Planck's Black Body Radiation Distribution

Conditions

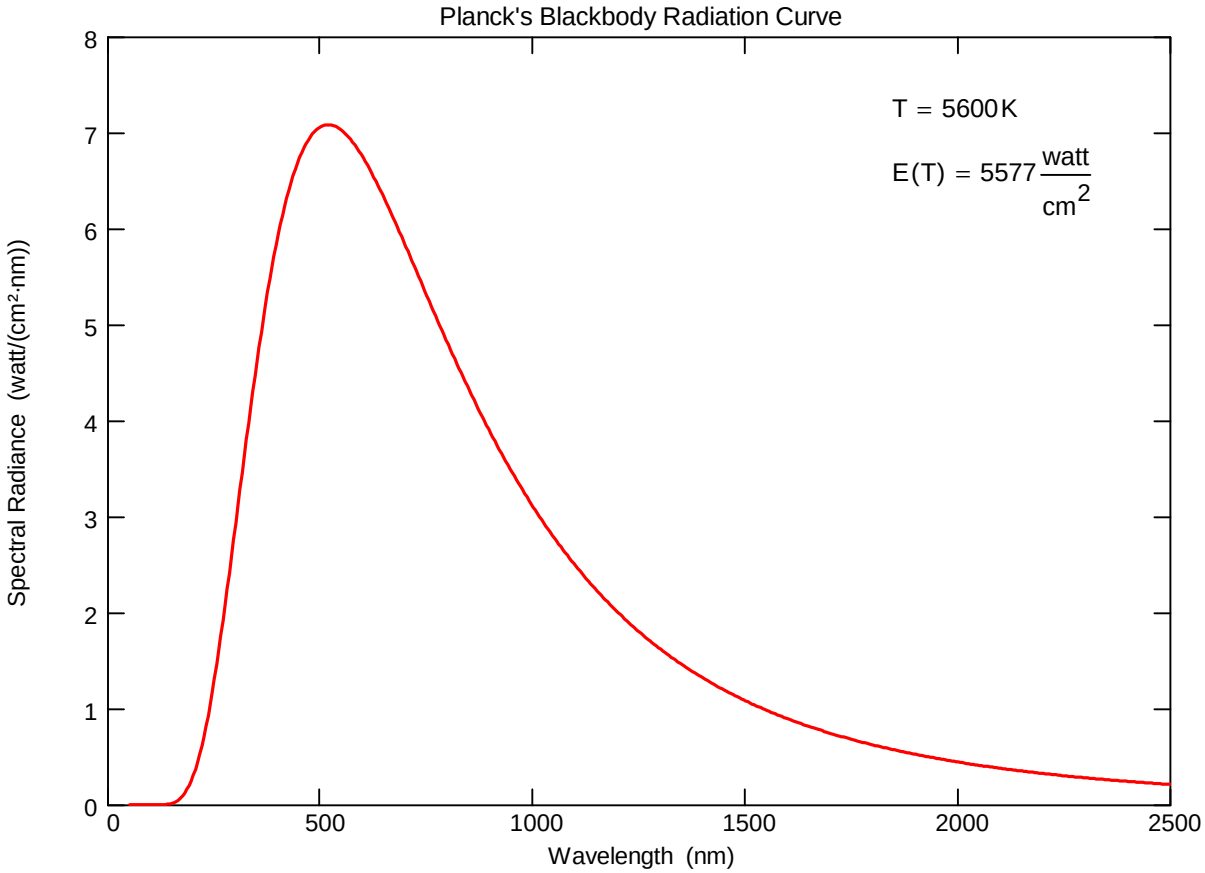
$T := 5600 \cdot K$ temperature is modifyable

$\lambda := 50 \cdot nm , 55 \cdot nm .. 2500 \cdot nm$ wavelength region of graph

