Small Telescope Spectroscopy

Sacramento Mountains Spectroscopy Workshop

Las Cruces, New Mexico February 24, 2019

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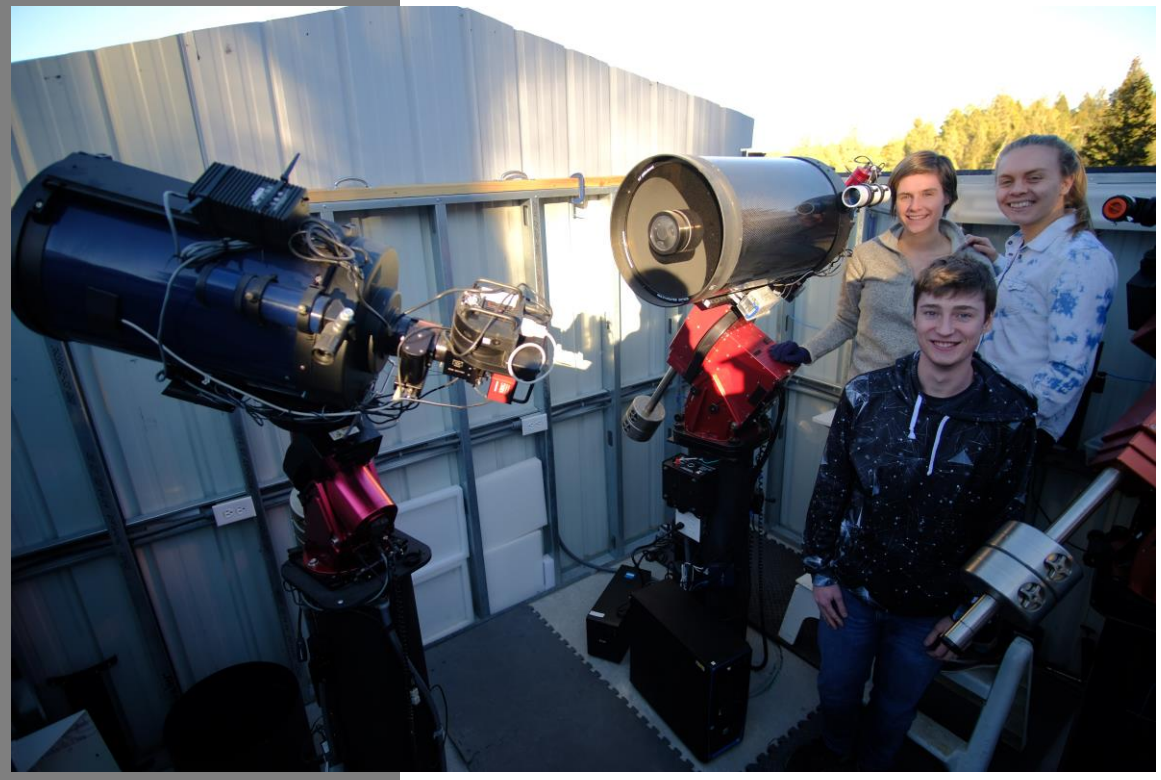
THE COLLEGE of IDAHO

