

AST 101 MGA: SOME VERY BASIC SPECTROSCOPY

In this assignment you will use

- 1) a camera which you provide (even a cheap cell phone camera will work)
- 2) a pair of Arbor Scientific spectrum glasses which JCTC provides (yours to keep)

You will obtain the spectra of different light sources. As you have learned in the reading, by studying the spectrum of light emitted by a distant object, astronomers can learn various things about that object. The purpose of this MGA is for you to see the different kinds of spectra that objects emit, so that you have a better idea of what astronomers see when they use spectroscopy, and so you can see how light contains information that we do not detect simply through our eyes.

Find a variety of objects that emit light, and photograph them *through the spectrum glasses*, so that the camera is “wearing” the glasses and records the spectrum.

Option #1: Hardcopy Version

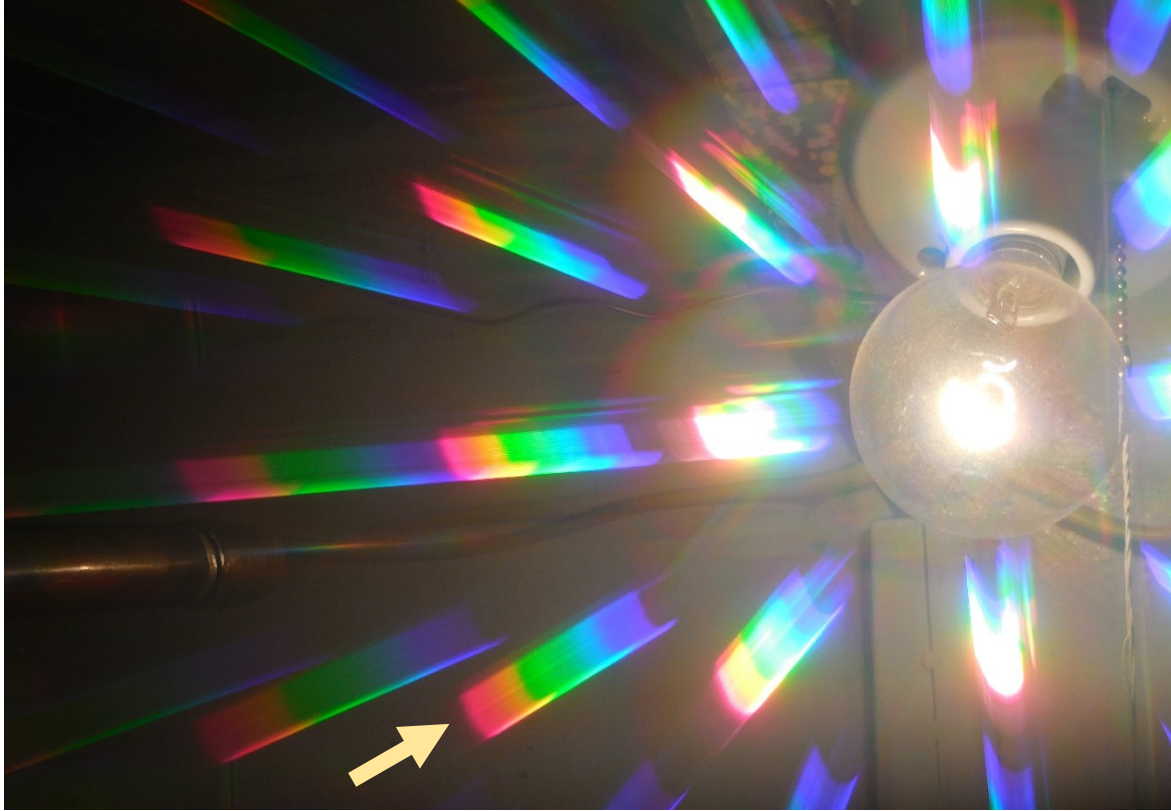
- Obtain *good photos* of six different objects and their spectra. You should have at least one line spectrum object and at least one continuous spectrum object.
- Under each photo, identify whether the spectrum is a line spectrum (the spectrum contains a set of discrete, **separated** colors) or a continuous spectrum (like a rainbow, one blending **continuously** into the other) and why.
- Include a 150 word typed discussion of what you learned from this assignment.
- Assignment must be printed full color (UPS stores and other business needs stores offer reasonable rates for color printing) and stapled.

Option #2: YouTube Version (for those who believe everything is better in video)

