4.3. ELECTRON DIFFRACTION

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

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

$(\sin\theta)/\lambda$ (Å^{-1})	Element	H	He	Li	Be	B	C	N	O	F	Ne	Na
	Z	1	2	3	4	5	6	7	8	9	10	11
	Method	HF	RHF	RHF	RHF	RHF	RHF	RHF	RHF	RHF	RHF	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

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

$(\sin\theta)/\lambda$ (Å^{-1})	Element	Mg	Al	Si	P	S	Cl	Ar	K	Ca	Sc	Ti
	Z	12	13	14	15	16	17	18	19	20	21	22
	Method	RHF	RHF	RHF	RHF	RHF	RHF	RHF	RHF	RHF	RHF	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

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

$(\sin\theta)/\lambda$ (Å^{-1})	Element	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As
	Z	23	24	25	26	27	28	29	30	31	32	33
	Method	RHF	RHF	RHF	RHF	RHF	RHF	RHF	RHF	RHF	RHF	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	1.471	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

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

$(\sin\theta)/\lambda$ (Å^{-1})	Element	Se	Br	Kr	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru
	Z	34	35	36	37	38	39	40	41	42	43	44
	Method	RHF	RHF	RHF	RHF	RHF	*RHF	*RHF	*RHF	*RHF	*RHF	*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

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

$(\sin\theta)/\lambda$ (Å^{-1})	Element	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	Cs
	Z	45	46	47	48	49	50	51	52	53	54	55
	Method	*RHF	*RHF	RHF	RHF	RHF	RHF	RHF	*RHF	RHF	RHF	RHF
0.00		9.242	7.583	8.671	9.232	10.434	10.859	10.974	11.003	10.905	10.794	16.508
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	3.291	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

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

$(\sin\theta)/\lambda$ (Å^{-1})	Element	Ba	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy
	Z	56	57	58	59	60	61	62	63	64	65	66
	Method	RHF	*RHF	*RHF	*RMF	*RHF	*RHF	*RHF	RHF	*RHF	*RHF	*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	5.312	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	3.306	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	0.391	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	0.383	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

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

$(\sin\theta)/\lambda$ (Å^{-1})	Element	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Os	Ir
	Z	67	68	69	70	71	72	73	74	75	76	77
	Method	*RHF	*RHF	*RHF	*RHF	*RHF	*RHF	*RHF	*RHF	*RHF	*RHF	*RHF
0.00		14.355	14.080	13.814	13.557	13.486	13.177	12.856	12.543	12.263	11.987	11.718
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

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

$(\sin\theta)/\lambda$ (Å^{-1})	Element	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	Fr	Ra
	Z	78	79	80	81	82	83	84	85	86	87	88
	Method	*RHF	RHF	RHF	*RHF	RHF	RHF	*RHF	*RHF	RHF	*RHF	*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

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

$(\sin\theta)/\lambda$ (Å^{-1})	Element	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf
	Z	89	90	91	92	93	94	95	96	97	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	0.165
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

references