Overview

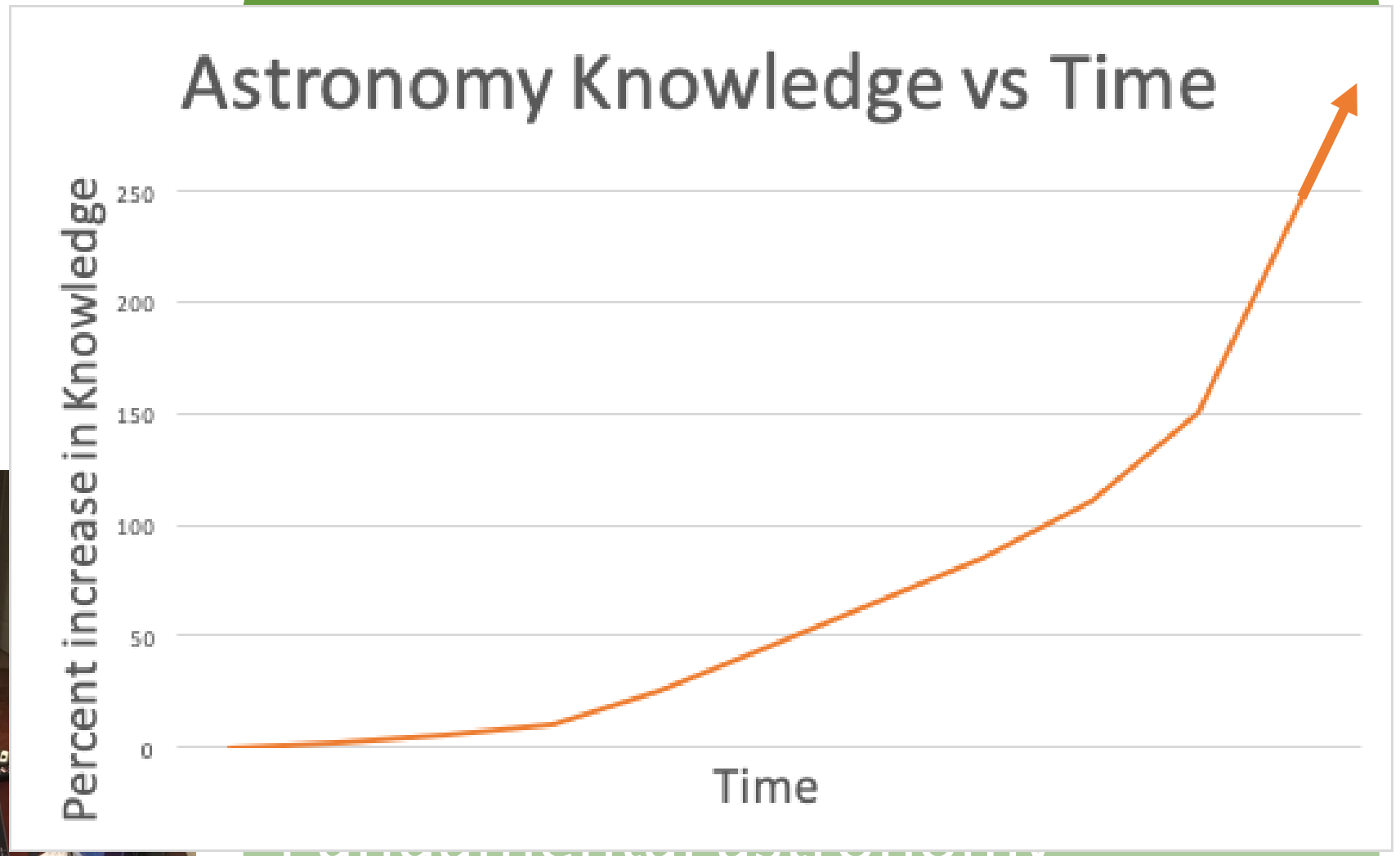
- Goals
- Technology
- Software
- Collected Spectra

