24.75775
8	26.09535	26.12906	26.24261	26.36312	26.49629	26.59446	26.63899	26.90009	27.18736
9	28.13360	28.22255	28.36456	28.51140	28.66909	28.79252	28.86244	29.12578	29.41882
10	30.06041	30.19256	30.35998	30.52974	30.70818	30.85451	30.94989	31.21431	31.50686
11	31.88606	32.05250	32.24256	32.43217	32.62811	32.79487	32.91479	33.18232	33.47536
12	33.61615	33.81265	34.02361	34.23101	34.44208	34.62698	34.76985	35.04127	35.33636
13	35.25308	35.47907	35.71101	35.93593	36.16142	36.36324	36.52769	36.80277	37.10023
14	36.79567	37.05282	37.30767	37.55182	37.79297	38.01213	38.19791	38.47694	38.77678
15	38.24058	38.53150	38.81250	39.07905	39.33878	39.57731	39.78550	40.07028	40.37345
16	39.58478	39.91198	40.22273	40.51552	40.79768	41.05867	41.29145	41.58529	41.89416
17	40.82754	41.19272	41.53630	41.85898	42.16747	42.45440	42.71447	43.02162	43.33975
18	41.97127	42.37492	42.75330	43.10864	43.44678	43.76280	44.05283	44.37769	44.70926
19	43.02132	43.46263	43.87646	44.26601	44.63605	44.98352	45.30566	45.65219	46.00131
20	43.98512	44.46218	44.91082	45.33481	45.73781	46.11808	46.47366	46.84497	47.21519
21	44.87117	45.38131	45.86307	46.32062	46.75648	47.16983	47.55927	47.95743	48.35143
22	45.68820	46.22827	46.74079	47.23010	47.69780	48.14358	48.56642	48.99245	49.41196
23	46.44445	47.01119	47.55172	48.07047	48.56826	49.04508	49.50015	49.95417	50.39996
24	47.14738	47.73763	48.30329	48.84887	49.37460	49.88057	50.36614	50.84752	51.31957
25	47.80343	48.41429	49.00232	49.57206	50.12337	50.65631	51.17032	51.67789	52.17554
26	48.41809	49.04700	49.65483	50.24620	50.82069	51.37830	51.91852	52.45076	52.97288
27	48.99594	49.64070	50.26607	50.87671	51.47209	52.05210	52.61627	53.17146	53.71663
28	49.54081	50.19957	50.84048	51.46830	52.08245	52.68272	53.26864	53.84498	54.41164
29	50.05590	50.72711	51.38187	52.02503	52.65604	53.27458	53.88020	54.47593	55.06245
30	50.54390	51.22628	51.89346	52.55037	53.19655	53.83157	54.45500	55.06843	55.67321
31	51.00714	51.69962	52.37799	53.04730	53.70715	54.35706	54.99660	55.62616	56.24769
32	51.44764	52.14932	52.83784	53.51836	54.19060	54.85399	55.50813	56.15239	56.78923
33	51.86716	52.57728	53.27506	53.96579	54.64928	55.32491	55.99230	56.64997	57.30083
34	52.26731	52.98520	53.69148	54.39154	55.08529	55.77207	56.45152	57.12145	57.78512
35	52.64951	53.37461	54.08870	54.79733	55.50047	56.19744	56.88790	57.56904	58.24446
36	53.01508	53.74685	54.46818	55.18470	55.89647	56.60278	57.30331	57.99473	58.68094
37	53.36518	54.10319	54.83122	55.55503	56.27474	56.98964	57.69941	58.40029	59.09641
38	53.70092	54.44473	55.17900	55.90957	56.63663	57.35943	58.07770	58.78729	59.49253
39	54.02325	54.77251	55.51260	56.24946	56.98331	57.71342	58.43952	59.15715	59.87082
40	54.33309	55.08747	55.83299	56.57572	57.31587	58.05275	58.78608	59.51116	60.23260
41	54.63124	55.39043	56.14107	56.88928	57.63530	58.37845	59.11849	59.85047	60.57912
42	54.91843	55.68217	56.43763	57.19099	57.94249	58.69148	59.43774	60.17613	60.91146
43	55.19531	55.96338	56.72340	57.48161	58.23823	58.99268	59.74472	60.48910	61.23063
44	55.46248	56.23467	56.99903	57.76182	58.52327	59.28282	60.04027	60.79022	61.53755
45	55.72046	56.49660	57.26511	58.03226	58.79826	59.56261	60.32511	61.08030	61.83303
46	55.96972	56.74968	57.52217	58.29348	59.06380	59.83267	60.59992	61.36002	62.11783
47	56.21069	56.99434	57.77068	58.54598	59.32041	60.09357	60.86531	61.63005	62.39262
48	56.44373	57.23098	58.01106	58.79021	59.56858	60.34582	61.12181	61.89094	62.65802
49	56.66918	57.45995	58.24368	59.02657	59.80874	60.58989	61.36992	62.14323	62.91457
50	56.88734	57.68157	58.46890	59.25542	60.04126	60.82617	61.61007	62.38738	63.16278
51	57.09846	57.89613	58.68699	59.47708	60.26650	61.05505	61.84266	62.62381	63.40309
52	57.30280	58.10387	58.89824	59.69184	60.48475	61.27683	62.06804	62.85289	63.63591
53	57.50057	58.30503	59.10288	59.89994	60.69629	61.49183	62.28653	63.07498	63.86160
54	57.69196	58.49981	59.30113	60.10163	60.90137	61.70030	62.49842	63.29036	64.08049
55	57.87716	58.68840	59.49319	60.29711	61.10021	61.90249	62.70394	63.49931	64.29285
56	58.05634	58.87098	59.67924	60.48657	61.29301	62.09859	62.90334	63.70208	64.49897
57	58.22965	59.04771	59.85944	60.67018	61.47995	62.28882	63.09682	63.89888	64.69906
58	58.39725	59.21873	60.03396	60.84811	61.66120	62.47333	63.28456	64.08991	64.89334
59	58.55928	59.38420	60.20294	61.02050	61.83691	62.65230	63.46674	64.27535	65.08201
60	58.71589	59.54426	60.36651	61.18749	62.00723	62.82588	63.64352	64.45537	65.26522

