

表 5.1 主な吸収端に関する Bragg 角の計算値 (従来の格子定数  $a = 5.4308 \text{ \AA}$  から計算)

Z	atom	edge	M	E/eV	Si(111) 3.13551	Si(220) 1.9201	Si(311) 1.63747	Si(511) 1.04517
15	P	K	30.97	2143.5	67.2760			
16	S	K	32.07	2470.5	53.1577			
17	Cl	K	35.45	2819.6	44.5237			
18	Ar	K	39.95	3202.9	38.1184			
19	K	K	39.10	3607.8	33.2307	63.4953		
20	Ca	K	40.08	4038.1	29.3153	53.0860	69.6423	
21	Sc	K	44.96	4489.0	26.1317	45.9908	57.4975	
22	Ti	K	47.88	4964.5	23.4688	40.5672	49.6930	
23	V	K	50.94	5463.9	21.2139	36.2208	43.8592	
24	Cr	K	52.00	5988.8	19.2770	32.6230	39.2096	82.0568
25	Mn	K	54.94	6537.6	17.6031	29.5941	35.3868	65.1302
26	Fe	K	55.85	7111.2	16.1426	27.0018	32.1666	56.5206
27	Co	K	58.93	7709.5	14.8596	24.7578	29.4107	50.2960
28	Ni	K	58.69	8331.7	13.7272	22.7996	27.0260	45.3898
29	Cu	K	63.55	8980.3	12.7185	21.0708	24.9341	41.3368
30	Zn	K	65.39	9660.7	11.8093	19.5239	23.0718	37.8768
31	Ga	K	69.72	10368.2	10.9931	18.1434	21.4164	34.8947
32	Ge	K	72.61	11103.6	10.2568	16.9042	19.9353	32.2884
33	As	K	74.92	11865.0	9.5922	15.7900	18.6073	29.9935
34	Se	K	78.96	12654.5	8.9886	14.7816	17.4079	27.9509
35	Br	K	79.90	13470.0	8.4403	13.8682	16.3235	26.1254
36	Kr	K	83.80	14324.4	7.9335	13.0260	15.3251	24.4609
37	Rb	K	85.47	15202.3	7.4727	12.2617	14.4203	22.9645
38	Sr	K	87.62	16107.0	7.0508	11.5631	13.5943	21.6075
39	Y	K	88.91	17038.0	6.6637	10.9233	12.8384	20.3726
40	Zr	K	91.22	17998.9	6.3065	10.3336	12.1422	19.2408
41	Nb	K	92.91	18986.9	5.9771	9.7904	11.5015	18.2034
42	Mo	K	95.94	20003.9	5.6722	9.2881	10.9094	17.2481
43	Tc	K	99	21047.3	5.3901	8.8239	10.3625	16.3683
44	Ru	K	101.1	22119.3	5.1282	8.3931	9.8551	15.5543
45	Rh	K	102.9	23219.8	4.8845	7.9926	9.3837	14.7999
46	Pd	K	106.4	24348.0	4.6577	7.6200	8.9452	14.0995
47	Ag	K	107.9	25516.5	4.4439	7.2691	8.5325	13.4414
48	Cd	K	112.4	26715.9	4.2441	6.9412	8.1467	12.8274
49	In	K	114.8	27942.0	4.0575	6.6352	7.7870	12.2556
50	Sn	K	118.7	29194.7	3.8831	6.3493	7.4509	11.7221
51	Sb	K	121.8	30486.0	3.7184	6.0793	7.1336	11.2190
52	Te	K	127.6	31811.4	3.5633	5.8251	6.8350	10.7459
53	I	K	126.9	33166.5	3.4175	5.5863	6.5545	10.3019
54	Xe	K	131.3	34590.0	3.2767	5.3558	6.2836	9.8736
55	Cs	K	132.9	35987.0	3.1494	5.1473	6.0388	9.4867
56	Ba	K	137.3	37452.0	3.0261	4.9454	5.8017	9.1124
57	La	K	138.9	38934.0	2.9108	4.7567	5.5802	8.7628
58	Ce	K	140.1	40453.0	2.8014	4.5777	5.3700	8.4313