Goals for New Mexico



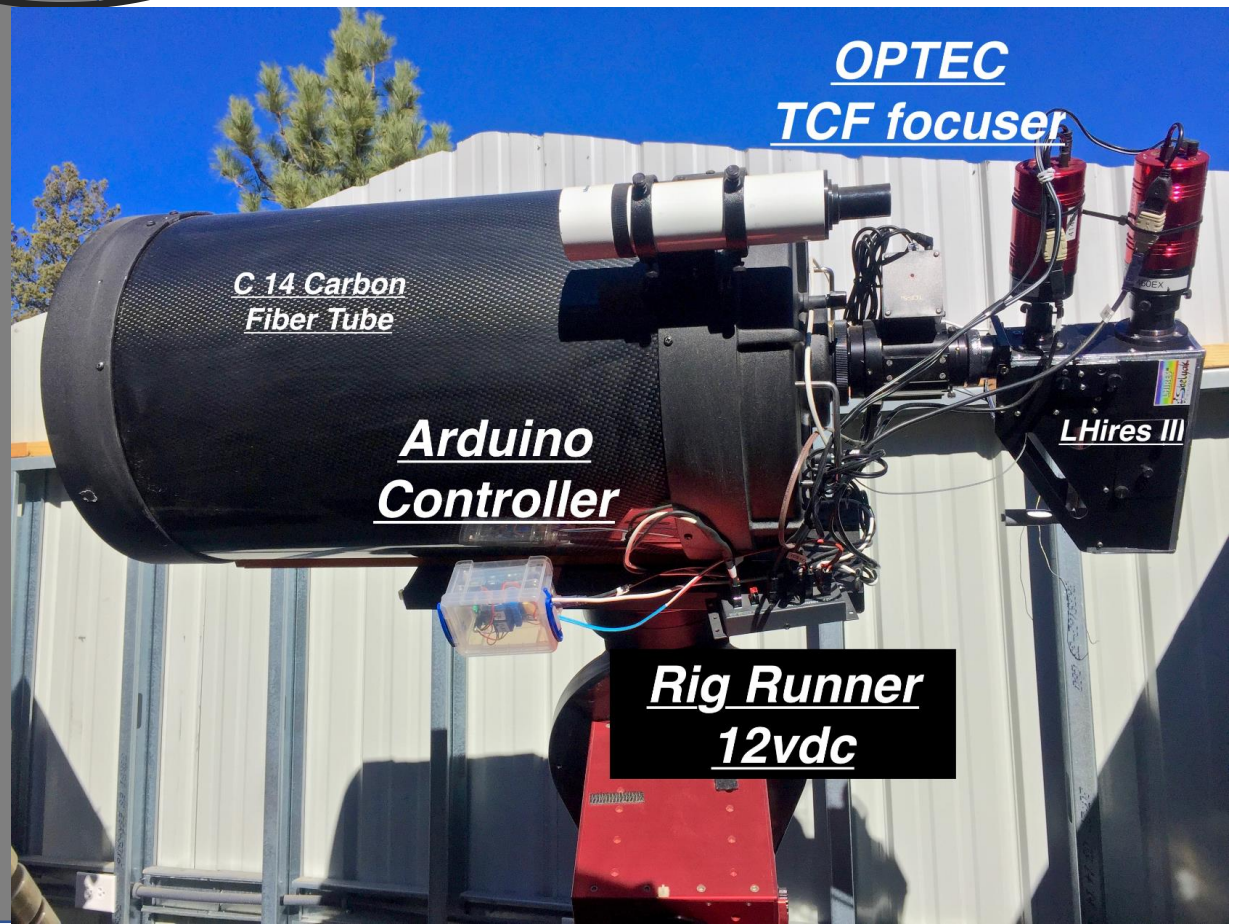
- Experience collecting spectra
- Processing Data
- Familiarity with Equipment
- Learn transferable skills for future research at The College of Idaho
- Develop user manuals for future research students

What We Learned



concepts—mini lectures

Technology



- Paramount Telescope Mount
- Carbon Fiber Tube Telescope
- LHIRES III Spectrograph
- Arduino Controller
- Autoguider

Software

TheSkyX Professional Edition

Integrated Spectrographic Innovative Software (ISIS)

