

Electron Energy Level

Coulomb force

$$H_0 = -\frac{\hbar^2}{2m}\nabla^2 - \frac{e^2}{r}$$

with other electrons effect

$$H_1 = -\frac{Ae^2}{r^2}$$

with $L \cdot S$ force

$$H_2 = f(r)\mathbf{L} \cdot \mathbf{S}$$

with magnetic field

$$H_B = -\boldsymbol{\mu} \cdot \mathbf{B} = -\frac{eB\hbar}{2mc}g_jm_j$$

