Problem Set 1: AST403 (Fall 2003): Due on Wednesday October 8

1. Fun with magnitudes.

Do Problem 2 from Chapter 3 of the text (p.231).

2. The Planck Function.

Do Problem 3 from Chapter 3 of the text (p.232) including all four subparts (a-d). In addition, solve for the frequency version of Wien's displacement law including the value of the constant. Finally, integrate B_λ over all wavelengths to reproduce the Stefan-Boltzmann law (including the constant). Show how integrating B_ν over all frequencies leads to the same result.

3. A sodium filled box.

Do Problem 1 from Chapter 4 of the text (p.232). In addition, explain why the emission has the properties you think it has.

4. The source function and the flux.

Do Problem 3 from Chapter 5 of the text (p.233). In addition determine $F_\lambda(0)$ for this source function.

5. The Sun at one wavelength.

Do Problem 5 from Chapter 5 of the text (p.232).

6. The Sun at multiple wavelengths.

Do Problem 1 from Chapter 6 of the text (p.232-233).

END OF PROBLEM SET