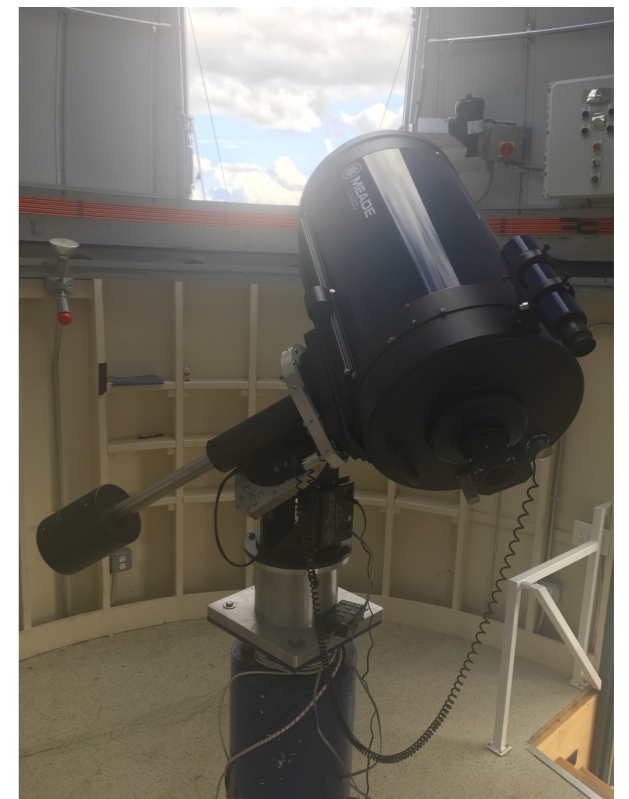
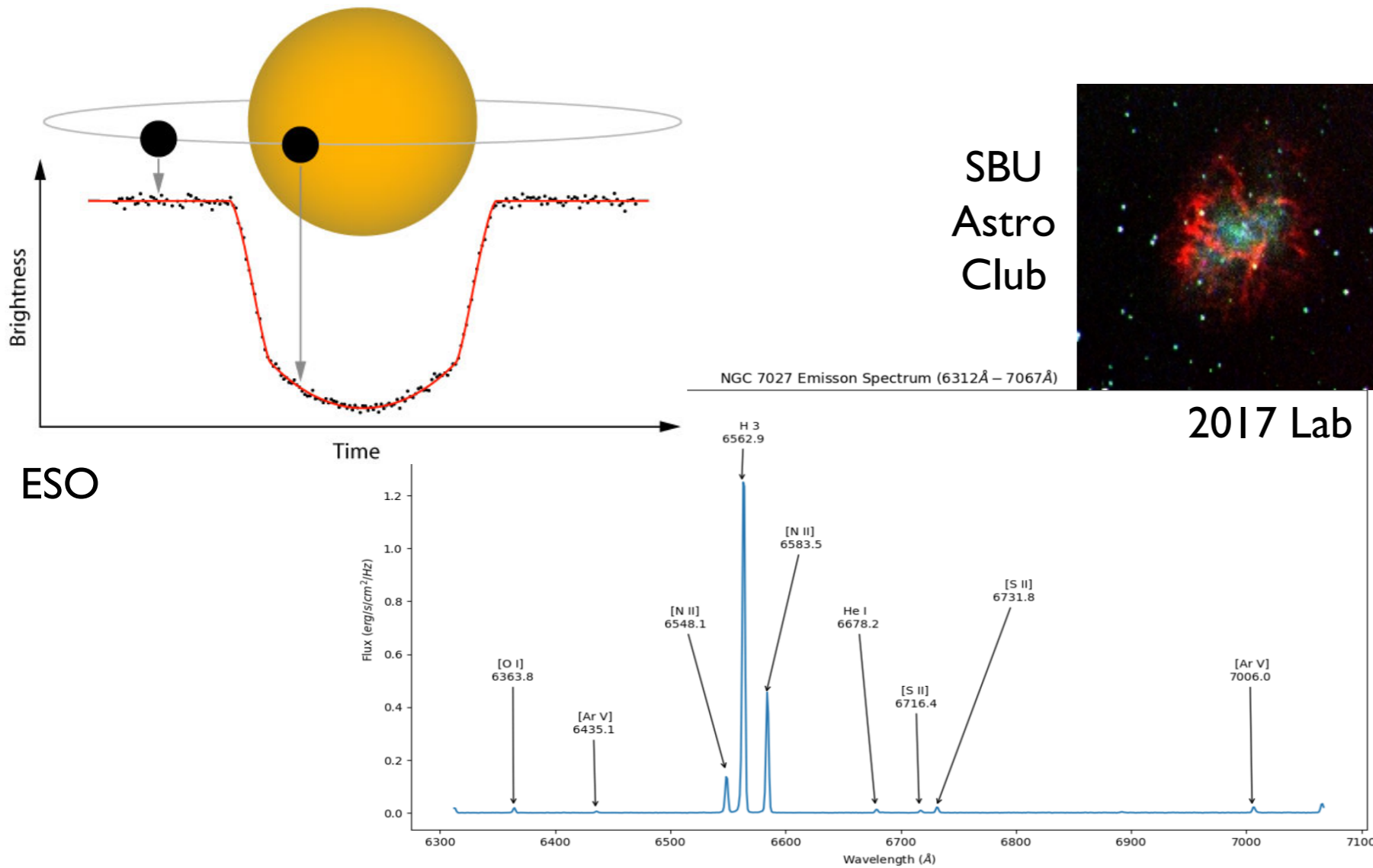


