

Small Telescope Spectroscopy



Sacramento Mountains Spectroscopy Workshop
Las Cruces, New Mexico February 24, 2019
Molly Vitale-Sullivan, Micah Woodard, Nick Lotspeich

THE COLLEGE
of IDAHO





Overview

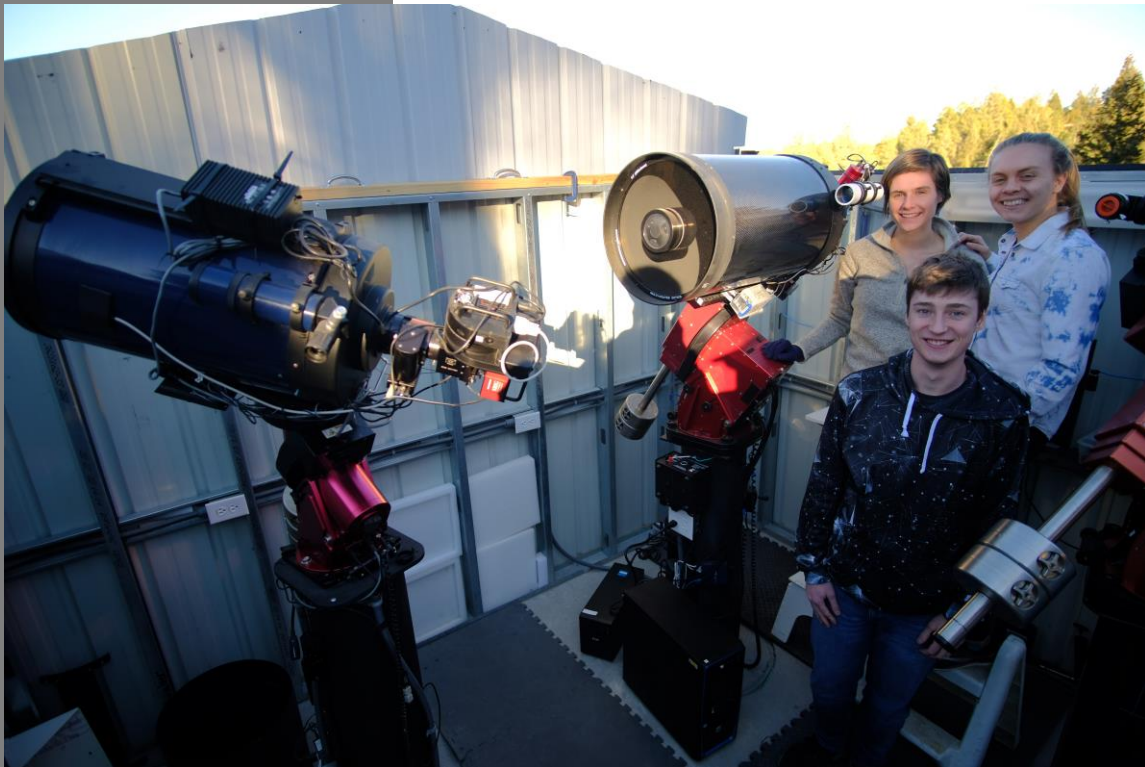
Goals

