

4.3: Thermal Radiation

An object's **temperature** is the measure of the speed at which the object's particles move. To measure temperature, astronomers prefer the **Kelvin temperature scale**. This scale is much like Celsius, but 0 ° is Absolute Zero – scale starts at zero, 0K. **Wien's Law** relates the color of an incandescent object to its temperature. The law states that wavelength of the brightest color is inversely proportional to the object's temperature.

$$\lambda_{max} \propto \frac{1}{T}$$

Where:

- **Stefan-Boltzmann Law** states that the power, **P**, emitted per unit of area of an object is proportional to the fourth power of its temperature, **T**. Mathematically, this is:

$$P \propto T^4$$

- **P** is the power
- **T** is the temperature

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