

## Lab 5 Thermal Radiation Intensity Tasks

Report (including Data & Analysis and Conclusion sections) due Wednesday, October 21st at 6pm  
Read Ch. 2, sections 2.1-5 in your Lyons text (pp 44-54)

*Equipment note: Please take care when you are done with the experiment to leave space around the oven for it to cool down (we don't want any fires). An hour after you are done with the experiment return to the room to unplug the oven.*

Stabilize the temperature of a furnace at at least 5 different temperatures, and measure the voltage the electromagnetic radiation from the furnace produces in a thermopile. Given that the thermopile voltage is proportional to the radiation intensity (possibly with some constant offset) use a logarithmic plot to find the best exponent  $n$  for a power-law approximation relating radiation intensity  $I$  to the temperature  $T$  in Kelvin:  $I(T) = AT^n$