Technology

Software

Collected Spectra

Goals for New Mexico



Experience collecting spectra

Processing Data

Familiarity with Equipment

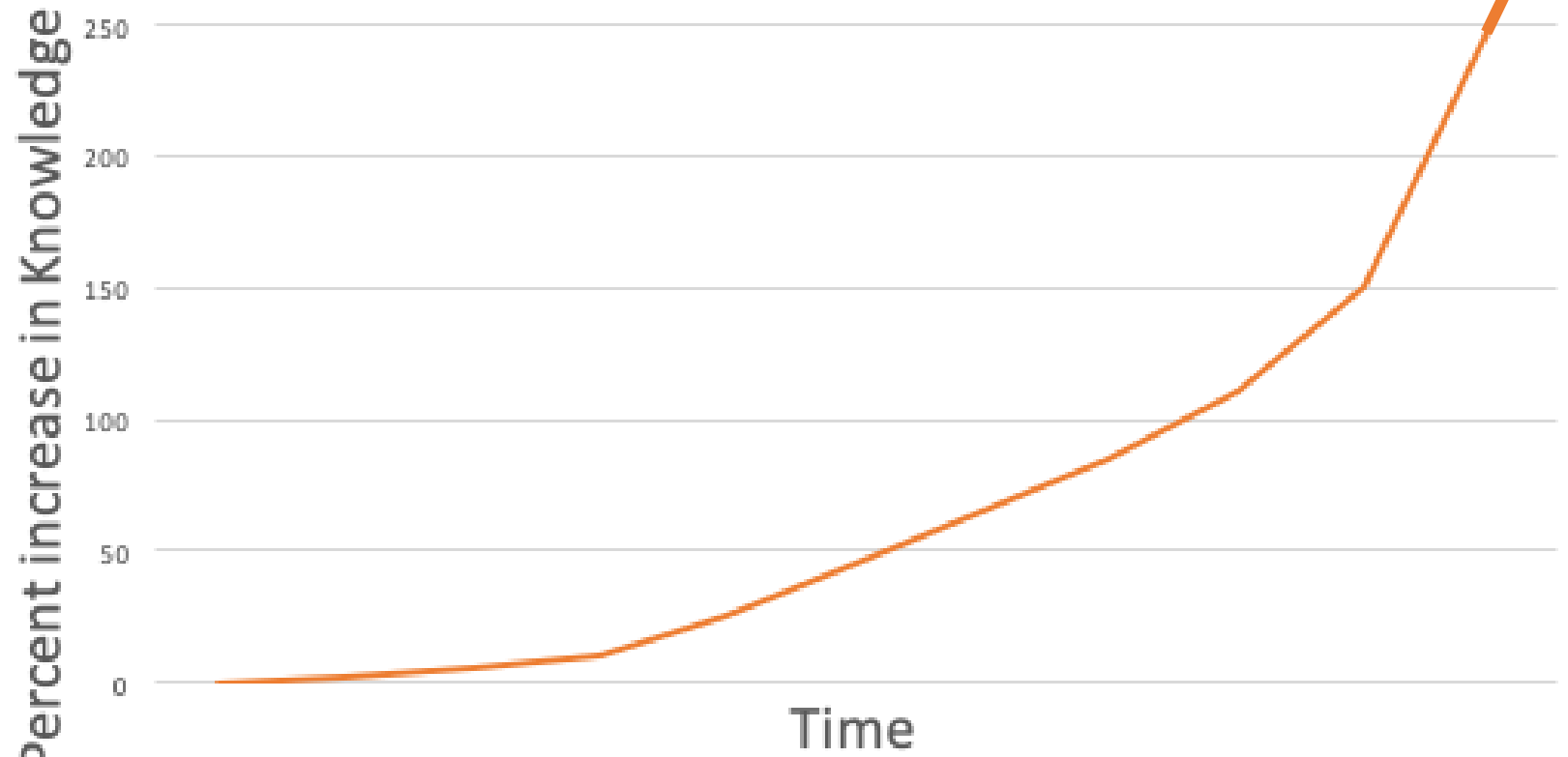
Learn transferable skills for future research at The College of Idaho