表 5.2 主な吸収端に関する Bragg 角の計算値 (従来の格子定数  $a = 5.4310196 \text{ \AA}$  から計算)

Z	edge	M	E/eV	Si(111)	Si(220)	Si(311)	Si(511)	
15	P	K	30.97	2143.5	67.2721			
16	S	K	32.07	2470.5	53.1555			
17	Cl	K	35.45	2819.6	44.5220			
18	Ar	K	39.95	3202.9	38.1171			
19	K	K	39.10	3607.8	33.2296	63.4917		
20	Ca	K	40.08	4038.1	29.3143	53.0836	69.6385	
21	Sc	K	44.96	4489.0	26.1308	45.9889	57.4953	
22	Ti	K	47.88	4964.5	23.4681	40.5657	49.6914	
23	V	K	50.94	5463.9	21.2132	36.2195	43.8579	
24	Cr	K	52.00	5988.8	19.2764	32.6218	39.2085	82.0451
25	Mn	K	54.94	6537.6	17.6026	29.5931	35.3858	65.1267
26	Fe	K	55.85	7111.2	16.1421	27.0009	32.1657	56.5181
27	Co	K	58.93	7709.5	14.8592	24.7570	29.4099	50.2940
28	Ni	K	58.69	8331.7	13.7268	22.7989	27.0253	45.3881
29	Cu	K	63.55	8980.3	12.7181	21.0701	24.9335	41.3353
30	Zn	K	65.39	9660.7	11.8090	19.5233	23.0712	37.8755
31	Ga	K	69.72	10368.2	10.9927	18.1428	21.4158	34.8936
32	Ge	K	72.61	11103.6	10.2565	16.9036	19.9348	32.2874
33	As	K	74.92	11865.0	9.5919	15.7895	18.6068	29.9926
34	Se	K	78.96	12654.5	8.9883	14.7811	17.4075	27.9500
35	Br	K	79.90	13470.0	8.4401	13.8678	16.3231	26.1246
36	Kr	K	83.80	14324.4	7.9333	13.0255	15.3247	24.4602
37	Rb	K	85.47	15202.3	7.4725	12.2613	14.4199	22.9638
38	Sr	K	87.62	16107.0	7.0506	11.5628	13.5940	21.6068
39	Y	K	88.91	17038.0	6.6635	10.9230	12.8381	20.3720
40	Zr	K	91.22	17998.9	6.3063	10.3332	12.1419	19.2402
41	Nb	K	92.91	18986.9	5.9769	9.7901	11.5012	18.2029
42	Mo	K	95.94	20003.9	5.6720	9.2878	10.9092	17.2475
43	Tc	K	99	21047.3	5.3900	8.8236	10.3622	16.3678
44	Ru	K	101.1	22119.3	5.1280	8.3928	9.8549	15.5539
45	Rh	K	102.9	23219.8	4.8844	7.9924	9.3835	14.7994
46	Pd	K	106.4	24348.0	4.6575	7.6198	8.9450	14.0991
47	Ag	K	107.9	25516.5	4.4438	7.2689	8.5323	13.4410
48	Cd	K	112.4	26715.9	4.2439	6.9409	8.1465	12.8271
49	In	K	114.8	27942.0	4.0574	6.6350	7.7868	12.2553
50	Sn	K	118.7	29194.7	3.8830	6.3491	7.4507	11.7218
51	Sb	K	121.8	30486.0	3.7183	6.0791	7.1335	11.2187
52	Te	K	127.6	31811.4	3.5632	5.8249	6.8348	10.7456
53	I	K	126.9	33166.5	3.4174	5.5862	6.5543	10.3016
54	Xe	K	131.3	34590.0	3.2766	5.3556	6.2835	9.8733
55	Cs	K	132.9	35987.0	3.1493	5.1471	6.0386	9.4864
56	Ba	K	137.3	37452.0	3.0260	4.9453	5.8016	9.1121
57	La	K	138.9	38934.0	2.9107	4.7566	5.5800	8.7625
58	Ce	K	140.1	40453.0	2.8013	4.5776	5.3699	8.4310