4. PRODUCTION AND PROPERTIES OF RADIATIONS

Table 4.3.3.2. *Inelastic scattering factors (cont.)*

Element Z s	Ta 73	W 74	Re 75	Os 76	Ir 77	Pt 78	Au 79	Hg 80	Tl 81
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1	3.51110	3.47440	3.42084	3.39710	3.35665	2.62718	2.92007	3.21624	3.35316
2	7.66380	7.67506	7.62562	7.69565	7.70093	7.28299	7.38597	7.64856	7.98942
3	11.69611	11.69835	11.62131	11.73418	11.75575	11.40374	11.54618	11.74935	12.05736
4	15.50242	15.51176	15.45172	15.58139	15.62856	15.28380	15.43449	15.65381	15.91600
5	19.03205	19.08462	19.08376	19.22645	19.31307	19.11956	19.21786	19.38841	19.60547
6	22.21447	22.35035	22.44359	22.62667	22.77449	22.75224	22.84500	22.97772	23.15315
7	25.01132	25.23775	25.43378	25.68056	25.90537	26.02263	26.17202	26.32856	26.50417
8	27.48515	27.77632	28.05343	28.36068	28.65719	28.88260	29.11511	29.33911	29.56069
9	29.73240	30.05529	30.37962	30.72615	31.07261	31.37642	31.68425	31.98262	32.27085
10	31.82262	32.15546	32.49975	32.86379	33.23607	33.58901	33.94846	34.30452	34.65371
11	33.79048	34.12464	34.47451	34.84275	35.22395	35.60220	35.98954	36.38055	36.77187
12	35.65180	35.98581	36.33640	36.70384	37.08589	37.47454	37.87334	38.28093	38.69506
13	37.41684	37.75117	38.10173	38.46783	38.84850	39.24070	39.64231	40.05533	40.47858
14	39.09480	39.42981	39.78048	40.14591	40.52538	40.91911	41.32016	41.73338	42.15838
15	40.69343	41.02943	41.38044	41.74578	42.12467	42.51974	42.91950	43.33120	43.75506
16	42.21771	42.55571	42.90766	43.27348	43.65234	44.04884	44.44763	44.85771	45.27989
17	43.66969	44.01175	44.36609	44.73342	45.11300	45.51094	45.90946	46.31852	46.73945
18	45.04926	45.39840	45.75753	46.12814	46.50976	46.90936	47.30865	47.71764	48.13811
19	46.35531	46.71511	47.08215	47.45859	47.84426	48.24630	48.64781	49.05803	49.47908
20	47.58687	47.96098	48.33936	48.72466	49.11697	49.52295	49.92857	50.34169	50.76463
21	48.74383	49.13553	49.52858	49.92586	50.32771	50.73978	51.15174	51.56978	51.99627
22	49.82728	50.23921	50.64979	51.06198	51.47623	51.89694	52.31766	52.74286	53.17482
23	50.83952	51.27353	51.70388	52.13342	52.56264	52.99462	53.42649	53.86116	54.30069
24	51.78390	52.24104	52.69265	53.14138	53.58768	54.03338	54.47860	54.92490	55.37411
25	52.66446	53.14507	53.61877	54.08786	54.55277	55.01429	55.47468	55.93453	56.39540
26	53.48571	53.98955	54.48551	54.97556	55.46004	55.93896	56.41593	56.89088	57.36512
27	54.25230	54.77868	55.29660	55.80766	56.31214	56.80952	57.30402	57.79523	58.28421
28	54.96886	55.51676	56.05594	56.58766	57.11212	57.62853	58.14109	58.64929	59.15401
29	55.63980	56.20800	56.76750	57.31920	57.86326	58.39880	58.92956	59.45512	59.97622
30	56.26923	56.85643	57.43512	58.00591	58.56891	59.12335	59.67213	60.21510	60.75286
31	56.86093	57.46579	58.06247	58.65132	59.23243	59.80523	60.37161	60.93174	61.48617
32	57.41832	58.03952	58.65296	59.25877	59.85704	60.44746	61.03082	61.60768	62.17854
33	57.94447	58.58075	59.20973	59.83140	60.44580	61.05295	61.65256	62.24557	62.83242
34	58.44213	59.09230	59.73566	60.37207	61.00158	61.62451	62.23954	62.84799	63.45027
35	58.91374	59.57669	60.23333	60.88343	61.52702	62.16472	62.79433	63.41746	64.03451
36	59.36149	60.03620	60.70509	61.36788	62.02456	62.67603	63.31935	63.95636	64.58745
37	59.78733	60.47288	61.15307	61.82759	62.49642	63.16068	63.81684	64.46693	65.11132
38	60.19301	60.88854	61.57916	62.26453	62.94463	63.62073	64.28890	64.95127	65.60820
39	60.58011	61.28485	61.98508	62.68050	63.37103	64.05808	64.73746	65.41133	66.08005
40	60.95004	61.66329	62.37241	63.07711	63.77731	64.47447	65.16428	65.84891	66.52868
41	61.30409	62.02520	62.74254	63.45584	64.16499	64.87147	65.57101	66.26568	66.95579
42	61.64342	62.37182	63.09676	63.81802	64.53547	65.25055	65.95912	66.66316	67.36294
43	61.96908	62.70424	63.43623	64.16487	64.89001	65.61303	66.33000	67.04278	67.75158
44	62.28204	63.02348	63.76202	64.49750	65.22977	65.96012	66.68491	67.40582	68.12304
45	62.58316	63.33045	64.07507	64.81692	65.55582	66.29295	67.02499	67.75348	68.47856
46	62.87323	63.62598	64.37627	65.12405	65.86912	66.61251	67.35131	68.08686	68.81925
47	63.15296	63.91083	64.66642	65.41973	66.17054	66.91974	67.66483	68.40696	69.14617
48	63.42301	64.18568	64.94624	65.70471	66.46088	67.21549	67.96644	68.71470	69.46027
49	63.68397	64.45116	65.21638	65.97970	66.74089	67.50053	68.25694	69.01093	69.76243
50	63.93635	64.70783	65.47745	66.24532	67.01122	67.77557	68.53709	69.29641	70.05346
51	64.18064	64.95619	65.72997	66.50215	67.27247	68.04124	68.80754	69.57187	70.33409
52	64.41727	65.19670	65.97444	66.75069	67.52519	68.29812	69.06891	69.83793	70.60500
53	64.64663	65.42978	66.21130	66.99142	67.76989	68.54675	69.32177	70.09520	70.86682
54	64.86905	65.65578	66.44094	67.22475	68.00700	68.78759	69.56661	70.34419	71.12009
55	65.08486	65.87506	66.66371	67.45107	68.23692	69.02108	69.80389	70.58540	71.36534
56	65.29432	66.08789	66.87993	67.67072	68.46003	69.24762	70.03403	70.81927	71.60303
57	65.49770	66.29456	67.08989	67.88399	68.67665	69.46754	70.25740	71.04618	71.83358
58	65.69521	66.49531	67.29386	68.09118	68.88708	69.68116	70.47434	71.26651	72.05737
59	65.88707	66.69034	67.49205	68.29252	69.09158	69.88876	70.68515	71.48058	72.27474
60	66.07345	66.87986	67.68468	68.48825	69.29039	70.09061	70.89009	71.68866	72.48602

4.3. ELECTRON DIFFRACTION

Table 4.3.3.2. *Inelastic scattering factors (cont.)*

Element Z s	Pb 82	Bi 83	Po 84	At 85	Rn 86	Fr 87	Ra 88	Ac 89	Th 90
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1	3.34621	3.27806	3.33281	3.32115	3.26930	3.83241	4.44464	4.60565	4.53225
2	8.22217	8.29008	8.55914	8.68626	8.67890	9.01288	9.43761	9.70196	9.73030
3	12.41125	12.73684	13.12943	13.45896	13.67755	13.96293	14.28181	14.56415	14.68382
4	16.22970	16.58625	16.98331	17.39841	17.80231	18.20342	18.59738	18.95415	19.10180
5	19.86837	20.17179	20.51378	20.88858	21.29218	21.72790	22.18172	22.62985	22.83294
6	23.37158	23.62798	23.91920	24.23940	24.58760	24.97453	25.39443	25.83912	26.08504
7	26.70653	26.93777	27.19750	27.48284	27.79204	28.13066	28.49894	28.89569	29.15467
8	29.78902	30.02992	30.28696	30.56176	30.85496	31.16853	31.50434	31.86395	32.12548
9	32.55386	32.83610	33.12152	33.41324	33.71411	34.02674	34.35324	34.69753	34.96690
10	34.99597	35.33272	35.66572	35.99589	36.32636	36.66045	36.99990	37.34880	37.63823
11	37.16069	37.54632	37.92853	38.30468	38.67709	39.04766	39.41742	39.78790	40.11077
12	39.11241	39.53176	39.95218	40.36861	40.78241	41.19310	41.60084	42.00369	42.36942
13	40.90935	41.34687	41.79059	42.23479	42.68028	43.12499	43.56818	44.00554	44.41624
14	42.59319	43.03767	43.49207	43.95125	44.41593	44.88381	45.35352	45.82004	46.27058
15	44.18948	44.63479	45.09182	45.55657	46.02985	46.51011	46.99576	47.48239	47.96308
16	45.71259	46.15634	46.61211	47.07707	47.55215	48.03675	48.52946	49.02718	49.52726
17	47.17058	47.61243	48.06580	48.52881	49.00237	49.48660	49.98052	50.48246	50.99268
18	48.56838	49.00889	49.46012	49.92093	50.39203	50.87389	51.36601	51.86803	52.38179
19	49.90941	50.34947	50.79941	51.25863	51.72758	52.20682	52.69615	53.19634	53.70975
20	51.19617	51.63680	52.08653	52.54511	53.01275	53.49000	53.97677	54.47467	54.98596
21	52.43042	52.87284	53.32354	53.78256	54.24992	54.72616	55.21118	55.70716	56.21594
22	53.61325	54.05891	54.51192	54.97254	55.44075	55.91711	56.40144	56.89625	57.40291
23	54.74527	55.19583	55.65265	56.11619	56.58647	57.06414	57.54895	58.04351	58.54882
24	55.82679	56.28406	56.74634	57.21425	57.68794	58.16821	58.65471	59.15007	59.65498
25	56.85810	57.32388	57.79336	58.26721	58.74575	59.22997	59.71947	60.21675	60.72234
26	57.83958	58.31562	58.79400	59.27537	59.76029	60.24988	60.74374	61.24415	61.75155
27	58.77191	59.25976	59.74862	60.23906	60.73186	61.22825	61.72786	62.23269	62.74312
28	59.65612	60.15705	60.65779	61.15870	61.66081	62.16539	62.67210	63.18267	63.69739
29	60.49357	61.00858	61.52233	62.03492	62.54761	63.06165	63.57676	64.09436	64.61464
30	61.28596	61.81573	62.34333	62.86859	63.39292	63.91754	64.44222	64.96805	65.49516
31	62.03522	62.58016	63.12218	63.66083	64.19764	64.73377	65.26900	65.80418	66.33929
32	62.74351	63.30374	63.86049	64.41300	64.96290	65.51124	66.05784	66.60329	67.14746
33	63.41306	63.98851	64.56004	65.12666	65.69003	66.25108	66.80966	67.36615	67.92027
34	64.04617	64.63658	65.22276	65.80353	66.38054	66.95460	67.52556	68.09365	68.65848
35	64.64514	65.25011	65.85064	66.44543	67.03606	67.62324	68.20682	68.78691	69.36298
36	65.21220	65.83123	66.44569	67.05424	67.65832	68.25858	68.85483	69.44713	70.03482
37	65.74952	66.38202	67.00992	67.63183	68.24908	68.86224	69.47109	70.07566	70.67518
38	66.25915	66.90451	67.54527	68.18009	68.81013	69.43589	70.05715	70.67391	71.28532
39	66.74304	67.40061	68.05362	68.70083	69.34321	69.98121	70.61459	71.24336	71.86659
40	67.20301	67.87214	68.53677	69.19582	69.85004	70.49985	71.14499	71.78549	72.42036
41	67.64078	68.32080	68.99643	69.66673	70.33226	70.99341	71.64990	72.30179	72.94803