Bulk Rename Utility

www.PCHits.com

Spectra Databases

Spectra contributing to research by Dr. Whelan at Austin College in Sherman, TX

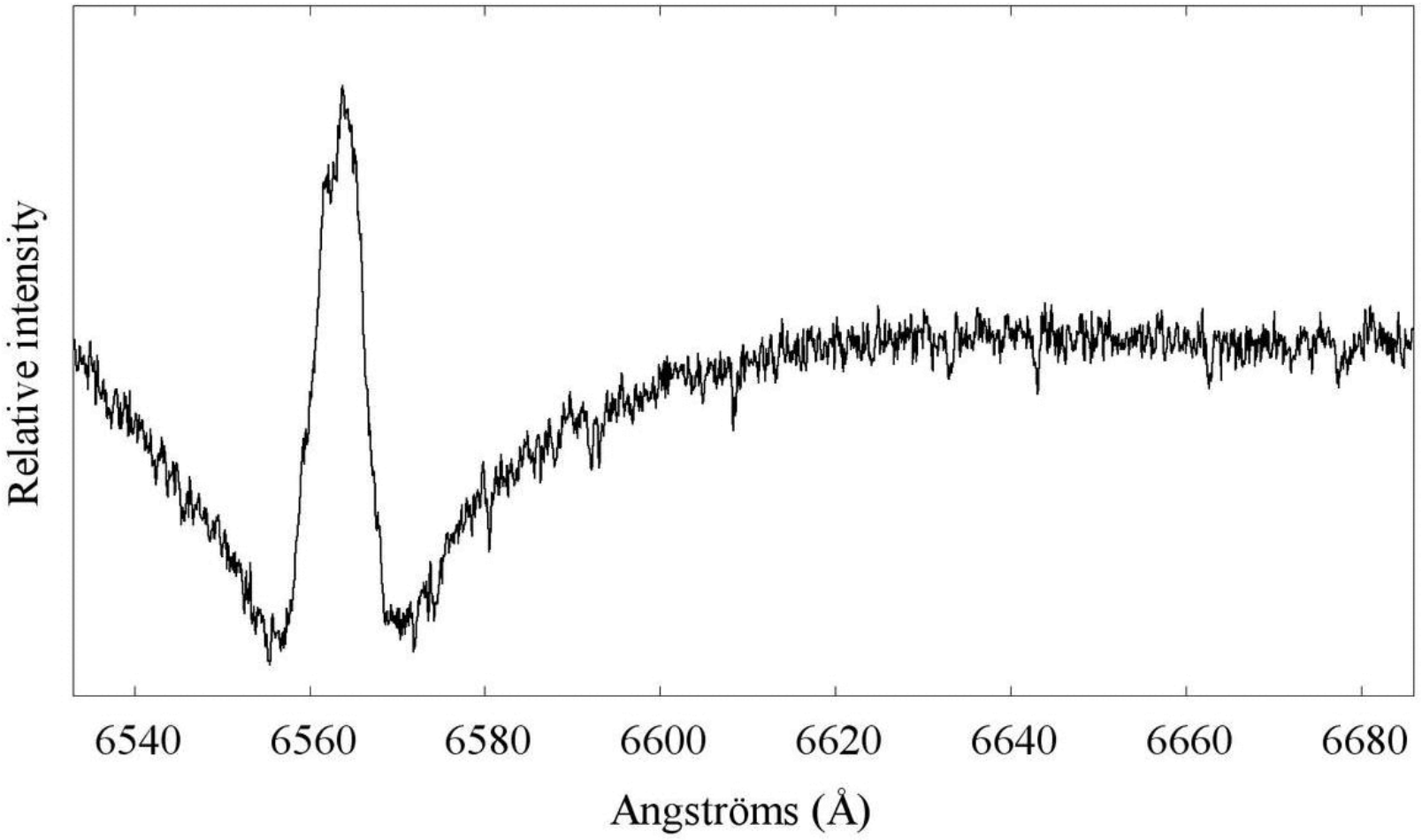
Submitted four spectra to database of Be Star Spectra (BeSS) database

Submitted two spectra to the American Association of Variable Star Observers International (AAVSO) database

Why is submitting spectra to databases useful to the astronomical community?

