My Periodic Table of Elements: DERT

Douglas Harris

February 5, 2022

Abstract

This is an enumeration that counts via a process I call "Texas two-step, that will turn into a version of the periodic table that involves the nucleus asweii as the "electron cloud", and enable "prediction" of isotopes.

1 Texas Two-Step

This builds atoms by growing an "electron cloud". Add an electron, then a proton "holder" for it, then place the electron in the holder.

Repeating, this always considers the "electron held by proton" pattern. After following this we will see how the "nucleus" develops without need for an additional pattern.

I have added the traditional names.

I have also also added a "noble gas and numbered orbital" description of "the cloud"; which I will elucidate and revise later, after explaining "what orbitals are" NOT.

I call this "Texas Two-Step because it is easy for me (never a square-dancer) to envision child and parents dancing "swing style":

TO START all three line up, child in the middle.

1. child steps forward;
2. parents two-step forward(one beyond child);
3. parents swing child forward.

2 the actual enumeration

After doing this 39 time, on the last step we have 118 elements.

1. 010 1 1 H []1s1
2. 101 2 2 He []1s2
3. 111 0 3 Li [He]2s1

4. 121 1 4 Be [He]2s2
5. 212 2 5 B [He]2s2p1
6. 222 0 6 C [He]2s2p2
7. 232 1 7 N [He]2s2p3
8. 323 2 8 0 [He]2s2p4
9. 333 0 9 F [He]2s2p5
10. 343 1 10 Ne [He]2s2p6
11. 434 2 11 Na [Ne]3s1
12. 444 0 12 Mg [Ne]3s2
13. 454 1 13 Al [Ne]3s2p1
14. 545 2 14 Si [Ne]3s2p2
15. 555 0 15 P [Ne]3s2p3
16. 565 1 16 S [Ne]3s2p4
17. 656 2 17 Cl [Ne]3s2p5
18. 666 0 18 Ar [Ne]3s2p6
19. 676 1 19 K [Ar]4s1
20. 767 2 20 Ca [Ar]4s2
21. 777 0 21 Sc [Ar]3d1 4s2
22. 787 1 22 Ti [Ar]3d2 4s2
23. 878 2 23 V [Ar]3d3 4s2
24. 888 0 24 Cr [Ar]3d5 4s1
25. 898 1 25 Mn [Ar]3d5 4s2
26. 989 2 26 Fe [Ar]3d6 4s2
27. 999 0 27 Co [Ar]3d7 4s2
28. 9.10.9 1 28 Ni [Ar]3d8 4s2
29. 10.9.10 2 29 Cu [Ar]3d10 4s1
30. 10.10.10 0 30 Zn [Ar]3d10 4s2
31. 10.11.10 1 31 Ga [Ar]3d10 4s2p1

32. 11.10.11 2 32 Ge [Ar]3d10 4s2p2
33. 11.11.11 0 33 As [Ar]3d10 4s2p3
34. 11.12.11 1 34 Se [Ar]3d10 4s2p4
35. 12.11.12 2 35 Br [Ar]3d10 4s2p5
36. 12.12.12 0 36 Kr [Ar]3d10 4s2p6
37. 12.13.12 1 37 Rb [Kr]5s1
38. 13.12.13 2 38 Sr [Kr]5s2
39. 13.13.13 0 39 Y [Kr]4d1 5s2
40. 13.14.13 1 40 Zr [Kr]4d2 5s2
41. 14.13.14 2 41 Nb [Kr]4d4 5s1
42. 14.14.14 0 42 Mo [Kr]4d5 5s1
43. 14.15.14 1 43 Tc [Kr]4d5 5s2
44. 15.14.15 2 44 Ru [Kr]4d7 5s1
45. 15.15.15 0 45 Rh [Kr]4d8 5s1
46. 15.16.15 1 46 Pd [Kr]4d10
47. 16.15.16 2 47 Ag [Kr]4d10 5s1
48. 16.16.16 0 48 Cd [Kr]4d10 5s2
49. 16.17.16 1 49 In [Kr]4d10 5s2p1
50. 17.16.17 2 50 Sn [Kr]4d10 5s2p2
51. 17.17.17 0 51 Sb [Kr]4d10 5s2p3
52. 17.18.17 1 52 Te [Kr]4d10 5s2p4
53. 18.17.18 2 53 I [Kr]4d10 5s2p5
54. 18.18.18 0 54 Xe [Kr]4d10 5s2p6
55. 18.19.18 1 55 Cs [Xe]6s1
56. 19.18.19 2 56 Ba [Xe]6s2
57. 19.19.19 0 57 La [Xe]5d1 6s2
58. 19.20.19 1 58 Ce [Xe]4f1 5d1 6s2
59. 20.19.20 2 59 Pr [Xe]4f3 6s2

