Problem 1.4 Calculate the peak wavelength of blackbody radiation emitted from a human body at a temperature of 37°C.

Solution The peak wavelength is obtained through the peak energy:

$$l_{\max} = \frac{hc}{E_{ph,\max}} = \frac{hc}{2.82kT}$$

$$l_{\max} = \frac{6.626\times10^{-34}\times3\times10^{8}}{2.82\times1.38\times10^{-23}\times310.15} = 1.65 \text{ x } 10^{-5} \text{ m} = 16.5\ \mu\text{m}$$

Where the temperature was first converted to units Kelvin.