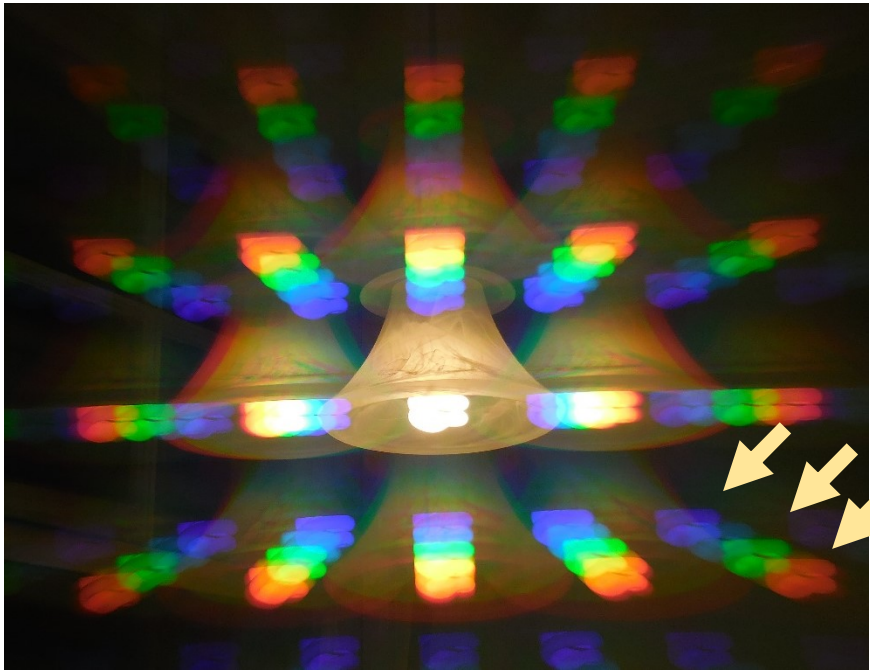
- Get *good video* of six different objects and their spectra. You should have at least one line spectrum object and at least one continuous spectrum object.
- For each object, identify whether the spectrum is a line spectrum (the spectrum contains a set of discrete, **separated** colors) or a continuous spectrum (like a rainbow, one blending **continuously** into the other) and why.
- Include *in the video* a 150 word discussion of what you learned from this assignment.
- Post the video to YouTube.
- E-mail the address of the video to me.
- Don't turn in any paper.

Some sample objects and spectra (with short “why” statements) are on the following pages. Note that lights at night make excellent objects to photograph. *If you want to obtain a spectrum of the sun, don't aim your camera at it directly (that might damage the camera). Rather, find a reflection of sunlight – like a glint off a car windshield – and photograph that.*

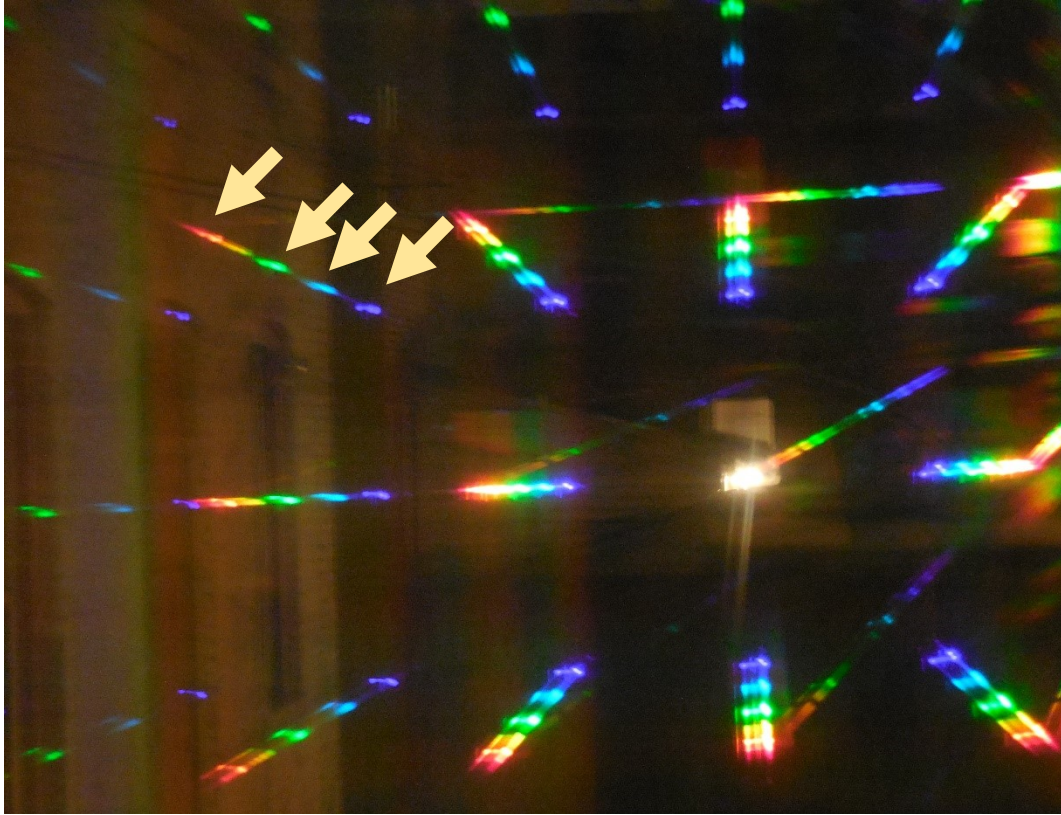
***Note – all pictures/video must be your own unique work.
Students may not “share” pictures for this project.***



UTILITY CLOSET LIGHT. *Continuous spectrum.* Why? Every color blends into the next, like a rainbow.



COMPACT FLUORESCENT LIGHT. *More like a line spectrum.* Why? There is a discrete red, green, and blue and they do not blend.



OUTDOOR SECURITY LIGHT. *Definite line spectrum.* Why? There is a discrete purple, light blue, green, and orange.