

表1 単位は[eV]で、各行には原子番号順に元素が表示され各列は最初の電子、2番目の電子、3番目の電子、…と表示されます。m番目の電子の場合、原子番号1つ前の元素とのエネルギー値の差が計算されます。この差は、次の元素についても順に得る。さらにこの差のさらなる差をとりこの二次差はみな等しくなる。(等差、黄色でマーク)。各エネルギー値は次のように表されます、 $\{an+n(n-1)d/2\}$ この値は等差数列の合計になる。

1st group			2nd group																			
Atomic number	element	1st electron		2nd electron		3rd electron	4th electron	5th electron	6th electron	7th electron	8th electron	9th electron	10th electron									
		differenc e	constant	constant	constant	constant	constant	constant	constant	constant	constant	constant	constant									
1	H	13.5																				
2	He	54	41	25																		
3	Li	122	68	27	75	5																
4	Be	217	95	27	153	27	18	9														
5	B	339	122	27	258	27	38	6.9	25	8												
6	C	488	149	27	390	27	64	6.9	48	6.9	24	11										
7	N	664	176	27	549	27	97	6.7	77	6.8	47	7.0	30									
8	O	868	204	27	736	28	138	6.9	113	6.8	77	6.8	55	6.9	35							
9	F	1098	230	27	949	26	184	6.8	157	6.8	113	6.1	87	6.9	62	7.0	35					
10	Ne	1356	258	28	1190	28	238	6.8	206	6.8	157	8.1	126	7.1	97	6.8	63	7.2	41	21.5		
11	Na				1459	28	299	6.7	263	6.7	208	7.0	171	5.8	138	6.8	99	6.9	71	7.0	47.1	
12	Mg						366	6.8	327	7.4	265	6.0	224	8.0	186	7.1	141	6.9	109	7.2	79.8	7.1
13	Al								397	6.0	329	7.0	283	6.0	241	6.8	190	7.1	153	6.3	119	6.5
14	Si										399	6.0	350	8.0	302	6.0	245	5.7	204	7.0	166	7.8
15	P								476	7.0	423	6.0	371	8.0	308	8.0	262	7.0	219	6.0		
16	S											446	6.0	378	7.0	327	7.0	280	8.0			
17	Cl													454	6.0	398	6.0	347	6.0			
18	Ar															477	8.0	421	7.0			
19	K																			502	7.0	

3rd group																		
Atomic number	element	11th electron		12th electron		13th electron		14th electron		15th electron		16th electron		17th electron		18th electron		
		differen ce																
11	Na	5.1																
12	Mg	15.0	9.9	7.6														
13	Al	28.3	13.3	3.4	18.7	6.0												
14	Si	44.9	16.6	3.3	33.4	3.6	16.3	8.1										
15	P	64.8	19.9	3.3	51.2	3.1	30.1	3.5	19.7	10.3								
16	S	88.0	23.2	3.3	72.3	3.3	47.0	3.1	34.6	3.3	23.2	10.3						
17	Cl	114	26.0	2.8	97.0	3.6	67.5	3.6	53.2	3.7	39.4	3.3	23.7	12.9				
18	Ar	143	29.0	3.0	124	2.3	91.0	3.0	74.7	2.9	59.6	4.0	40.6	3.5	27.5	15.7		
19	K	175	32.0	3.0	154	3.0	117.0	2.5	99.0	2.8	82.3	2.5	60.7	3.2	45.6	3.5	31.5	
20	Ca	210	35.0	3.0	188	4.0	147.0	4.0	127	3.7	108	3.0	84	3.3	67	3.3	51	3.4
21	Sc				224	2.0	179.0	2.0	157	2.0	137	3.3	110	2.5	91	2.9	73	3.3
22	Ti						215.0	4.0	191	4.0	170	4.0	140	4.1	119	3.4	99	3.2
23	V								229	4.0	205	2.0	173	3.0	150	3.3	128	3.4
24	Cr										243	3.0	208	2.0	184	3.0	159	1.9
25	Mn												247	4.0	221	3.0	194	4.0