Develop user manuals for future research students

What We Learned

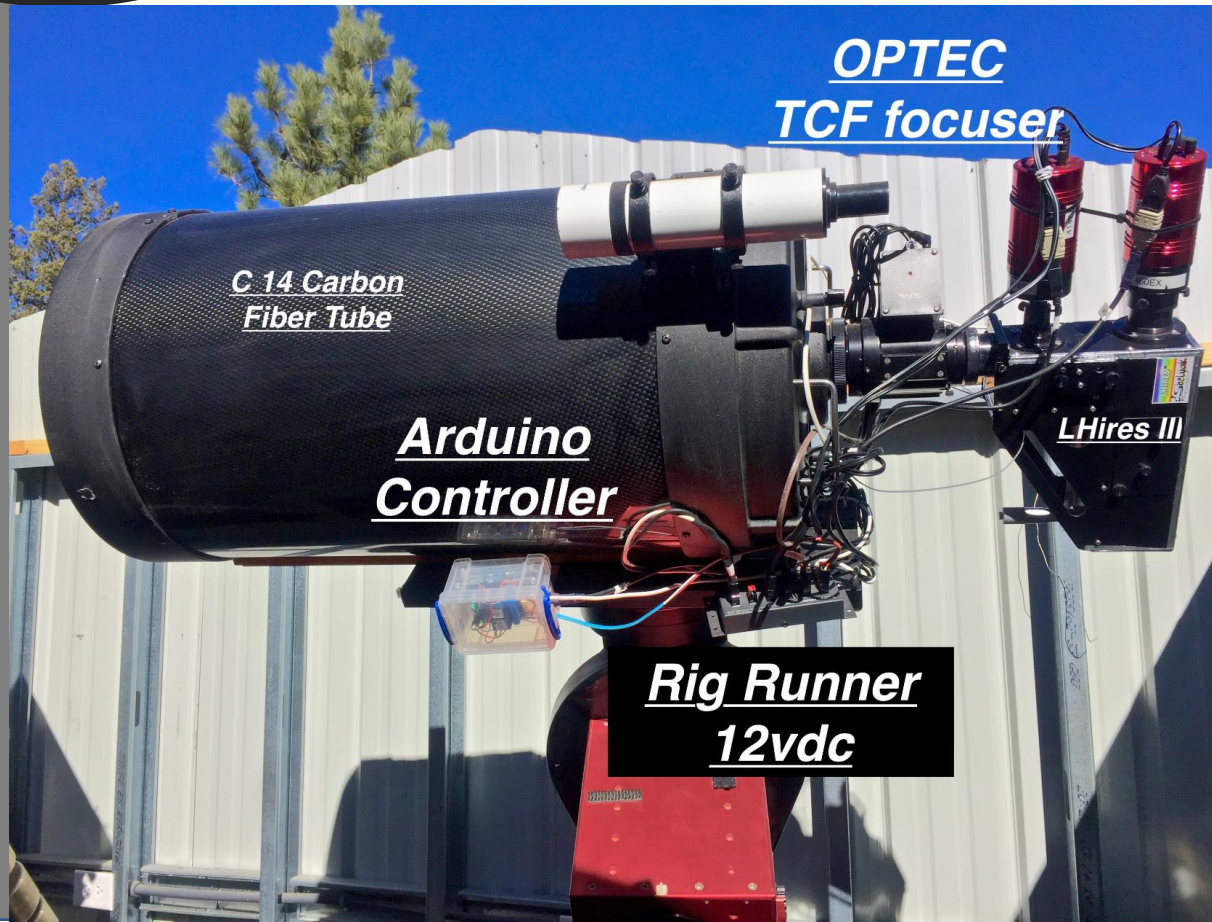


Astronomy Knowledge vs Time



fundamental astronomy