42	68.05791	68.74819	69.43420	70.11516	70.79145	71.46344	72.13082	72.79371	73.45099
43	68.45590	69.15581	69.85158	70.54262	71.22912	71.91143	72.58923	73.26267	73.93061
44	68.83610	69.54503	70.24999	70.95052	71.64668	72.33878	73.02652	73.71006	74.38824
45	69.19977	69.91716	70.63072	71.34019	72.04547	72.74685	73.44402	74.13719	74.82516
46	69.54808	70.27337	70.99501	71.71287	72.42674	73.13689	73.84301	74.54533	75.24264
47	69.88210	70.61478	71.34398	72.06972	72.79167	73.51008	74.22466	74.93566	75.64185
48	70.20283	70.94241	71.67868	72.41180	73.14134	73.86754	74.59011	75.30931	76.02393
49	70.51118	71.25721	72.00009	72.74012	73.47678	74.21030	74.94041	75.66736	76.38996
50	70.80798	71.56003	72.30911	73.05561	73.79895	74.53935	75.27655	76.01079	76.74094
51	71.09401	71.85169	72.60656	73.35912	74.10871	74.85557	75.59945	76.34056	77.07783
52	71.36997	72.13291	72.89322	73.65144	74.40690	75.15982	75.90996	76.65754	77.40152
53	71.63652	72.40439	73.16978	73.93331	74.69426	75.45287	76.20890	76.96255	77.71286
54	71.89424	72.66672	73.43689	74.20539	74.97149	75.73544	76.49700	77.25636	78.01262
55	72.14367	72.92050	73.69514	74.46831	75.23925	76.00821	76.77496	77.53968	78.30154
56	72.38531	73.16622	73.94509	74.72264	75.49811	76.27179	77.04342	77.81316	78.58030
57	72.61959	73.40436	74.18721	74.96890	75.74864	76.52674	77.30296	78.07743	78.84953
58	72.84694	73.63536	74.42198	75.20756	75.99132	76.77359	77.55413	78.33304	79.10982
59	73.06770	73.85959	74.64979	75.43905	76.22661	77.01282	77.79743	78.58052	79.36171
60	73.28222	74.07742	74.87103	75.66378	76.45494	77.24487	78.03332	78.82035	79.60571

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Table 4.3.3.2. *Inelastic scattering factors (cont.)*

Element Z s	Pa 91	U 92
0	0.00000	0.00000
1	4.48605	4.46901
2	9.64760	9.65990
3	14.50305	14.53454
4	18.88630	18.93052
5	22.67010	22.75975
6	26.01979	26.15376
7	29.17627	29.33734
8	32.20889	32.38794
9	35.09984	35.29714
10	37.82179	38.04410
11	40.35125	40.60907
12	42.67134	42.97470
13	44.77871	45.13292
14	46.68677	47.09059
15	48.42205	48.86853
16	50.01657	50.49569
17	51.50089	52.00222
18	52.89990	53.41447
19	54.23161	54.75278
20	55.50792	56.03139
21	56.73622	57.25961
22	57.92097	58.44323
23	59.06486	59.58582
24	60.16964	60.68962
25	61.23646	61.75612
26	62.26615	62.78632
27	63.25930	63.78093
28	64.21633	64.74047
29	65.13757	65.66531
30	66.02329	66.55575
31	66.87380	67.41207
32	67.68946	68.23461
33	68.47077	69.02374
34	69.21834	69.77999
35	69.93291	70.50398
36	70.61540	71.19646
37	71.26680	71.85830
38	71.88825	72.49049
39	72.48094	73.09410
40	73.04613	73.67027
41	73.58512	74.22018
42	74.09919	74.74506
43	74.58967	75.24613
44	75.05784	75.72462
45	75.50493	76.18173
46	75.93219	76.61863
47	76.34076	77.03649
48	76.73178	77.43640
49	77.10631	77.81941
50	77.46537	78.18654
51	77.80991	78.53875
52	78.14084	78.87696
53	78.45901	79.20201
54	78.76522	79.51472
55	79.06021	79.81586
56	79.34470	80.10614
57	79.61932	80.38622
58	79.88468	80.65672
59	80.14135	80.91823
60	80.38984	81.17129

scattering (Kimura, Schomaker, Smith & Weinstock, 1968; Bartell & Brockway, 1953; Hanson, 1962; Fink & Kessler, 1966; Geiger, 1964; Kessler, 1959; Seip, 1965; Schäfer & Seip, 1967; Kohl & Bonham, 1967; Bonham & Cox, 1967; Seip & Stølevik, 1966; Seip & Seip, 1966; Arnesen & Seip, 1966; McClelland & Fink, 1985; Coffman, Fink & Wellenstein, 1985). New partial wave scattering factors based on relativistic Hartree-Fock fields (Biggs, Mendelsohn & Mann, 1975) are presented here at a number of energies (Table 4.3.3.1). Because of the availability of these partial wave results, first Born approximation results are no longer needed for gas-phase work in this energy range.

