

Quantum Mechanics

Quantum Numbers

Way to describe where e^- might be located

1st - n

Distance from the nucleus

1
2
3
4
...

Principal Energy Level

= Size of e^- cloud

2nd - l

sublevel

s
p
d
f

- shape (l) (m)

0
1 -1, 0, +1
2 -2, -1, 0, 1, 2
3 -3, -2, -1, 0, 1, 2, 3

3rd - m

($-l$ to $+l$) orientation

4th - s

spin $\pm 1/2$

Pauli Ex. Princ.

orbital holds max 2 e^- with opp. spin

No 2 e^- can have the same 4 Quantum Numbers

Degenerate orbitals

- orbitals of the same energy

ex: P_x, P_y, P_z for $n=2$ e^- have opp. spin