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

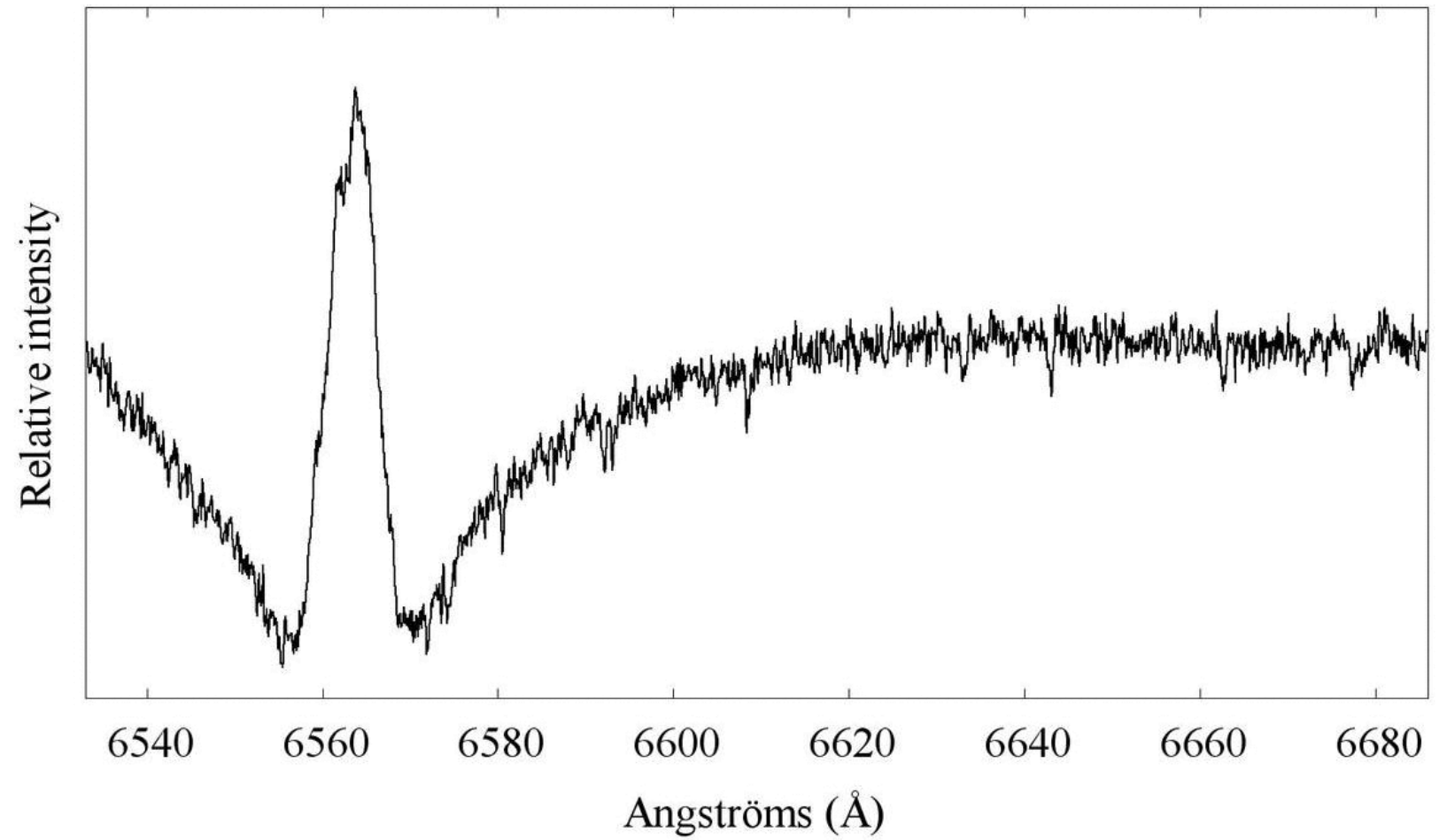
Submitted two spectra to the American Association of Variable Star Observers International (AAVSO) database

