

King Fahd University of Petroleum and Minerals
Physics Department
Phys-212: Modern Physics
Spring 2006

Assignment # 2

Date: Wed. Mar. 8, 2006

Due Date: Mon. Mar.13, 2006

I encourage group discussion, but not copying (cheating).

Problem. 1

The maximum wavelength for photoelectric emission in tungsten is 230 nm. What wavelength of light must be used in order for electrons with a maximum energy of 1.5 eV to be ejected?

Problem. 2

A metal surface is illuminated by 8.5×10^{14} Hz light emits electrons whose maximum energy is 0.52 eV. The same surface illuminated by 12.0×10^{14} Hz light emits electrons whose maximum energy is 1.97 eV. Find the work function of the surface.

Problem. 3

A photon whose energy equals the rest energy of the electron undergoes a Compton collision with an electron. If the electron moves off at an angle of 40° with the original direction, what is the energy of the scattered photon?

Problem.4

Textbook. Problem. 2.36