The scattering of keV electrons from atoms is calculated in the central-field approximation in which the potential of the target is averaged over the angular coordinates and the resulting spherically symmetric potential $V(r)$ is used in the computation. In order to take the relativistic effects properly into account, the Dirac equation has been used. In addition to the straightforward correction for the electron mass, spin-polarization effects are also included in these calculations. The scattering wavefunctions are four-component spinors that can be reduced to two components as shown by Mott & Massey (1965). This reduction leads to two decoupled second-order differential equations in Schrödinger form:

$$\frac{d^2 g_l(r)}{dr^2} + \left[k^2 - \frac{l(l+1)}{r^2} - U_l(r) \right] g_l(r) = 0,$$

where

$$-U_l(r) = -2\gamma V(r) + \alpha^2 V^2(r) + \frac{n}{r} \frac{\beta'}{\beta} - \frac{3}{4} \left(\frac{\beta'}{\beta} \right)^2 + \frac{1}{2} \frac{\beta''}{\beta},$$

and

$$\alpha = \frac{e^2}{\hbar c},$$

$$\gamma = \left(1 - \frac{v^2}{c^2} \right)^{-1/2}$$

$$\beta = \left[\frac{\gamma + 1}{\alpha} - \alpha V(r) \right],$$

$$n = \begin{cases} -l - 1 & \text{for } j = l + \frac{1}{2} \\ l & \text{for } j = l - \frac{1}{2}, \end{cases}$$

where j is the total angular momentum for the l th partial wave including the two spin directions. Asymptotic solutions are available when $U_l(r)$ is small relative to the centrifugal term, $l(l+1)/r^2$. If this term is taken into account, but $U_l(r)$ is neglected, $g_l(r)$ approaches

$$g_l(r) \sim j_l(kr) \cos(\eta_l) + n_l(kr) \sin(\eta_l)$$

with a similar limit holding for the $-l-1$ solution. These limits lead directly to the scattering factors

$$f(\theta) = \frac{1}{2ki} \sum ((l+1)[\exp(2i\eta_l) - 1] + l[\exp[2i\eta_{(-l-1)}] - 1]) P_l(\cos \theta)$$

$$g(\theta) = \frac{1}{2ki} \sum \{-\exp(2i\eta_l) + \exp[2i\eta_{(-l-1)}]\} P_l^1(\cos \theta)$$

and the elastic differential scattering cross section

4.3. ELECTRON DIFFRACTION

$$\frac{d\sigma}{d\Omega} = |f|^2 + |g|^2 + (fg^* - f^*g) \times \left\{ \frac{-AB^* \exp(i\varphi) + A^*B \exp(-i\varphi)}{|A|^2 + |B|^2} \right\},$$

where A , B and φ describe the direction and degree of spin polarization of the incoming electrons. The latter term is equal to 0 when unpolarized electrons ($A = B = 1$) are used in the scattering experiment.

The results printed in the tables were obtained in three steps. First, atomic wavefunctions were calculated and transformed into centrosymmetric potentials *via* Poisson's equation. Second, a sufficient number of phases, η_l and $\eta_{(-l-1)}$, were computed in order to calculate the scattering factors f and g by performing the partial wave sums. Finally, the results were smoothed, because small oscillations were seen between nearest neighbours in the second difference function. These oscillations were only of the order of 0.1% of the data, so smoothing only had an effect in the third or fourth significant figure.

For the scattering potentials, we used relativistic Hartree-Fock wavefunctions calculated by Biggs, Mendelsohn & Mann (1975). The wavefunctions were used to calculate the potentials and their derivatives since they are needed for $U_l(r)$ to solve the appropriate Dirac equation.

In order to solve the second-order differential equation, one must take advantage of the known asymptotic solutions. Following the procedure developed by Numerov (Numerov, 1924; Melkanov, Sawada & Raynal, 1966), an auxiliary function, $\xi_l(r)$ is introduced:

$$\xi_l(r_i) = \left[1 - \frac{\Delta r^2}{12} B_l(r_i) \right] g_l(r_i),$$

where

$$B_l(r_i) = -k^2 + \frac{l(l+1)}{r_i^2} + U_l(r_i)$$

and

$$r_i = i\Delta r, \quad i = 0, 1, 2, \dots$$

Now $\xi_l(r)$ is computed. Starting with $\xi_l(r_0) = \xi_l(0) = 0$ and $\xi_l(r_1) = \xi_l(\Delta r) = 0.2(\Delta r)^{l+1}$, the integration of ξ following the Numerov procedure is given by

$$\xi_l(r_{i+1}) = [2 + \Delta r^2 B_l(r_i) + \Delta r^4 B_l^2(r_i)/12] \xi_l(r_i) - \xi_l(r_{i-1}).$$