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



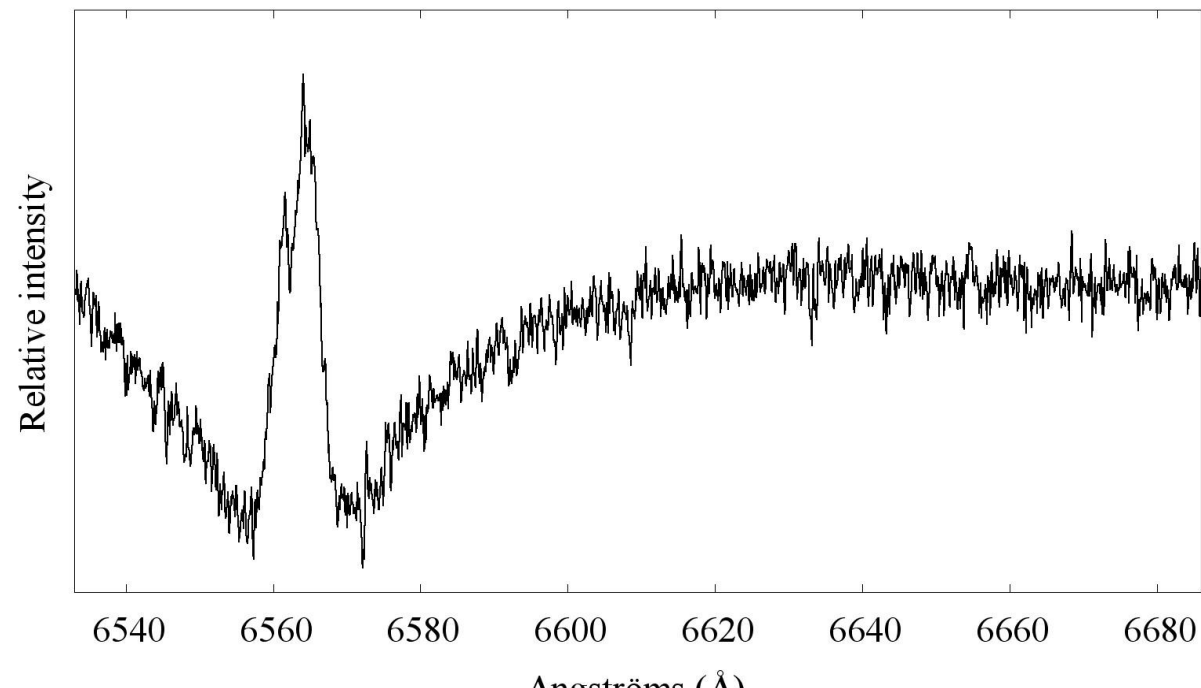
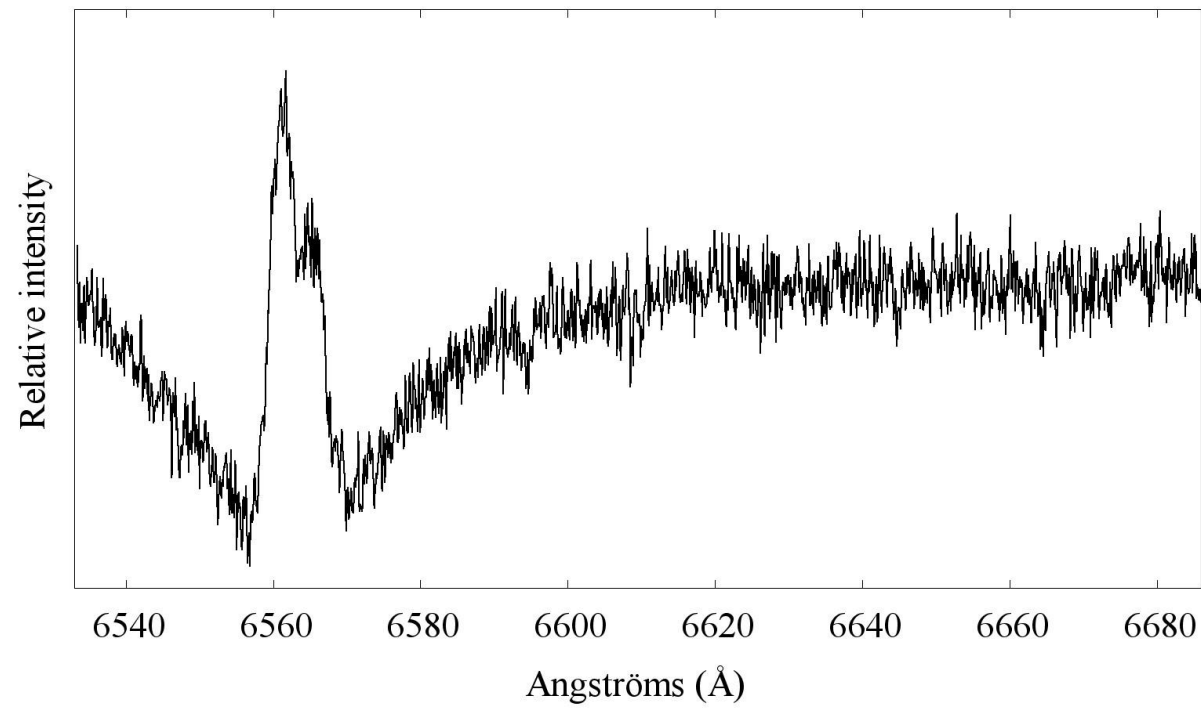
HD 63021

