Nuclear Periodic Table of the Elements

Orbitals: $n_p\,\ell_j$

s	p	d	f	g	h	i

$5g_{9/2}$: $n_p = n + \ell = 5$, $n = 1$, $\ell = 4$, $j = \ell + s = 9/2$

Shape and stability

	Stable	Unstable
Spherical	Nb 41	Nh 113
Deformed	Mo 42	Tc 43

													H 1	**He 2**		1*s*
						Li 3	Be 4	B 5	C 6	N 7	**O 8**					
F 9	Ne 10	Na 11	Mg 12	Al 13	Si 14	P 15	S 16	Cl 17	Ar 18	K 19	**Ca 20**					2*p*
				Sc 21	Ti 22	V 23	Cr 24	Mn 25	Fe 26	Co 27	**Ni 28**					$3d_{5/2}+2s+3d_{3/2}$
Cu 29	Zn 30	Ga 31	Ge 32	As 33	Se 34	Br 35	Kr 36	Rb 37	Sr 38	Y 39	**Zr 40**					$4f_{7/2}$
		Nb 41	Mo 42	Tc 43	Ru 44	Rh 45	Pd 46	Ag 47	Cd 48	In 49	**Sn 50**					$4f_{5/2}+3p$
51-	68	Tm 69	Yb 70	Lu 71	Hf 72	Ta 73	W 74	Re 75	Os 76	Ir 77	Pt 78	Au 79	Hg 80	Tl 81	**Pb 82**	$5g_{9/2}$
80-	100	Md 101	No 102	Lr 103	Rf 104	Db 105	Sg 106	Bh 107	Hs 108	Mt 109	Ds 110	Rg 111	Cn 112	Nh 113	**Fl 114**	$5g_{7/2}+4d+3s+6h_{11/2}$
				Mc 115	Lv 116	Ts 117	Og 118	119	120	121	122	123	124	125	**126**	$5f_{7/2}+6h_{9/2}+7i_{13/2}$

(semi) magic numbers

Sb 51	Te 52	I 53	Xe 54	Cs 55	Ba 56	La 57	Ce 58	Pr 59	Nd 60	Pm 61	Sm 62	Eu 63	Gd 64	Tb 65	Dy 66	Ho 67	Er 68
Bi 83	Po 84	At 85	Rn 86	Fr 87	Ra 88	Ac 89	Th 90	Pa 91	U 92	Np 93	Pu 94	Am 95	Cm 96	Bk 97	Cf 98	Es 99	Fm 100

$5g_{7/2}+4d$

$5f_{7/2}+6h_{9/2}$

20 $\frac{IV}{17}$ 20.

Atomic Periodic Table of the Elements

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1	H 1																	**He 2**	1*s*
2	Li 3	Be 4											B 5	C 6	N 7	**O 8**	F 9	**Ne 10**	2*s* + 2*p*
3	Na 11	Mg 12											Al 13	Si 14	P 15	S 16	Cl 17	**Ar 18**	3*s* + 3*p*
4	K 19	**Ca 20**	Sc 21	Ti 22	V 23	Cr 24	Mn 25	Fe 26	Co 27	**Ni 28**	Cu 29	Zn 30	Ga 31	Ge 32	As 33	Se 34	Br 35	**Kr 36**	4*s* + 3*d* + 4*p*
5	Rb 37	Sr 38	Y 39	**Zr 40**	Nb 41	Mo 42	Tc 43	Ru 44	Rh 45	Pd 46	Ag 47	Cd 48	In 49	**Sn 50**	Sb 51	Te 52	I 53	**Xe 54**	5*s* + 4*d* + 5*p*
6	Cs 55	Ba 56	57 -71	Hf 72	Ta 73	W 74	Re 75	Os 76	Ir 77	Pt 78	Au 79	Hg 80	Tl 81	**Pb 82**	Bi 83	Po 84	At 85	**Rn 86**	6*s* + 4*f* + 5*d* + 6*p*
7	Fr 87	Ra 88	89- 103	Rf 104	Db 105	Sg 106	Bh 107	Hs 108	Mt 109	Ds 110	Rg 111	Cn 112	Nh 113	**Fl 114**	Mc 115	Lv 116	Ts 117	**Og 118**	7*s* + 5*f* + 6*d* + 7*p*

rare gases

Orbitals

s	*p*	*d*	*f*

La 57	Ce 58	Pr 59	Nd 60	Pm 61	Sm 62	Eu 63	Gd 64	Tb 65	Dy 66	Ho 67	Er 68	Tm 69	Yb 70	Lu 71	4*f*
Ac 89	Th 90	Pa 91	U 92	Np 93	Pu 94	Am 95	Cm 96	Bk 97	Cf 98	Es 99	Fm 100	Md 101	No 102	Lr 103	5*f*