

NAME: _____

DATE: _____

Our first step into spectroscopy will be reduction and analysis of the single-slit spectra acquired with a Boller-Chivens spectrograph mounted on a 1.5-m telescope at the European Southern Observatory in Chile. Download and unpack the files from the course webpage and answer the following questions.

1. List the properties and the contents of the fits files and describe them here.
2. Display one of the science frames, say `a0014.fits` (figure out the appropriate setting for `stdimage`). What can you say about the `imstat` output? Does it make sense?
3. Apply bias, dark and trim corrections and describe what you did, along with any interesting observations of the values that appear in these particular images.
4. Why is most of what we learned about flatfielding photometric images not applicable to spectroscopic frames?

5. What did you do to flatfield the spectra? What is the most obvious feature in the flatfield?

6. Determine basic aperture and background parameters and note them here. Using `imexamine`, do the vector plot on a segment of the aperture and describe what you see.

7. Explain in detail what `apall` task does. Then use `splot` to display the spectrum and describe what you see.

8. Explain in detail how we wavelength-calibrate single-slit spectra.

9. Wavelength-calibrate the spectrum and identify Balmer lines. What are the remaining lines in the spectrum?

10. While flux calibration is possible, it is not really common to flux-calibrate spectra. Why?