Dr. Whelan

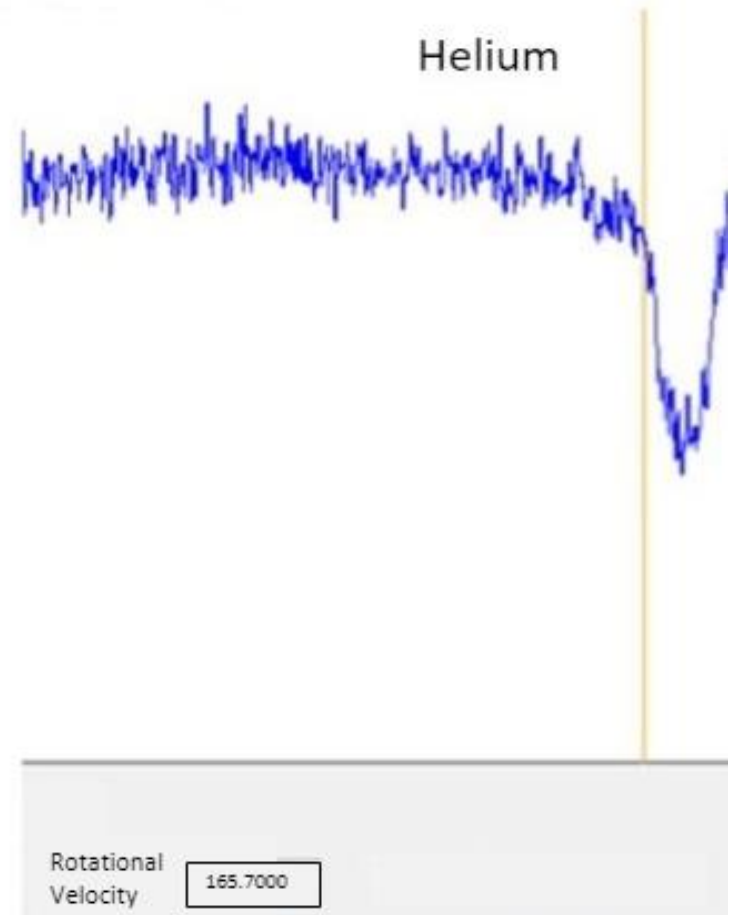
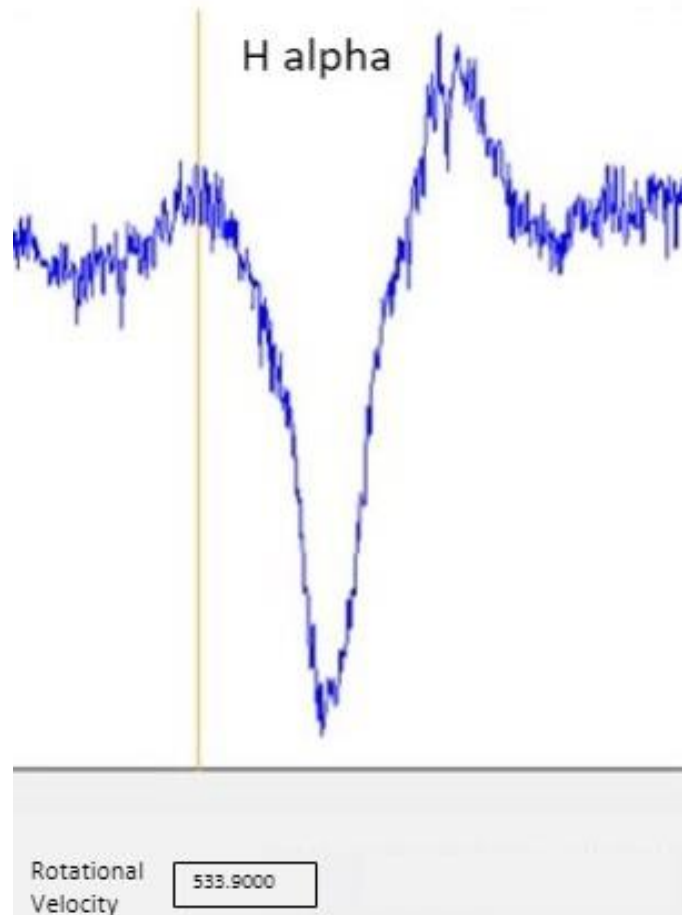


