Apéndice A

X-Ray Emission Lines

K-level and L-level emission lines in KeV

No.	Element	Ka1	Ka2	Kb1	La1	La2	Lb1	Lb2
3	Li	0.0543						
4	Be	0.1085						
5	B	0.1833						
6	C	0.277						
7	N	0.3924						
8	O	0.5249						
9	F	0.6768						
10	Ne	0.8486	0.8486					
11	Na	1.04098	1.04098	1.0711				
12	Mg	1.25360	1.25360	1.3022				
13	Al	1.48670	1.48627	1.55745				
14	Si	1.73998	1.73938	1.83594				
15	P	2.0137	2.0127	2.1391				
16	S	2.30784	2.30664	2.46404				
17	Cl	2.62239	2.62078	2.8156				
18	Ar	2.95770	2.95563	3.1905				
19	K	3.3138	3.3111	3.5896				
20	Ca	3.69168	3.68809	4.0127	0.3413	0.3413	0.3449	
21	Sc	4.0906	4.0861	4.4605	0.3954	0.3954	0.3996	
22	Ti	4.51084	4.50486	4.93181	0.4522	0.4522	0.4584	
23	V	4.95220	4.94464	5.42729	0.5113	0.5113	0.5192	
24	Cr	5.41472	5.405509	5.94671	0.5728	0.5728	0.5828	
25	Mn	5.89875	5.88765	6.49045	0.6374	0.6374	0.6488	
26	Fe	6.40384	6.39084	7.05798	0.7050	0.7050	0.7185	
27	Co	6.93032	6.91530	7.64943	0.7762	0.7762	0.7914	
28	Ni	7.47815	7.46089	8.26466	0.8515	0.8515	0.8688	
29	Cu	8.04778	8.02783	8.90529	0.9297	0.9297	0.9498	
30	Zn	8.63886	8.61578	9.5720	1.0117	1.0117	1.0347	
31	Ga	9.25174	9.22482	10.2642	1.09792	1.09792	1.1248	
32	Ge	9.88642	9.85532	10.9821	1.18800	1.18800	1.2185	
33	As	10.54372	10.50799	11.7262	1.2820	1.2820	1.3170	
34	Se	11.2224	11.1814	12.4959	1.37910	1.37910	1.41923	
35	Br	11.9242	11.8776	13.2914	1.48043	1.48043	1.52590	
36	Kr	12.649	12.598	14.112	1.5860	1.5860	1.6366	
37	Rb	13.3953	13.3358	14.9613	1.69413	1.69256	1.75217	
38	Sr	14.1650	14.0979	15.8357	1.80656	1.80474	1.87172	
39	Y	14.9584	14.8829	16.7378	1.92256	1.92047	1.99584	
40	Zr	15.7751	15.6909	17.6678	2.04236	2.0399	2.1244	2.2194
41	Nb	16.6151	16.5210	18.6225	2.16589	2.1630	2.2574	2.3670
42	Mo	17.47934	17.3743	19.6083	2.29316	2.28985	2.39481	2.5183
43	Tc	18.3671	18.2508	20.619	2.4240	-	2.5368	-
44	Ru	19.2792	19.1504	21.6568	2.55855	2.55431	2.68323	2.8360
45	Rh	20.2161	20.0737	22.7236	2.69674	2.69205	2.83441	3.0013
46	Pd	21.1771	21.0201	23.8187	2.83861	2.83325	2.99022	3.17179
47	Ag	22.16292	21.9903	24.9424	2.98431	2.97821	3.15094	3.34781
48	Cd	23.1736	22.9841	26.0955	3.13373	3.12691	3.31657	3.52812
49	In	24.2097	24.0020	27.2759	3.28694	3.27929	3.48721	3.71381

Figura A.1:

50	Sn	25.2713	25.0440	28.4860	3.44398	3.43542	3.66280	3.90486
51	Sb	26.3591	26.1108	29.7256	3.60472	3.59532	3.84357	4.10078
52	Te	27.4723	27.2017	30.9957	3.76933	3.7588	4.02958	4.3017
53	I	28.6120	28.3172	32.2947	3.93765	3.92604	4.22072	4.5075
54	Xe	29.779	29.458	33.624	4.1099	-	-	-
55	Cs	30.9728	30.6251	34.9869	4.2865	4.2722	4.6198	4.9359
56	Ba	32.1936	31.8171	36.3782	4.46626	4.45090	4.82753	5.1565
57	La	33.4418	33.0341	37.8010	4.65097	4.63423	5.0421	5.3835
58	Ce	34.7197	34.2789	39.2573	4.8402	4.8230	5.2622	5.6134
59	Pr	36.0263	35.5502	40.7482	5.0337	5.0135	5.4889	5.850
60	Nd	37.3610	36.8474	42.2713	5.2304	5.2077	5.7216	6.0894
61	Pm	38.7247	38.1712	43.826	5.4325	5.4078	5.961	6.339
62	Sm	40.1181	39.5224	45.413	5.6361	5.6090	6.2051	6.586
63	Eu	41.5422	40.9019	47.0379	5.8457	5.8166	6.4564	6.8432
64	Gd	42.9962	42.3089	48.697	6.0572	6.0250	6.7132	7.1028
65	Tb	44.4816	43.7441	50.382	6.2728	6.2380	6.978	7.3667
66	Dy	45.9984	45.2078	52.119	6.4952	6.4577	7.2477	7.6357
67	Ho	47.5467	46.6997	53.877	6.7198	6.6795	7.5253	7.911
68	Er	49.1277	48.2211	55.681	6.9487	6.9050	7.8109	8.1890
69	Tm	50.7416	49.7726	57.517	7.1799	7.1331	8.101	8.468
70	Yb	52.3889	51.3540	59.37	7.4156	7.3673	8.4018	8.7588
71	Lu	54.0698	52.9650	61.283	7.6555	7.6049	8.7090	9.0489
72	Hf	55.7902	54.6114	63.234	7.8990	7.8446	9.0227	9.3473
73	Ta	57.532	56.277	65.223	8.1461	8.0879	9.3431	9.6518
74	W	59.31824	57.9817	67.2443	8.3976	8.3352	9.67235	9.9615
75	Re	61.1403	59.7179	69.310	8.6525	8.5862	10.0100	10.2752
76	Os	63.0005	61.4867	71.413	8.9117	8.8410	10.3553	10.5985
77	Ir	64.8956	63.2867	73.5608	9.1751	9.0995	10.7083	10.9203
78	Pt	66.832	65.112	75.748	9.4423	9.3618	11.0707	11.2505
79	Au	68.8037	66.9695	77.984	9.7133	9.6280	11.4423	11.5847
80	Hg	70.819	68.895	80.253	9.9888	9.8976	11.8226	11.9241
81	Tl	72.8715	70.8319	82.576	10.2685	10.1728	12.2133	12.2715
82	Pb	74.9694	72.8042	84.936	10.5515	10.4495	12.6137	12.6226
83	Bi	77.1079	74.8148	87.343	10.8388	10.73091	13.0235	12.9799
84	Po	79.290	76.862	89.80	11.1308	11.0158	13.447	13.3404
85	At	81.52	78.95	92.30	11.4268	11.3048	13.876	-
86	Rn	83.78	81.07	94.87	11.7270	11.5979	14.316	-
87	Fr	86.10	83.23	97.47	12.0313	11.8950	14.770	14.45
88	Ra	88.47	85.43	100.13	12.3397	12.1962	15.2358	14.8414
89	Ac	90.884	87.67	102.85	12.6520	12.5008	15.713	-
90	Th	93.350	89.953	105.609	12.9687	12.8096	16.2022	15.6237
91	Pa	95.868	92.287	108.427	13.2907	13.1222	16.702	16.024
92	U	98.439	94.665	111.300	13.6147	13.4388	17.2200	16.4283
93	Np	-	-	-	13.9441	13.7597	17.7502	16.8400
94	Pu	-	-	-	14.2786	14.0842	18.2937	17.2553
95	Am	-	-	-	14.6172	14.4119	18.8520	17.6765

Values are from J.A. Bearden, "X-Ray Wavelengths", *Review of Modern Physics*, (January 1967) pp. 86-99, unless otherwise noted

Figura A.2: