The Quantum - Mechanical Model of the Atom

* Schrödinger wave equation :-
  → The Square of the wave function Gives the probability density
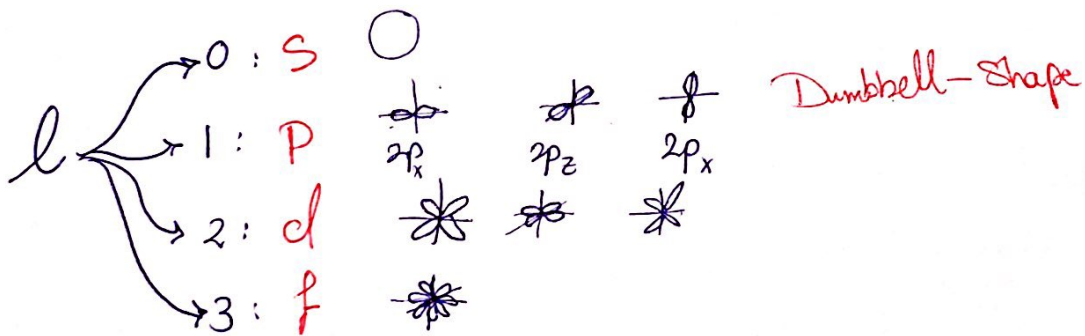
Quantum numbers

Principal: (n) : indicates size of the Orbital [Distance from nucleus]
  • Positive integer $n > 0$ Shell

Angular: Momentum (l) : • indicates Shape of orbital   subshell
  • $0 < l < n-1$

Magnetic: (m_l) : • indicates the spatial orientation of the orbital
  $-l < m_l < +l$

Energy: $s < p < d < f$

$$l \begin{cases} 0 : S & \bigcirc \\ 1 : P & 2p_x \quad 2p_z \quad 2p_x \quad \text{Dumbbell-Shape} \\ 2 : d & \\ 3 : f & \end{cases}$$

⦿ Energy levels of the H atom

Energy ↑
3s— 3p——— 3d————
2s— 2p———

1s—