This recurrence relation is carried through for $a/\Delta r$ steps, where a is the asymptotic limit. At the asymptotic limit $g_l(r)$ is

$$\lim g_l(r) \sim B_l(r) j_l(kr) \cos(\eta_l) - B_l(r) n_l(kr) \sin(\eta_l).$$

The proportionality factor is eliminated by matching the logarithmic derivative of $\xi_l(r)$ [$= \xi'(r)/\xi(r)$] to the same derivative of $g_l(r)$ at $r = a$. From this equality, the partial wave phase shifts are calculated as follows:

$$\begin{aligned} & \frac{1}{\xi_l(a)} \frac{d\xi_l}{dr}(a) \\ &= \{ [B_l'(a) j_l(ka) + kB_l(a) j_l'(ka)] \cos(\eta_l) \\ & \quad - [B_l'(a) n_l(ka) + kB_l(a) n_l'(ka)] \sin(\eta_l) \} \\ & \quad \times [B_l(a) j_l(ka) \cos(\eta_l) - B_l(a) n_l(ka) \sin(\eta_l)]^{-1}. \end{aligned}$$

Solving for η_l leads to

$$\begin{aligned} \tan(\eta_l) &= [B_l'(a) j_l(ka) + kB_l(a) j_l'(ka) - \omega B_l(a) j_l(ka)] \\ & \quad \times [B_l'(a) n_l(ka) + kB_l(a) n_l'(ka) \\ & \quad - \omega B_l(a) n_l(ka)]^{-1}, \end{aligned}$$

where

$$\omega = \frac{1}{\xi_l(a)} \frac{d\xi_l}{dr}(a),$$

$$B_l(a) = -k^2 + \frac{l(l+1)}{a^2}$$

and

$$B_l'(a) = -\frac{2l(l+1)}{a^3}.$$

It is straightforward to calculate the scattering amplitudes by partial wave summation since stable numerical methods are readily available for the spherical Bessel functions, $j_l(kr)$, the Neumann functions, $n_l(kr)$, and the Legendre polynomials, $P_l(\cos \theta)$ (Yates, 1971).

Particular attention was given to the choices of the integration step size, Δr , and the matching radius, a . Both were varied to ensure the stability of the scattering factors to 0.1% for light atoms and to 0.3% for heavier atoms and higher incident energies. The results of the sensitivity calculations are summarized elsewhere (Ross & Fink, 1986).

Smoothing was carried out by the following procedure: Sixteen data points, quarter s units apart, were least-squares fit to a cubic polynomial and the eighth point was changed to lie on this analytical curve. This procedure was repeated in running point average mode for $s > 10 \text{ \AA}^{-1}$. The points for $s < 10 \text{ \AA}^{-1}$ were left unchanged since no oscillations were seen. Smoothed and unsmoothed data in quarter s units for f and g are available on tape at cost from the authors.

4.3.3.2.2. Total inelastic scattering factors

Total inelastic scattering in the first Born approximation (Bonham & Fink, 1974) is obtained by including all possible excitation processes:

$$S(s)_{\text{inel}} = \mathbf{S} \frac{k_n}{k} |\langle \psi_n | \sum_{i=1}^N \exp(is_{0n} \cdot r_i) | \psi_0 \rangle|^2,$$

where r_i is the nuclear electron vector, $k_n = k^2 - \Delta E_{0n}$, $s_{0n} = [k^2 + k_n^2 - 2kk_n \cos(2\theta)]^{1/2}$, ΔE_{0n} is the energy loss of the incident electron upon excitation of the scatterer to the n th state, θ is the Bragg angle, \mathbf{S} signifies a sum over all bound states and an integration over the continuum, and N is equal to the number of electrons in the atom. The sum is carried out over all states ψ_n for which ΔE_{0n} is less than the incident electron energy. The Morse approximation is obtained by making three assumptions: (1) that the incident energy is so high that $N \sim \infty$, *i.e.* that all states are accessible; (2) that the ratio k_n/k is unity for all inelastic processes of any importance; and (3) that s_{0n} may be replaced by its elastic value s . With these approximations, closure may be used to obtain (Morse, 1932; Heisenberg, 1931; Bethe, 1930):

$$S(s) = Z - F_x^2(s) + \sum_i^N \sum_{j \neq i}^N \langle \psi_0 | \exp(is \cdot r_{ij}) | \psi_0 \rangle.$$

The function $S(s)$ is the X-ray incoherent scattering factor (Wang, Sagar, Schmider & Smith, 1993) and is related to the inelastic electron scattering cross section by

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$$\sigma_{\text{inel}}(s) = 4S(s)/a^2s^4.$$

Inelastic scattering factors for X-rays and electrons are given in Table 4.3.3.2 in the Morse (1932) approximation for elements $Z = 1$ to $Z = 92$ with HF wave functions (Bunge, Barrientos & Bunge, 1993; McLean & McLean, 1981).

There are two kinds of relativistic correction that can be made on inelastic scattering factors. The first is for relativistic effects on the atomic field and has been neglected. This should not be too serious since HF wavefunctions are used and the corrections are only large for the heavier atoms where the contribution to the total scattering for $s > 3 - 4 \text{ \AA}^{-1}$ tends to be negligible. The other correction is for effects in the scattering process, which can be significant above 40 keV, but again these corrections tend to be localized to the small-angle region ($s < 3 \text{ \AA}^{-1}$) (Yates, 1970). Hence the tables of inelastic scattering factors given here are based on HF atomic fields since these appear to be the most accurate results presently available.

