Schrodinger Equation ➔ Standing Wave Solutions
Hydrogen Atom

Notation
l=0  S state
l=1  P state
l=2  D state
l=3  F state

4 Quantum Numbers

- principle(radial) \( E_n = \frac{-13.6}{n^2} \)  \( n = 1, 2, 3, \ldots \)
- angular momentum \( L = \sqrt{l(l+1)} \frac{\hbar}{2\pi} \)  \( l < n \)
- z comp. angular mom. \( L_z = m \frac{\hbar}{2\pi} \)  \(-1 \leq m \leq 1 \)
- electron spin \( S_z = m \frac{\hbar}{2\pi} \)  \( m = \pm \frac{1}{2} \)
Selection Rule

electrons can transition only if $\Delta l = \pm 1$
other transitions are forbidden