

## Homework 25

### Problems:

1. Find the wavelength  $\lambda_C$  corresponding to the energy quantum equal to the rest energy of an electron. This wavelength is called "Compton wavelength".
2. Find the maximum velocity of photo-excited electrons "kicked off" from a nickel electrode by the emission with the wavelength of 200nm. The work which it is necessary to spend to extract an electron (the work function) from nickel is 4.84eV. ( $1\text{eV}=1.6\times 10^{-19}\text{J}$ ).
3. A copper ball is illuminated by ultraviolet light with a wavelength of 200nm. Find the maximum electric potential the ball will reach. (First, why will the ball be charging under the light?). The electron work function of copper is 4.47eV.