4th group																							
Atomic number element	19th electron		20th electron		21th electron		22th electron		23th electron		24th electron		25th electron		26th electron		27th electron		28th electron				
	differenc	constant		constant		constant		constant		constant		constant		constant		constant		constant		constant			
19 K	4.3 $an+n(n-1)d/2$																						
20 Ca	11.8	7.5	6.1																				
21 Sc	24.7	12.9	5.4	12.7	6.5																		
22 Ti	43.1	18.4	5.5	27.4	8.1	13.5	6.8																
23 V	65.0	21.9	3.5	46.5	4.4	29.2	8.7	14.6	6.7														
24 Cr	90.0	25.0	3.1	69.2	3.6	48.9	4.0	30.8	8.4	16.4	6.7												
25 Mn	119	29.0	4.0	95.0	3.1	72.1	3.5	51.0	4.0	33.5	7.4	15.6	7.4										
26 Fe	150	31.0	2.0	124	3.2	99.0	3.7	74.7	3.5	54.6	4.0	30.5	6.0	16.1	7.9								
27 Co	185	35.0	4.0	157	4.0	128.0	2.1	102	3.6	79	3.5	51	5.7	33	8.6	17.0	7.8						
28 Ni	224	39.0	4.0	192	2.0	161.0	4.0	132	2.7	107	3.2	76	4.0	55	4.0	35.0	8.9	18.1	7.6				
29 Cu				231	4.0	198.0	4.0	165	3.0	138	3.2	102	1.7	80	3.5	57.1	4.1	36.7	8.3	20.2			
30 Zn					2.0	237.0	2.0	202	4.0	173	4.0	133	4.7	107	2.7	82.3	3.1	59.1	3.8	39.0	6.2		
31 Ga																				63.8	6.0		
32 Ge																					93.1	4.5	
33 As																						127	4.6
34 Se																						156	4.9

4th group																	
Atomic number element	29th electron		30th electron		31th electron		32th electron		33th electron		34th electron		35th electron		36th electron		
	differenc	constant		constant		constant		constant		constant		constant		constant		constant	
29 Cu	7.7																
30 Zn	17.9	10.2	9.4														
31 Ga	30.6	12.7	2.5	20.4	6.0												
32 Ge	45.5	14.9	2.2	34.1	2.7	15.9	7.9										
33 As	62.4	16.9	2.0	49.9	2.1	28.2	2.4	18.6	9.8								
34 Se	81.3	18.9	2.0	68.0	2.3	42.8	2.3	30.7	1.4	21.1	9.7						
35 Br	103.0	21.7	2.8	88.0	1.9	59.4	2.0	47.1	4.3	35.8	3.4	21.7	11.8				
36 Kr	125.0	22.0	0.3	111	3.0	78.0	2.0	64.4	0.9	52.3	1.8	36.8	3.1	24.3	13.9		
37 Rb	150.0	25.0	3.0	135	1.0	99.0	2.4	84.0	2.3	70.7	1.9	52.4	0.5	39.8	3.0	27.2	
38 Sr	176.0	26.0	1.0	161	2.0	122.0	2.0	106	2.4	90	0.9	71	3.3	57	1.5	43	2.2
39 Y				190	3.0	146.0	1.0	128	0.0	116	6.7	93	2.8	77	2.9	60	2.1
40 Zr														98	1.4	80	2.1
41 Nb														125	5.7	102	2.3
42 Mo														143	9.0	125	1.0

