Photon

$$E=hf=rac{hc}{\lambda}$$

$$p = \frac{hf}{c} = \frac{h}{\lambda}$$

Matter Wave

$$\lambda_d = rac{h}{p} = rac{h}{mu}$$

Wavelength of Electron

$$\lambda_d = rac{h}{mv} = rac{h}{\sqrt{2eVm}} = rac{h}{\sqrt{2E_k m}}$$

de Broglie's
Theory
Theory
Radiation

Photoelectric Effect

Energy of Photoelectron

$$E_{K_{max}} = hf - W_0$$

$$rac{1}{2}mv_{max}^2=hf-W_0$$

$$W_0=hf_0=rac{hc}{\lambda_0}$$

Stopping Potential

$$V_s = rac{hf}{e} - rac{W_0}{e}$$

$$I_{sat} = rac{Ne}{t}$$

Compton Effect

$$\lambda' = \lambda + rac{h}{m_e c} (1 - \cos arphi)$$

$$\Delta \lambda = rac{h}{m_e c} (1 - \cos arphi)$$