

PHYS 251: Atomic Physics Lab

Due date: Tuesday, Sept. 26, 2023 by 11:59 pm on Gradescope (both sections)

Pre-Lab Exercise: Blackbody Radiation

Problem: Stefan-Boltzman Law

(a) Make a plot of the Stefan-Boltzman law function (eq. 1 in lab instructions) by plotting S vs T , where S is the radiated power per unit area (in W/m^2), and T is the temperature (in Kelvin) over the range of 0 to 4000 K.

Construct the plot by calculating at 10 different points (which should all be clearly visible on your plot) – you can connect these points with lines to generate a smooth curve.

(b) Make a new plot of the Stefan-Boltzman law function by plotting S vs T^4 over the same range as part (a).

Again, you should use 10 different points to construct the plot. The points should all be clearly visible and **distinguishable** on your plot (i.e. the points should not be overlapping). The points should use the same temperatures as those used in part (a).