HD 63021

Dr. Whelan



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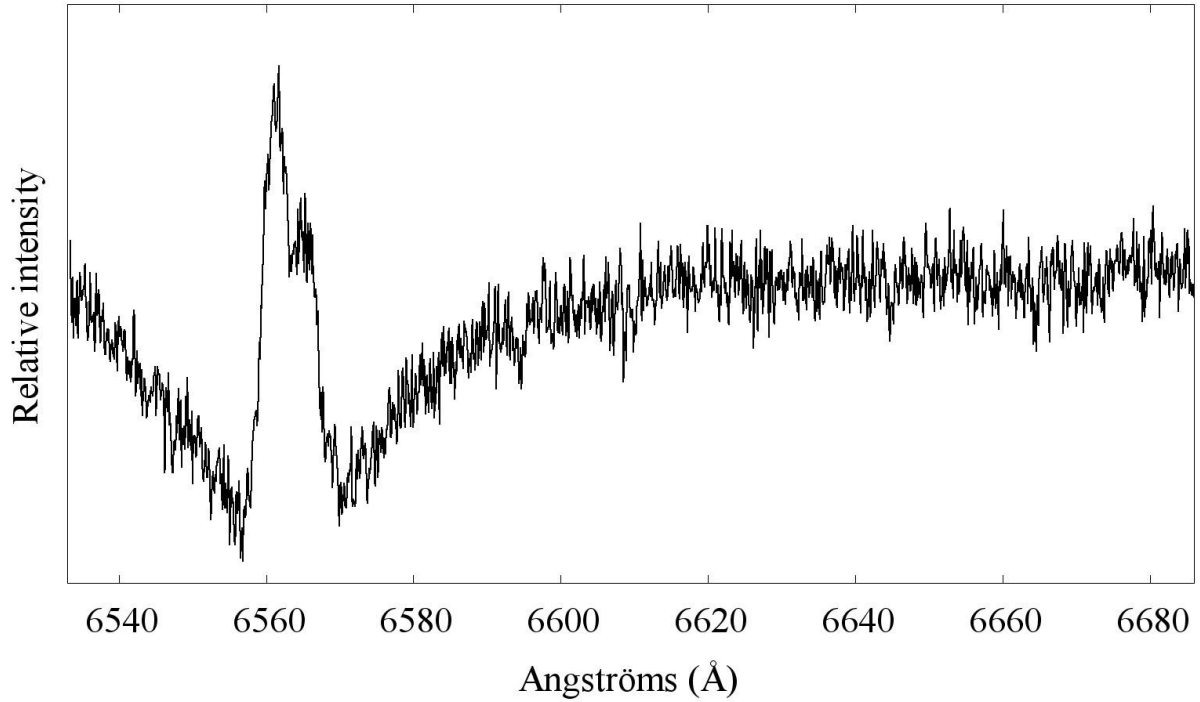
