

## ASTRO 220 - Homework 4, Oct 11 2010

due Oct 18

### A Virtual Observatory project

You will observe six objects using a virtual telescope, at <http://skyview.gsfc.nasa.gov/>  
The objects are M81, M42, M82, M87, M42, M17, and you will observe them in the optical and in the infrared.

Do the following:

- On the web page, click “SkyView Query Form”
- In the box “Coordinates or Source” enter the name of the object (e.g., “M81”)
- Chose “DSS” under “Optical” and “IRAS 100 micron” under “Infrared”
- Pick an image size (up to 1 degree); play around with the image size for each object so it nicely fills the image
- Click “submit request” and print out the result

a) For each object, answer the following questions:

i) What is it? (a galaxy? a planet? etc) What made you decide? If it is a galaxy, what is the morphological type?

ii) Compare the brightness in the optical to the brightness in the infrared (just by looking at the images). Discuss what you see. Which objects are detected in the infrared?

b) M87 and M82 have very different optical-to-infrared flux ratios. Give an explanation.

### From book:

Chapter 24: 35, 42, 44, 53