The inelastic scattering equations must be modified in order to compare theory with experiment. First, the Morse theory is corrected to ensure that both energy and momentum are conserved in the scattering process. In the description of the elastic scattering process, no transformation is required from the centre-of-mass system (CMS), where the scattering factors are calculated, to the laboratory system (LS), where data are taken, since the nuclei are heavy compared with the incident electrons. In the inelastic channels, a similar argument holds for scattering involving the bound states. However, for ionizing processes, the interaction can be assumed to take place between the incident electron and the ejected electron, so that the CMS is entirely different from the LS. Considering the atomic electrons as free particles and considering only the ionization process, the transformation between the CMS and the LS is possible and leads to the Bethe modification (Tavard & Bonham, 1969) for inelastic scattering. The inelastic cross section can now be given by

$$\sigma_{\text{inel}} = \frac{4 \cos(2\theta)S(s \cos \theta)}{a^2s^4 \cos^4 \theta}$$

for $\theta < \pi/4$ and by $\sigma_{\text{inel}} = 0$ for $\theta > \pi/4$.

Another modification is necessary because the average energy of inelastically scattered electrons varies with energy and is given from approximate conservation of energy and momentum for a fast incident particle by $k^2 \cos^2(2\theta)$. This means that for $s > 30 \text{ \AA}^{-1}$ at 40 keV the average energy of inelastically scattered electrons may be around 30 keV and the fact that the response of the detector may be different for the 40 keV inelastically scattered electrons and the elastic ones may have to be considered (Fink, Bonham, Lee & Ng, 1969).

In addition to the values given in Table 4.3.3.2, a few calculations of $S(s)$ have been carried out with very exact wavefunctions that include more than 85% of the correlation energy (Kohl & Bonham, 1967; Bartell & Gavin, 1964; Peixoto, Bunge & Bonham, 1969; Thakkar & Smith, 1978; Wang, Esquivel, Smith & Bunge, 1995).

4.3.3.2.3. Corrections for defects in the theory of atomic scattering

Errors in the inelastic scattering factors from the three approximations made in the Morse theory have been investigated (Tavard & Bonham, 1969; Bonham, 1965b). The Morse theory breaks down at very large scattering

angles ($\theta > 30^\circ$), and is incorrect at small angles. Investigations carried out so far indicate that the small-angle failure is not serious outside $s = 1 \text{ \AA}^{-1}$. It must be stressed that these uncertainties do not introduce important errors into the analysis of molecular structure using theoretical atomic scattering amplitudes. This is mainly because such deviations are smooth compared with molecular features and thus do not interfere with the analysis of molecular structure.

4.3.3.3. Molecular scattering factors for electrons

The simplest theory of molecular scattering assumes that a molecule consists of spherical atoms and that each electron is scattered by only one atom in the molecule. If only single scattering is allowed within each atom, the molecular intensity can be written as

$$\begin{aligned} I(s) &= I_a(s) + I_m(s) \\ &= \left[\frac{4I_0}{a^2s^4R^2} \right] \left[\sum_{i=1}^M \{ [Z_i - F_i(s)]^2 + S_i(s) \} \right. \\ &\quad + \sum_i^M \sum_{j \neq i}^M [Z_i - F_i(s)][Z_j - F_j(s)] \\ &\quad \left. \times \int_0^\infty dr P_{ij}(r, T)(\sin sr)/sr \right], \end{aligned} \quad (4.3.3.1)$$

where M is the number of constituent atoms in the molecule, $F_i(s)$ and $S_i(s)$ are the coherent and incoherent X-ray scattering factors, and $P_{ij}(r, T)$ is the probability of finding atom i at a distance r from atom j at the temperature T (Bonham & Su, 1966; Kelley & Fink, 1982b; Mawhorter, Fink & Archer, 1983; Mawhorter & Fink, 1983; Miller & Fink, 1985; Hilderbrandt & Kohl, 1981; Kohl & Hilderbrandt, 1981). The constant I_0 is proportional to the product of the intensities of the electron and molecular beams and R is the distance from the point of scattering to the detector. The single sum is the atomic intensity $I_a(s)$ and the double sum is the molecular intensity $I_m(s)$. This expression, referred to here as the independent atom model (IAM), may be improved by replacing the atomic elastic electron scattering factors by their partial wave counterparts. This modification is necessary to explain the failure of the Born approximation observed in molecules containing light and heavy atoms in proximity (Schomaker & Glauber, 1952; Seip, 1965), and may be written as

$$\begin{aligned} I(s) &= I_a(s) + I_m(s) \\ &= \frac{I_0}{R^2} \left\{ \sum_{i=1}^M [|f_i|^2 + 4S_i(s)/(a^2s^4)] \right. \\ &\quad + \sum_i^M \sum_{j \neq i}^M |f_i| |f_j| \cos(\eta_i - \eta_j) \\ &\quad \left. \times \int_0^\infty dr P_{ij}(r, T)(\sin sr)/sr \right\}. \end{aligned} \quad (4.3.3.2)$$

This is the most commonly used expression for the interpretation of molecular gas electron-diffraction patterns in the keV energy range. If it is necessary to consider relativistic effects in the scattering intensity, equation (4.3.3.2) becomes (Yates & Bonham, 1969)

$$\begin{aligned}
I(s) &= I_a(s) + I_m(s) \\
&= \frac{I_0}{R^2} \left\{ \sum_{i=1}^M [|f_i|^2 + |g_i|^2 + 4S_i(s)/(a^2 s^4)] \right. \\
&\quad + \sum_i^M \sum_{j \neq i}^M [|f_i| |f_j| \cos(\eta_i^f - \eta_j^f) + |g_i| |g_j| \cos(\eta_i^g - \eta_j^g)] \\
&\quad \left. \times \int_0^\infty dr P_{ij}(r, T)(\sin sr)/sr \right\}, \quad (4.3.3.3)
\end{aligned}$$

where $|g_i|$ and η_i^g refer to the scattering-factor magnitude and phase for electrons that have changed their electron spin state during the scattering process and $|f_i|$ and η_i^f refer to retention of spin orientation. The incident electron beam is assumed to be unpolarized and no attempt has been made to consider relativistic effects on the inelastic scattering cross section, which is usually negligible in the structural s range.