60. 20.20.20 0 60 Nd [Xe]4f4 6s2
61. 20.21.20 1 61 Pm [Xe]4f5 6s2
62. 21.20.21 2 62 Sm [Xe]4f6 6s2
63. 21.21.21 0 63 Eu [Xe]4f7 6s2
64. 21.22.21 1 64 Gd [Xe]4f7 5d1 6s2
65. 22.21.22 2 65 Tb [Xe]4f9 6s2
66. 22.22.22 0 66 Dy [Xe]4f10 6s2
67. 22.23.22 1 67 Ho [Xe]4f11 6s2
68. 23.22.23 2 68 Er [Xe]4f12 6s2
69. 23.23.23 0 69 Tm [Xe]4f13 6s2
70. 23.24.23 1 70 Yb [Xe]4f14 6s2
71. 24.23.24 2 71 Lu [Xe]4f14 5d1 6s2
72. 24.24.24 0 72 Hf [Xe]4f14 5d2 6s2
73. 24.25.24 1 73 Ta [Xe]4f14 5d3 6s2
74. 25.24.25 2 74 W [Xe]4f14 5d4 6s2
75. 25.25.25 0 75 Re [Xe]4f14 5d5 6s2
76. 25.26.25 1 76 0s [Xe]4f14 5d6 6s2
77. 26.25.26 2 77 Ir [Xe]4f14 5d7 6s2
78. 26.26.26 0 78 Pt [Xe]4f14 5d9 6s1
79. 26.27.26 1 79 Au [Xe]4f14 5d10 6s1
80. 27.26.27 2 80 Hg [Xe]4f14 5d10 6s2
81. 27.27.27 0 81 Tl [Xe]4f14 5d10 6s2p1
82. 27.28.27 1 82 Pb [Xe]4f14 5d10 6s2p2
83. 28.27.28 2 83 Bi [Xe]4f14 5d10 6s2p3
84. 28.28.28 0 84 Po [Xe]4f14 5d10 6s2p4
85. 28.29.28 1 85 At [Xe]4f14 5d10 6s2p5
86. 29.28.29 2 86 Rn [Xe]4f14 5d10 6s2p6
87. 29.29.29 0 87 Fr [Rn]7s1

88. 29.20.29 1 88 Ra [Rn]7s2
89. 30.29.30 2 89 Ac [Rn]6d1 7s2
90. 30.30.30 0 90 Th [Rn]6d2 7s2
91. 30.31.30 1 91 Pa [Rn]5f2 6d1 7s2
92. 31.30.31 2 92 U [Rn]5f3 6d1 7s2
93. 31.31.31 0 93 Np [Rn]5f4 6d1 7s2
94. 31.32.31 1 94 Pu [Rn]5f6 7s2
95. 32.31.32 2 95 Am [Rn]5f7 7s2
96. 32.32.32 0 96 Cm [Rn]5f7 6d1 7s2
97. 32.33.32 1 97 Bk [Rn]5f9 7s2
98. 33.32.33 2 98 Cf [Rn]5f10 7s2
99. 33.33.33 0 99 Es [Rn]5f11 7s2
100. 33.34.33 1 100 Fm [Rn]5f12 7s2
101. 34.33.34 2 101 Md [Rn]5f13 7s2
102. 34.34.34 0 102 No [Rn]5f14 7s2
103. 34.35.34 1 103 Lr [Rn]5f14 6d1 7s2
104. 35.34.35 2 104 Rf [Rn]5f14 6d2 7s2
105. 35.35.35 0 105 Db [Rn]5f14 6d3 7s2
106. 35.36.35 1 106 Sg [Rn]5f14 6d4 7s2
107. 36.35.36 2 107 Bh [Rn]5f14 6d5 7s2
108. 36.36.36 0 108 Hs [Rn]5f14 6d6 7s2
109. 36.37.36 1 109 Mt [Rn]5f14 6d7 7s2
110. 37.36.37 2 110 Ds [Rn]5f14 6d8 7s2
111. 37.37.37 0 111 Rg [Rn]5f14 6d9 7s2
112. 37.38.37 1 112 Cn [Rn]5f14 6d10 7s2
113. 38.37.38 2 113 Nh [Rn]5f14 6d10 7s2p1
114. 38.38.38 0 114 Fl [Rn]5f14 6d10 7s2p2
115. 38.39.38 1 115 Mc [Rn]5f14 6d10 7s2p3
116. 39.38.39 2 116 Lv [Rn]5f14 6d10 7s2p4
117. 39.39.39 0 117 Ts [Rn]5f14 6d10 7s2p5
118. 39.40.39 1 118 Og [Rn]5f14 6d12 7s2p6

3 Getting ready for nucleus

It is hard to guess where to start. We are not changing the patterns that have been discovered by careful experimentors in any way, merely trying to understand, and thereby perhaps elucidate them.

Lets just explain (in random order).

3.1 Cosmology

This was a bit of a surprise, although I expected something along these lines would eventually develop. It becomes clear rather early the the element **Fe plays a central role in the nuclear binding table , turning out (as is well-known) to have the highest binding energy. all things considered. and thus be central to the life of stars.**

3.2 Noble Gases

These elements have been the traditional dividing points for versions of the periodic table. They were called "noble" because it seeemed they were too noble to mingle with others, but we have learned they are careful, not noble. They still have a place, but it is somewhat different. They still group amomgst themselves.as we shall see.

3.3 Lewis dot diagrams

It is impossible not to acknowledge the role of Gilbert N.Lewis in chemistry, He and his dots have been and are the SOUL. Please note that in the work "Principle of Relativity" that got me started the classic by Lewis and his coauthor is practically the only other paper mentioned! As our understanding has grown we have needed to go beyond formulas that only have obscured any pattern.

3.4 Molecular orbital theory

This, in all its variations, is unneeded as we no longer need to pretend that there are tiny *points that have tp be located in orbits. As a result we also do not need "pi"-orbitals and "sigma"-orbitals and. even worse hybrid-orbitals.*

3.5 Schrodinger equation

This equation still governs the evolution of assemblages of atoms, but the spherical coordinates fit in much more clearly and eigenvalues are much more direct. No more imaginaries, Hermitian operators and such everything is real.