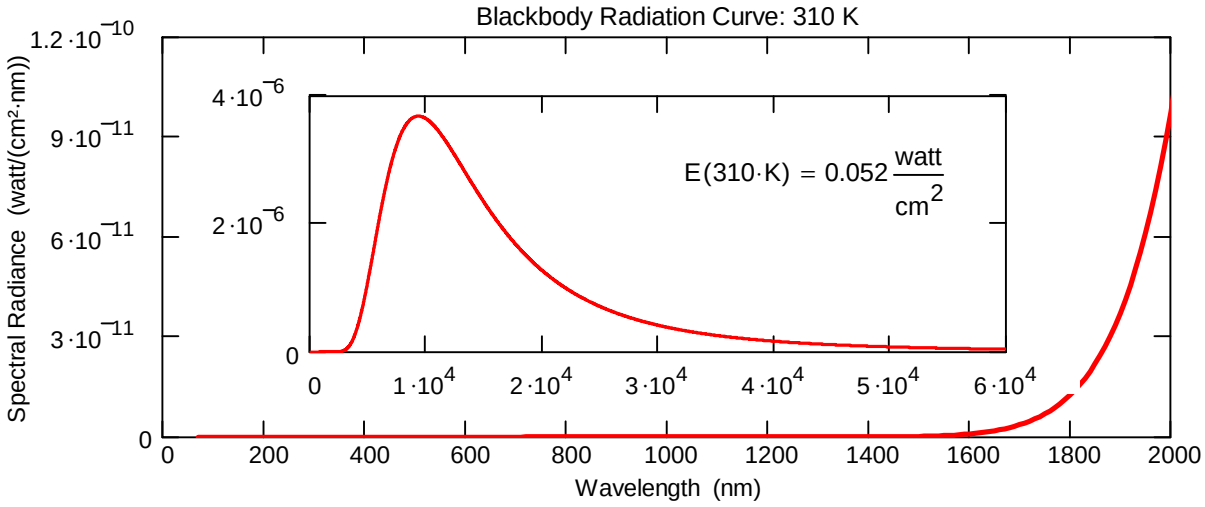
Calculated Parameters

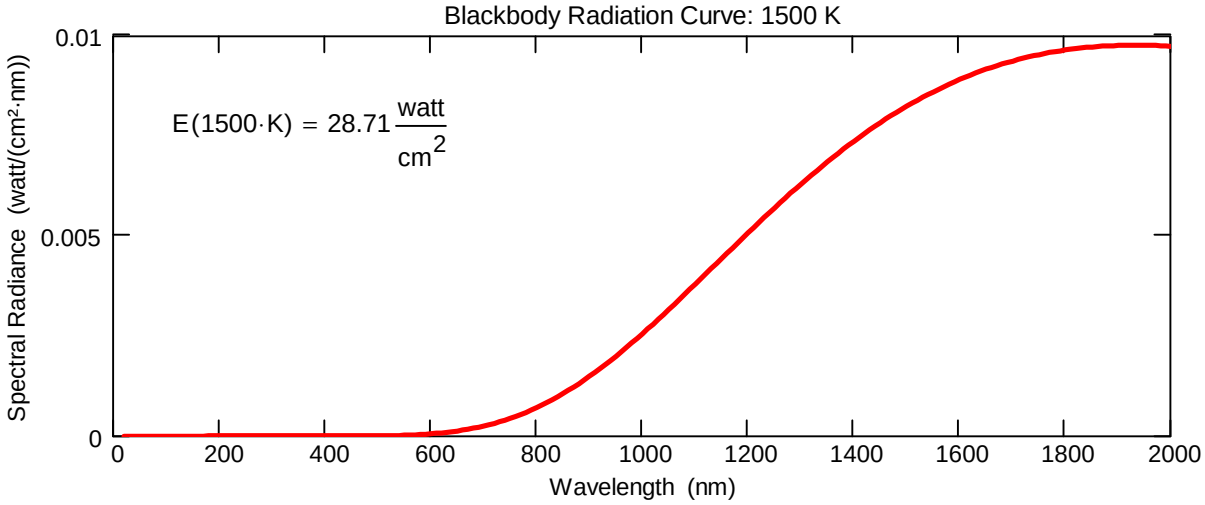
$$S(\lambda, T) := \frac{2\pi \cdot h \cdot c^2}{\lambda^5} \cdot \left(\frac{1}{e^{\frac{h \cdot c}{\lambda \cdot k \cdot T}} - 1} \right)$$ ***Planck Distribution*** *(energy density)*

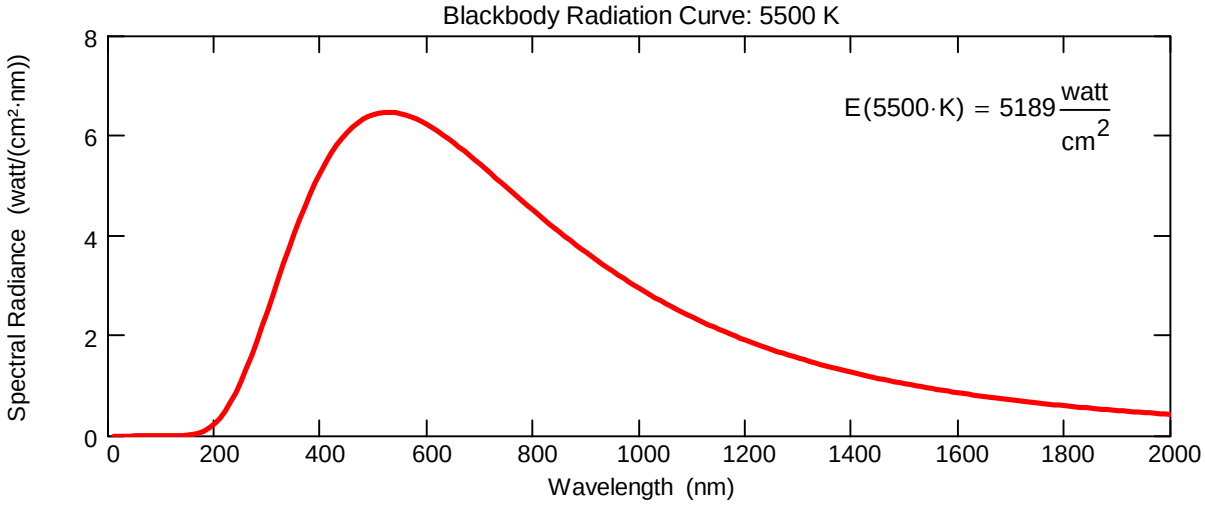
$$E = \int S(\lambda, T)\, d\lambda \qquad E(T) := \frac{2 \cdot \pi^5 \cdot k^4}{15 \cdot h^3 \cdot c^2} \cdot T^4$$ ***Integrated Energy Output***



Roy Jensen
Black Body Radiation.mcd


Blackbody Radiation Curve: 310 K
Spectral Radiance (watt/(cm²·nm))
Wavelength (nm)
E(310·K) = 0.052 watt/cm²


Blackbody Radiation Curve: 1500 K
Spectral Radiance (watt/(cm²·nm))
Wavelength (nm)
E(1500·K) = 28.71 watt/cm²


Blackbody Radiation Curve: 5500 K
Spectral Radiance (watt/(cm²·nm))
Wavelength (nm)
E(5500·K) = 5189 watt/cm²