5th group																					
Atomic number element	37th electron		38th electron		39th electron		40th electron		41th electron		42th electron		43th electron		44th electron		45th electron		46th electron		
	differenc	constant		constant		constant		constant		constant		constant		constant		constant		constant		constant	
37 Rb	4.2																				
38 Sr	11.0	6.8	5.7																		
39 Y	20.4	9.4	2.6	12.2	6.2																
40 Zr	34.2	13.8	4.4	22.9	4.2	13.1	6.6														
41 Nb	50.3	16.1	2.3	38.2	4.6	24.9	4.9	14.2	6.7												
42 Mo	69.0	18.7	2.6	54.3	0.8	46.2	9.5	27.0	5.2	16.1	7.1										
43 Tc								29.4	3.9	15.2	7.2										
44 Ru										28.3	5.0	16.7	7.3								
45 Rh												30.9	4.7	18.0	7.4						
46 Pd														32.8	4.1	19.3	8.3				
47 Ag																34.7	3.5	21.4			
48 Cd																			37.3	2.8	
																			53.8	0.6	

5th group

Atomic number element	47th electron		48th electron		49th electron		50th electron		51th electron		52th electron		53th electron		54th electron		
	diff	ere	3	nst	co	nst	co	nst	co	nst	co	nst	co	nst	co	nst	
47 Ag	7.5																
48 Cd	16.8	9.3		9.0													
49 In	27.9	11.1	1.8	18.8		5.8											
50 Sn	40.6	12.7	1.6	30.4	1.8	14.6		7.3									
51 Sb	55.7	15.1	2.4	44.0	2.0	25.2	1.8	16.5		8.6							
52 Te	70.4	14.7	0.4	58.5	0.9	37.3	1.5	27.8	2.1	18.5		9.0					
53 I										32.8	4.4	19.0		10.4			
54 Xe												32.0	3.0	21.1		12.1	
55 Cs														35.1	3.3	23.1	
56 Ba																37.1	3.0
57 La														61.3		47.9	
58 Ce														77.3		65.3	6.6

6th group

Atomic number element	55th electron		56th electron		57th electron		58th electron		59th electron		60th electron		61th electron		62th electron		63th electron		64th electron		
	diff	ere	3	nst	co	nst	co	nst	co	nst	co	nst	co	nst	co	nst	co	nst	co	nst	
55 Cs	3.9																				
56 Ba	10.0	6.1		5.2																	
57 La	19.1	9.1	3.0	11.0		5.6															
58 Ce	36.6	17.5	8.4	20.1	3.3	10.8		5.5													
59 Pr	57.3	20.7	3.2	38.8	9.6	21.5	5.5	10.5		5.4											
60 Nd						40.2	8.0	22.0	6.5	10.7		5.5									
61 Pm								41.0	7.5	22.2	6.2	10.8		5.6							
62 Sm										41.2	7.5	23.3	7.2	11.0		5.6					
63 Eu												42.5	6.7	24.8	5.8	11.2		5.7			
64 Gd														43.9	7.9	20.5	3.7	12.1		6.1	
65 Tb																39.6	9.8	21.8	3.3	11.5	
66 Dy																					
67 Ho																		41.2	9.7	22.7	5.8
68 Er																					8.4

6th group

Atomic number element	65th electron		66th electron		67th electron		68th electron		69th electron		70th electron		71th electron		72th electron		73th electron		74th electron	
	diff	ere	3	nst	co	nst	co	nst	co	nst	co	nst	co	nst	co	nst	co	nst	co	nst
65 Tb	5.8																			
66 Dy	11.7	5.9		5.9																
67 Ho	22.7	11.0	5.1	11.8		6.0														
68 Er	42.5	19.8	8.8	22.6	4.9	11.9		6.1												
69 Tm				42.5		23.6	5.8	12.0		6.2										
70 Yb						43.4	8.1	24.9	7.0	12.1		6.2								
71 Lu						66.5	3.3	45.1	7.3	20.9	2.9	13.8		5.4						
72 Hf										33.2	3.5	23.2	1.8	14.9		6.8				
73 Ta															15.5		7.9			
74 W																	17.5		8.0	
75 Re															37.6		25.9			13.0