HD 63021

Dr. Whelan



HD
37479
Sig Ori E



Shifted Wavelength Formula

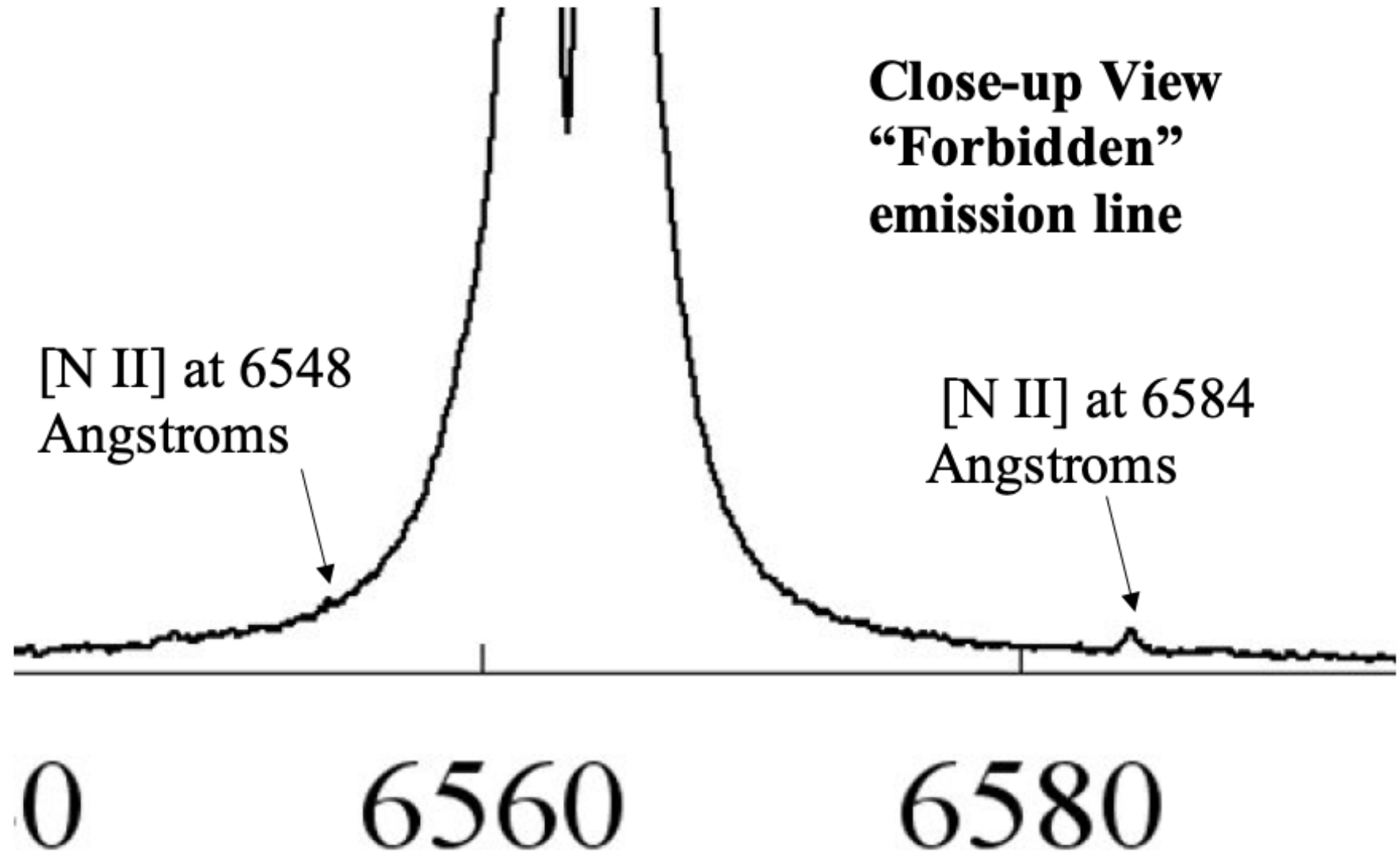
$$\frac{FWHM}{2.35} = \sigma \text{ (wavelength shift)}$$

