

Stuff for Tuesday, April 3, 2012

- Warm-up: A flute and a clarinet are about the same length but the clarinet plays lower notes. Why? (Also see <http://www.phys.unsw.edu.au/jw/flutes.v.clarinets.html>)
- Quiz 2 will be on *Thursday* covering Q3 and Q4.
- **We meet tomorrow in Smith 1094 for the studio session (Q1/Q2).** Come at 2:30pm if you are able to, otherwise 3:30pm.
- Photoelectric effect summary points

- photon model: $E = hf = hc/\lambda$ with $hc \approx 1240 \text{ eV} \cdot \text{nm}$
- electron maximum kinetic energy when ejected

$$K_{\max} = hf - W = hc/\lambda - W = e \cdot V_f$$

- W is the “work function” \implies least energy cost to free e^-
- Formulas for Quiz 2 (i.e., these will be given):

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

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