Wavelength of an Electron

The DeBroglie wavelength of an electron is inversely related to its momentum:

$$\lambda = h/p$$

$h = 6.626\times10^{-34}$ J-sec

Frequently we need to know the relation between the electron's wavelength λ and its kinetic energy E. Because the electron has v << c, p and E are related through the Physics 211 formula:

$$KE = \frac{p^2}{2m} = \frac{h^2}{2m\lambda^2}$$

Valid for all (non-relativistic) particles

For m = m_e: (electrons)

$h = 4.14\times10^{-15}$ eV-sec

$m_e = 9.11\times10^{-31}$ kg

$$E_{electron} = \frac{1.505\ eV\cdot nm^2}{\lambda^2}$$

(E in eV; λ in nm)

Don't confuse this with $E_{photon} = \frac{1240\ eV\cdot nm}{\lambda}$ for a photon.