Quantum mechanics

Photo electric effect

Particles as waves

momentum: $p \Rightarrow h/\lambda = \frac{h}{\lambda} = \hbar \frac{\partial}{\partial x}$

kinetic energy: $T = \frac{1}{2} mv^2 = -\frac{\hbar^2}{2m} \frac{\partial^2}{\partial x^2}$

Schroedinger equation:

$\left( -\frac{\hbar^2}{2m} \frac{\partial^2}{\partial x^2} + V \right) \psi = E \psi$

Transition between levels - radiation

3-D particle in a box