

Calculate the emission wavelengths of Antares, the Sun and Spica with temperatures of 3400 K, 5800 K and 23,000 K.

Solution:

Using the Wien displacement law

$$\lambda = 2.897 \times 10^6 \text{ nm-K/T}$$

Antares

$$\lambda = 2.897 \times 10^6 \text{ nm-K}/3400 \text{ K} = 852 \text{ nm}$$

The Sun

$$\lambda = 2.897 \times 10^6 \text{ nm-K}/5800 \text{ K} = 499.5 \text{ nm}$$

Spica

$$\lambda = 2.897 \times 10^6 \text{ nm-K}/23,000 \text{ K} = 126 \text{ nm}$$

Wavelength of Antares = _____.

Wavelength of the Sun = _____.

Wavelength of Spica = _____.