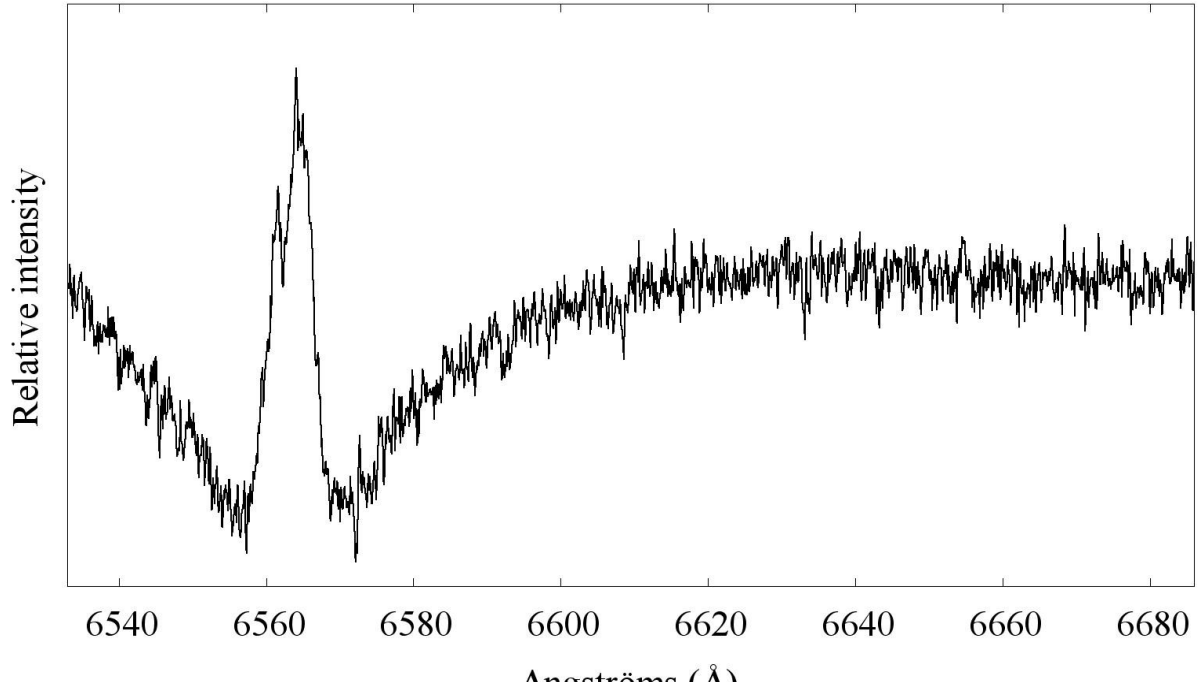
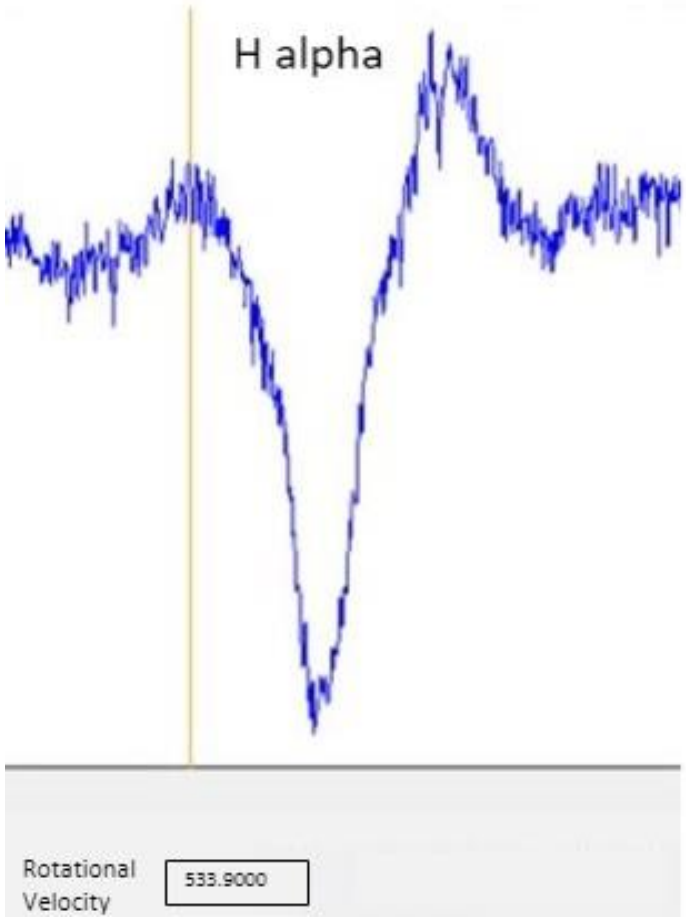
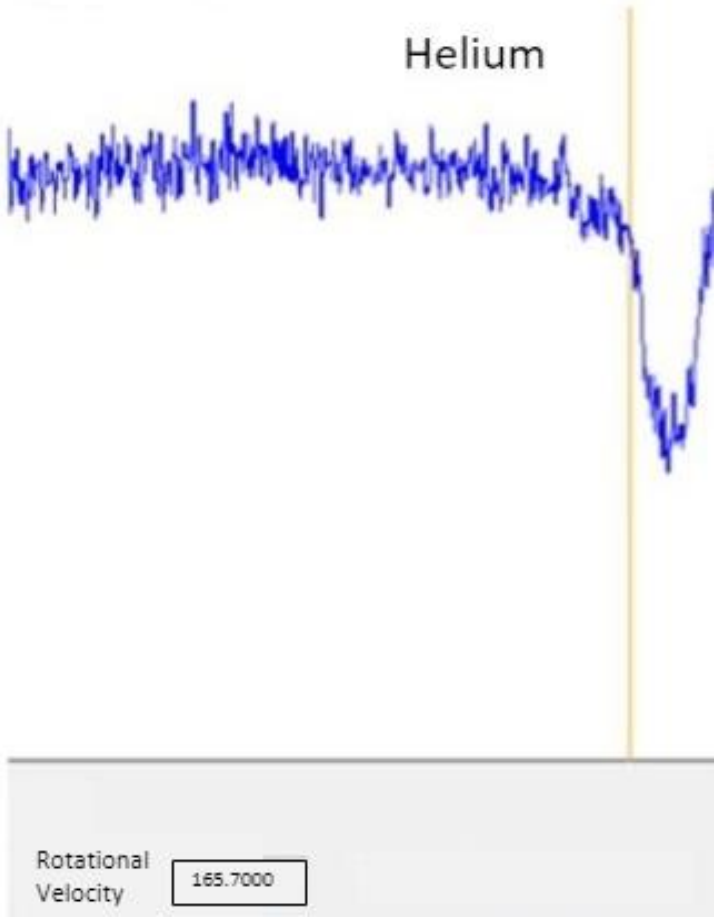
Dr. Whelan





