ASTR 288C

Homework 9

Due: 9 November 2009

1. Answer the eight questions from the lab. Include the two plots that you created.
    a. Q1: Is the "bremss" model alone a good fit to the data?

    b. Q2: Does adding Galactic absorption improve the fit? What is the reduced chi-squared value for the new fit?

    c. Q3: Does including the neutral hydrogen absorption in the cluster improve the fit? What is the reduced chi-squared of this fit?

    d. Q4: Record the values and errors for each parameter. Indicate the parameters that are frozen. What is the reduced chi-squared value?

    e. Q5: Save a copy of the plot and submit it with your homework.

    f. Q6: Do you think that you need more model components to properly fit this spectrum? Why of why not?

    g. Q7: Make a second plot of your best fit that is like the first one, only with wavelength on the X axis.

    h. Q8: What is the flux (in erg cm^{-2} s^{-1}) in your model. Use the "flux" command? What is the energy range that this flux is measured in?

2. Based on the energy, E, that you found for the iron line, what is your estimate of the redshift of PKS 0745–19? The rest-frame energy of this line is E_0 = 6.07 keV.

3. What is the Galactic reddening, $E(B-V)$, in the direction of PKS 0745–19?

4. What are the equatorial J2000 coordinates of PKS 0745–19?