

## 4.4. NEUTRON TECHNIQUES

Table 4.4.5.6.  $\langle j_2 \rangle$  form factors for 4d atoms and their ions

Atom or ion	<i>A</i>	<i>a</i>	<i>B</i>	<i>b</i>	<i>C</i>	<i>c</i>	<i>D</i>	<i>e</i>
Y	14.4084	44.658	5.1045	14.904	-0.0535	3.319	0.0028	0.1093
Zr	10.1378	35.337	4.7734	12.545	-0.0489	2.672	0.0036	0.0912
Zr <sup>+</sup>	11.8722	34.920	4.0502	12.127	-0.0632	2.828	0.0034	0.0737
Nb	7.4796	33.179	5.0884	11.571	-0.0281	1.564	0.0047	0.0944
Nb <sup>+</sup>	8.7735	33.285	4.6556	11.605	-0.0268	1.539	0.0044	0.0855
Mo	5.1180	23.422	4.1809	9.208	-0.0505	1.743	0.0053	0.0655
Mo <sup>+</sup>	7.2367	28.128	4.0705	9.923	-0.0317	1.455	0.0049	0.0798
Tc	4.2441	21.397	3.9439	8.375	-0.0371	1.187	0.0066	0.0645
Tc <sup>+</sup>	6.4056	24.824	3.5400	8.611	-0.0366	1.485	0.0044	0.0806
Ru	3.7445	18.613	3.4749	7.420	-0.0363	1.007	0.0073	0.0533
Ru <sup>+</sup>	5.2826	23.683	3.5813	8.152	-0.0257	0.426	0.0131	0.0830
Rh	3.3651	17.344	3.2121	6.804	-0.0350	0.503	0.0146	0.0545
Rh <sup>+</sup>	4.0260	18.950	3.1663	7.000	-0.0296	0.486	0.0127	0.0629
Pd	3.3105	14.726	2.6332	5.862	-0.0437	1.130	0.0053	0.0492
Pd <sup>+</sup>	4.2749	17.900	2.7021	6.354	-0.0258	0.700	0.0071	0.0768

Table 4.4.5.7.  $\langle j_2 \rangle$  form factors for rare-earth ions

Ion	<i>A</i>	<i>a</i>	<i>B</i>	<i>b</i>	<i>C</i>	<i>c</i>	<i>D</i>	<i>e</i>
Ce <sup>2+</sup>	0.9809	18.063	1.8413	7.769	0.9905	2.845	0.0120	0.0448
Nd <sup>2+</sup>	1.4530	18.340	1.6196	7.285	0.8752	2.622	0.0126	0.0461
Nd <sup>3+</sup>	0.6751	18.342	1.6272	7.260	0.9644	2.602	0.0150	0.0450
Sm <sup>2+</sup>	1.0360	18.425	1.4769	7.032	0.8810	2.437	0.0152	0.0345
Sm <sup>3+</sup>	0.4707	18.430	1.4261	7.034	0.9574	2.439	0.0182	0.0510
Eu <sup>2+</sup>	0.8970	18.443	1.3769	7.005	0.9060	2.421	0.0190	0.0511
Eu <sup>3+</sup>	0.3985	18.451	1.3307	6.956	0.9603	2.378	0.0197	0.0447
Gd <sup>2+</sup>	0.7756	18.469	1.3124	6.899	0.8956	2.338	0.0199	0.0441
Gd <sup>3+</sup>	0.3347	18.476	1.2465	6.877	0.9537	2.318	0.0217	0.0484
Tb <sup>2+</sup>	0.6688	18.491	1.2487	6.822	0.8888	2.275	0.0215	0.0439
Tb <sup>3+</sup>	0.2892	18.497	1.1678	6.797	0.9437	2.257	0.0232	0.0458
Dy <sup>2+</sup>	0.5917	18.511	1.1828	6.747	0.8801	2.214	0.0229	0.0439
Dy <sup>3+</sup>	0.2523	18.517	1.0914	6.736	0.9345	2.208	0.0250	0.0476
Ho <sup>2+</sup>	0.5094	18.515	1.1234	6.706	0.8727	2.159	0.0242	0.0560
Ho <sup>3+</sup>	0.2188	18.516	1.0240	6.707	0.9251	2.161	0.0268	0.0503
Er <sup>2+</sup>	0.4693	18.528	1.0545	6.649	0.8679	2.120	0.0261	0.0413
Er <sup>3+</sup>	0.1710	18.534	0.9879	6.625	0.9044	2.100	0.0278	0.0489
Tm <sup>2+</sup>	0.4198	18.542	0.9959	6.600	0.8593	2.082	0.0284	0.0457
Tm <sup>3+</sup>	0.1760	18.542	0.9105	6.579	0.8970	2.062	0.0294	0.0468
Yb <sup>2+</sup>	0.3852	18.550	0.9415	6.551	0.8492	2.043	0.0301	0.0478
Yb <sup>3+</sup>	0.1570	18.555	0.8484	6.540	0.8880	2.037	0.0318	0.0498

Table 4.4.5.8.  $\langle j_2 \rangle$  form factors for actinide ions

Ion	<i>A</i>	<i>a</i>	<i>B</i>	<i>b</i>	<i>C</i>	<i>c</i>	<i>D</i>	<i>e</i>
U <sup>3+</sup>	4.1582	16.534	2.4675	5.952	-0.0252	0.765	0.0057	0.0822
U <sup>4+</sup>	3.7449	13.894	2.6453	4.863	-0.5218	3.192	0.0009	0.0928
U <sup>5+</sup>	3.0724	12.546	2.3076	5.231	-0.0644	1.474	0.0035	0.0477
Np <sup>3+</sup>	3.7170	15.133	2.3216	5.503	-0.0275	0.800	0.0052	0.0948
Np <sup>4+</sup>	2.9203	14.646	2.5979	5.559	-0.0301	0.367	0.0141	0.0532
Np <sup>5+</sup>	2.3308	13.654	2.7219	5.494	-0.1357	0.049	0.1224	0.0553
Np <sup>6+</sup>	1.8245	13.180	2.8508	5.407	-0.1579	0.044	0.1438	0.0585
Pu <sup>3+</sup>	2.0885	12.871	2.5961	5.190	-0.1465	0.039	0.1343	0.0866
Pu <sup>4+</sup>	2.7244	12.926	2.3387	5.163	-0.1300	0.046	0.1177	0.0490
Pu <sup>5+</sup>	2.1409	12.832	2.5664	5.152	-0.1338	0.046	0.1210	0.0491
Pu <sup>6+</sup>	1.7262	12.324	2.6652	5.066	-0.1695	0.041	0.1550	0.0502
Am <sup>2+</sup>	3.5237	15.955	2.2855	5.195	-0.0142	0.585	0.0033	0.1120
Am <sup>3+</sup>	2.8622	14.733	2.4099	5.144	-0.1326	0.031	0.1233	0.0727
Am <sup>4+</sup>	2.4141	12.948	2.3687	4.945	-0.2490	0.022	0.2371	0.0502
Am <sup>5+</sup>	2.0109	12.053	2.4155	4.836	-0.2264	0.027	0.2128	0.0414
Am <sup>6+</sup>	1.6778	11.337	2.4531	4.725	-0.2043	0.034	0.1892	0.0387
Am <sup>7+</sup>	1.8845	9.161	2.0746	4.042	-0.1318	1.723	0.0020	0.0379