HD 37479 Sig Ori E





Shifted Wavelength Formula

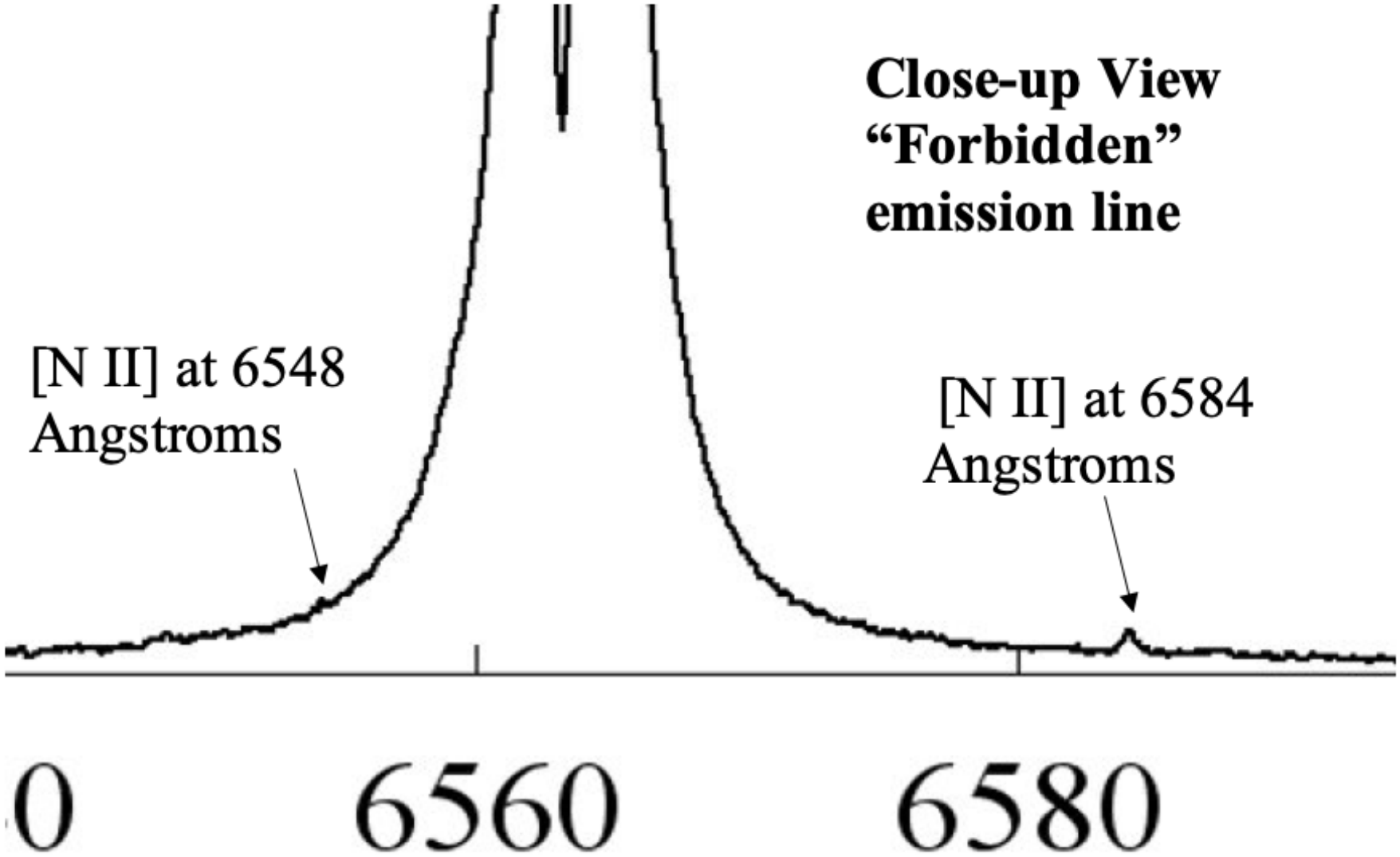
$$\frac{FWHM}{2.35} = \sigma\ (wavelength\ shift)$$