If it is necessary to consider binding effects, the first Born approximation may usually be used in describing molecular scattering, since binding effects are largest for molecules containing small atoms where the Born approximation is most valid.

The exact expression for $I(s)$ in the first Born approximation can be written as (Bonham & Fink, 1974; Tavad & Roux, 1965; Tavad, Rouault & Roux, 1965; Iijima, Bonham & Ando, 1963; Bonham, 1967)

$$\begin{aligned}
I(s) &= \frac{4I_0}{a^2 s^4 R^2} \left\{ \sum_{i=1}^M (Z_i^2 + Z_i) \right. \\
&\quad + \sum_i^M \sum_{j \neq i}^M Z_i Z_j \int_0^\infty dr P_{ij}(r, T)(\sin sr)/sr \\
&\quad - 2 \sum_{i=1}^M Z_i \left\langle \int dr \rho(r + r_i)(\sin sr)/sr \right\rangle_{\text{vib}} \\
&\quad \left. + \left\langle \int dr \rho_c(r)(\sin sr)/sr \right\rangle_{\text{vib}} \right\},
\end{aligned}$$

where

$$\rho(r) = \sum_{i=1}^N \int dr_1 \dots \int dr_N |\psi(r_1, \dots, r_N)|^2 \delta(r - r_i)$$

and

$$\rho_c(r) = \sum_i^N \sum_{j \neq i}^N \int dr_1 \dots \int dr_N |\psi(r_1, \dots, r_N)|^2 \delta(r - r_i + r_j).$$

The brackets $\langle \rangle_{\text{vib}}$ denote averaging over the vibrational motion, $\delta(r)$ is the Dirac delta function, and $\psi(r_1, \dots, r_n)$ is the molecular wavefunction. Binding effects appear to be proportional to the ratio of the number of electrons involved in binding to the total number of electrons in the system (Kohl & Bonham, 1967; Bonham & Iijima, 1965) so that binding effects in molecules containing mainly heavy atoms should be quite small.

The intensities, $I(s)$, for many small molecules have been calculated based on molecular Hartree-Fock wavefunctions. In most cases, a distinctive minimum has been found at about $s = 3 - 4 \text{ \AA}^{-1}$ and a much smaller maximum at $s = 8 - 10 \text{ \AA}^{-1}$ in the cross-sectional difference curve between the IAM and the molecular HF results (Pulay, Mawhorter, Kohl & Fink, 1983; Kohl & Bartell, 1969; Liu & Smith, 1977; Epstein & Stewart,

1977; Sasaki, Konaka, Iijima & Kimura, 1982; Shibata, Hirota, Kakuta & Muramatsu, 1980; Horota, Kakuta & Shibata, 1981; Xie, Fink & Kohl, 1984). Further studies using correlated wavefunctions (accounting for up to 60% of the correlation energy) showed that in the elastic channel the binding effects are only weakly modified; only the maximum at $s = 8 - 10 \text{ \AA}^{-1}$ is further reduced. However, strong effects are seen in the inelastic channel, deepening the minimum at $s = 3 - 4 \text{ \AA}^{-1}$ significantly (Breitenstein, Endesfelder, Meyer, Schweig & Zittlau, 1983; Breitenstein, Endesfelder, Meyer & Schweig, 1984; Breitenstein, Mawhorter, Meyer & Schweig, 1984; Wang, Tripathi & Smith, 1994). Detailed calculations on CO_2 and H_2O averaging over many internuclear distances and applying the pair distribution functions $P_{ij}(r)$ showed that vibrational effects do not alter the binding effects (Breitenstein, Mawhorter, Meyer & Schweig, 1986). For CO_2 , the calculations have been confirmed in essence by an experimental set of data (McClelland & Fink, 1985). However, more molecules and more detailed analysis will be available in the future. The binding effects make it desirable to avoid the small-angle-scattering range when structural information is the main goal of a diffraction analysis.

The problem of intramolecular multiple scattering may necessitate corrections to the molecular intensity when three or more closely spaced heavy atoms are present. This correction (Karle & Karle, 1950; Hoerni, 1956; Bunyan, 1963; Gjønnes, 1964; Bonham, 1965a, 1966) appears to be more serious for three atoms in a right triangular configuration than for a collinear arrangement of three atoms. A case study by Kohl & Arvedson (1980) on SF_6 showed the importance of multiple scattering. However, their approach is too cumbersome to be used in routine structure work. A very good approximate technique is available utilizing the Glauber approximation (Bartell & Miller, 1980; Bartell & Wong, 1972; Wong & Bartell, 1973; Bartell, 1975); Kohl's results are reproduced quite well using the atomic scattering factors only. Several applications of the multiple scattering routines showed that the internuclear distances are rather insensitive to this perturbation, but the mean amplitudes of vibration can easily change by 10% (Miller & Fink, 1981; Kelley & Fink, 1982a; Ketkar & Fink, 1985).

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4.3.4. Electron energy-loss spectroscopy on solids (By C. Colliex)

4.3.4.1. Definitions

4.3.4.1.1. Use of electron beams

Among the different spectroscopies available for investigating the electronic excitation spectrum of solids, inelastic electron scattering experiments are very useful because the range of accessible energy and momentum transfer is very large, as illustrated in Fig. 4.3.4.1 taken from Schnatterly (1979). Absorption measurements with photon beams follow the photon dispersion curve, because it is impossible to vary independently the energy and the momentum of a photon. In a scattering experiment, a quasi-parallel beam of monochromatic particles is incident on the specimen and one measures the changes in energy and momentum that can be attributed to the creation of a given excitation in the target. Inelastic neutron scattering is the most