

## Black Body Radiation



### General Aim

- To study the black body radiation.
- To verify Wien's law and the inverse square law.

### Method

Heated Filament Method.

### Learning Objectives (ILOs)

- Verify the fourth law of radiation.
- Generate Planck's curves for Stefan-Boltzmann lamp at different temperatures and verify Wien's law.
- Verify the inverse square law for electromagnetic (EM) radiation.

### Theoretical Background/Context

The intensity of radiation from a black body varies with the wavelength of the emitted radiation, which depends on the temperature of the blackbody. Also, the radiation emitted depends inversely on the square of the distance from the black body.

### Principle of Work

By measuring the emitted radiation from a heated filament, as a function of the temperature of the filament, wavelength of the emitted radiation and the distance from the black body, we can verify the fourth law of radiation, generates Planck's curves at a different temperature, and the inverse square law for EM radiation.