

27. f.7 Sketch an x-ray tube, include filament potential, filament, target, tube, high voltages source.

27.19 X-rays range from 1.0×10^{-8} m to 1.0×10^{-13} m wavelengths. Find the minimum accelerating voltages required to produce these wavelengths.

X-ray Diffraction

27. 23 Potassium iodide has an interplanar spacing of $d = 0.296$ nm. A monochromatic x-ray beam shows a first order diffraction maximum when the grazing angle is 7.6° . What is the wavelength?

Compton Effect

27.26 X-ray are scattered from electrons in a carbon target. The measured wavelength shift is 1.50×10^{-3} nm. Calculate scattering angle.

27.27 Calculate the energy and momentum of a photon of 700.0 nm wavelength.