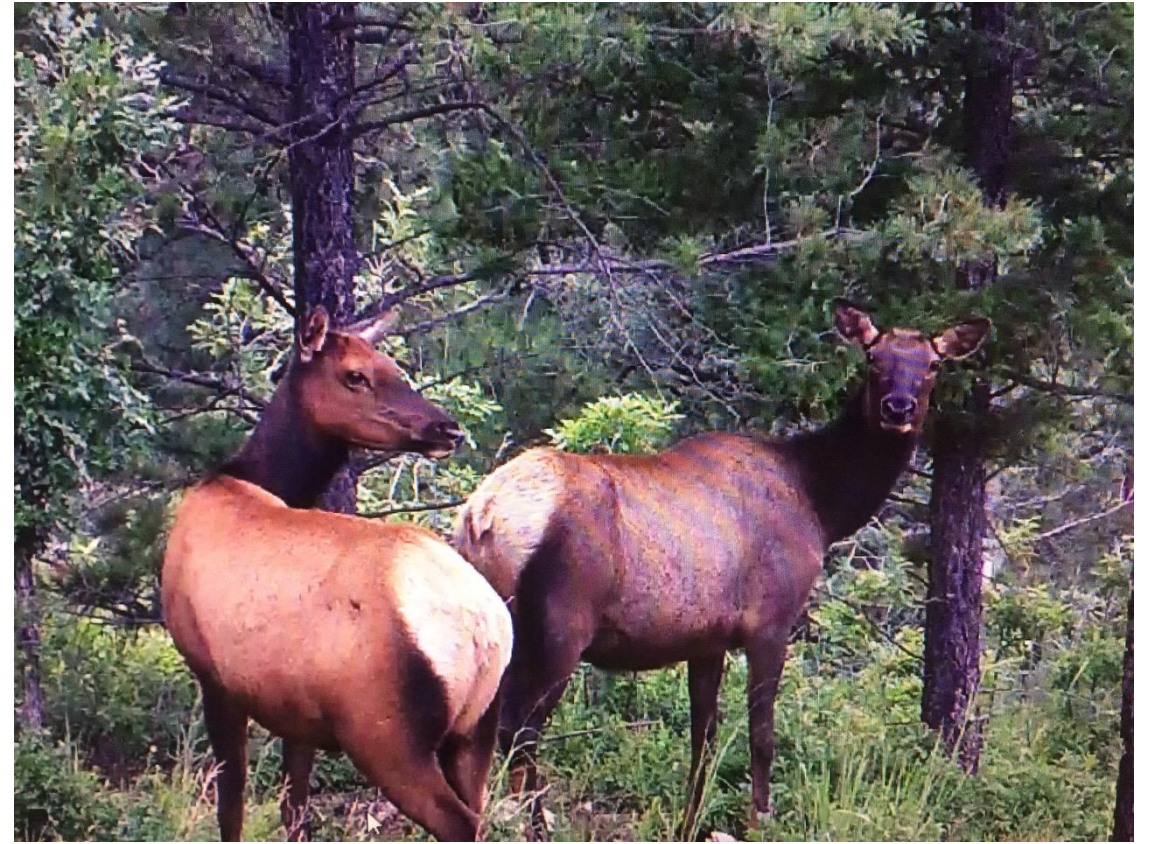
Doppler Shift Formula:

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

HD 45677

Drew
Chojnowski





All work and no play



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

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





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.