

Answer on Question#49070 – Physics – Optics

Calculate the energy of a single photon of blue light with a wavelength of 4.63×10^2 nm

Solution:

$$\lambda = 4.63 \times 10^2 \text{ nm } (4.63 \times 10^{-7} \text{ m}) \text{ (wavelength);}$$

$$c = 3 \times 10^8 \text{ (m/s); (speed of light);}$$

$$h = 6.63 \times 10^{-34} \text{ (J*s) (Planck constant);}$$

$$E = h \nu; \nu = \frac{c}{\lambda}; E = \frac{hc}{\lambda};$$

$$E = 4.3 \times 10^{-19} \text{ J;}$$

Answer: $4.3 \times 10^{-19} \text{ J;}$