

ASTR 121 – Spring 2016

Lab 3 – Blackbody and Stellar Spectra: Prelab Questions

Due Monday, March 21

Answer the following questions on a separate sheet of paper.

1. What is the surface temperature of an A0 star? Of the Sun? An M0 star?
2. You will make four separate plots in this lab. What will each one show?
3. Write down Planck's law (in terms of wavelength, not frequency,) and define all relevant variables and constants, giving their units in SI. For the physical constants, give their values.
4. Look up the article 'A Star That Should Not Exist' on Astrobites. In this article, they analyze the spectra of a star SDSS J102915+172927. In this lab, you will also be analyzing stellar spectra, but looking at different characteristics of stars. What are you trying to determine from the spectra, and how is this different from what they tried to determine?

Bonus! – Propagate the uncertainty of Intensity from Planck's Law, with variables Wavelength and Temperature. Write this into a function in MATLAB so you can use it later, if you need it. (This is worth no credit, but is a good measure of ability to propagate error and write MATLAB functions)