

# Stuff for Thursday, April 5, 2012

- Up front: turn in PS#3, take back 1094 sheet
- Stop at 4pm today for Quiz 2 on Q3/Q4 (no extra time!)
- 1094 follow-ups
  - photoelectric effect: one photon per electron knocked out  
 $\implies K_{e^-} \text{ out} = \text{photon energy in} - \text{“ionization energy”}$
  - interference from different length paths taken by waves
  - lower speed  $\implies$  larger DeBroglie  $\lambda \implies$  more wave-like
  - Problem Q4B.2: using  $\lambda = hc / \sqrt{2(mc^2)K}$  (units!)
    - total diffraction when  $\lambda >$  slit size
  - diffraction around building (Huygen's + Babinet's principles)
- Formulas for Quiz 2 (i.e., these will be given):

$$v = \lambda f \quad k = \frac{2\pi}{\lambda} \quad \omega = 2\pi f \quad d \sin \theta_{nc} = n\lambda \quad a \sin \theta_{nd} = n\lambda$$

$$\lambda = \frac{h}{p} \quad \lambda = \frac{hc}{\sqrt{2(mc^2)K}} \quad E = hf = \frac{hc}{\lambda} = \frac{1240 \text{ eV}\cdot\text{nm}}{\lambda} \quad K = hf - W$$