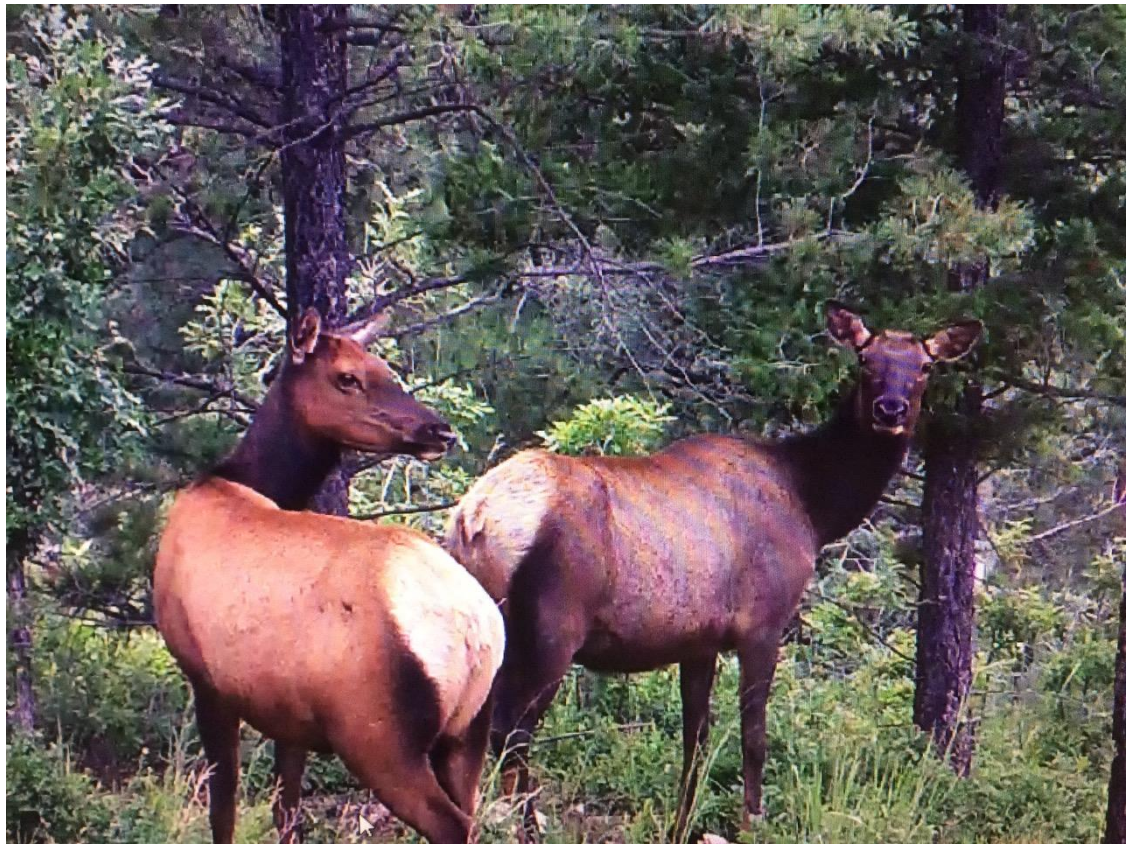
Doppler Shift Formula:

$$\frac{\sigma_{wavelength\ shift}}{\lambda_{supposed\ wavelength}} c = rotational\ velocity$$

HD 45677

Drew Chojnowski





All work and no play

Above: Exploring White Sands National Monument in Alamogordo, New Mexico

Below: From right to left, Micah Woodard, Nick Lotspeich, and Molly Vitale-Sullivan in Dr. Daglen's roll-off observatory

Special thanks to Joe and Frankee Daglen,
Dr. Dull, Dr. Devine,
and The College of Idaho for making this research experience possible.

We are also happy to share our user manuals for TheSkyX Professional Edition and Integrated Spectrographic Innovative Software to anyone who is interested.