# PHY 517 / AST 443: Observational Techniques in Astronomy

Anja von der Linden



AvdL

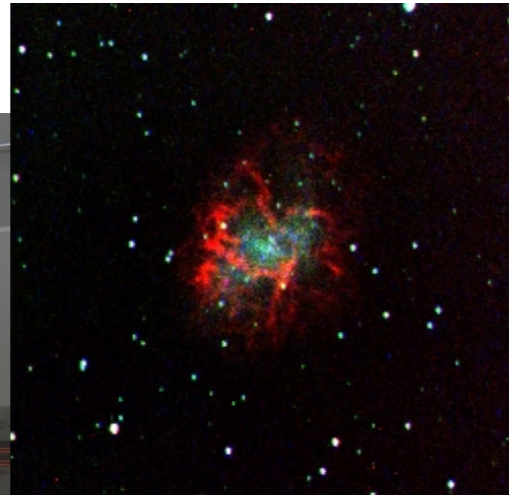
satisfies *Graduate Lab* requirement

# “Experiments” in Astronomy

- you cannot influence or modify the source of your signal
- you can only **observe** your source / target
- your targets are usually far away → faint
- practical astronomy is much about optimizing observational techniques, data analysis methods, and statistical methods
- class focuses on optical astronomy

# Mt Stony Brook Observatory

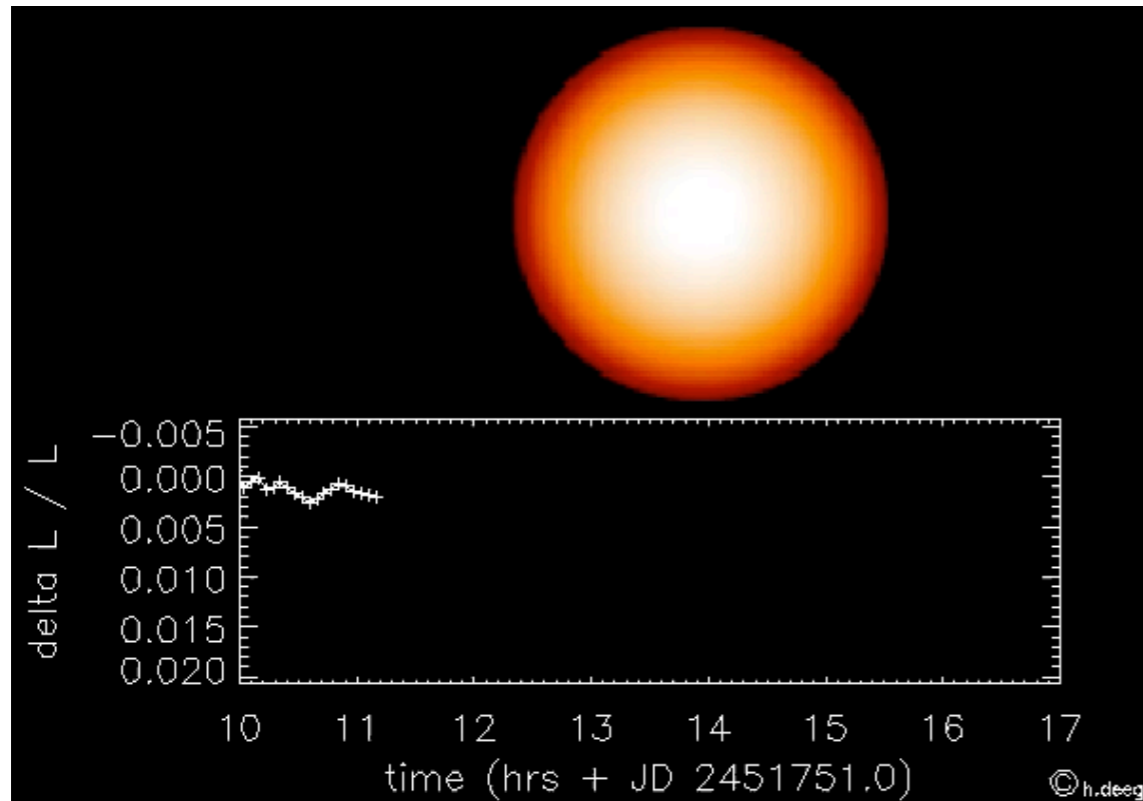
- roof-top dome + telescope (14-inch) + CCD camera + spectrograph



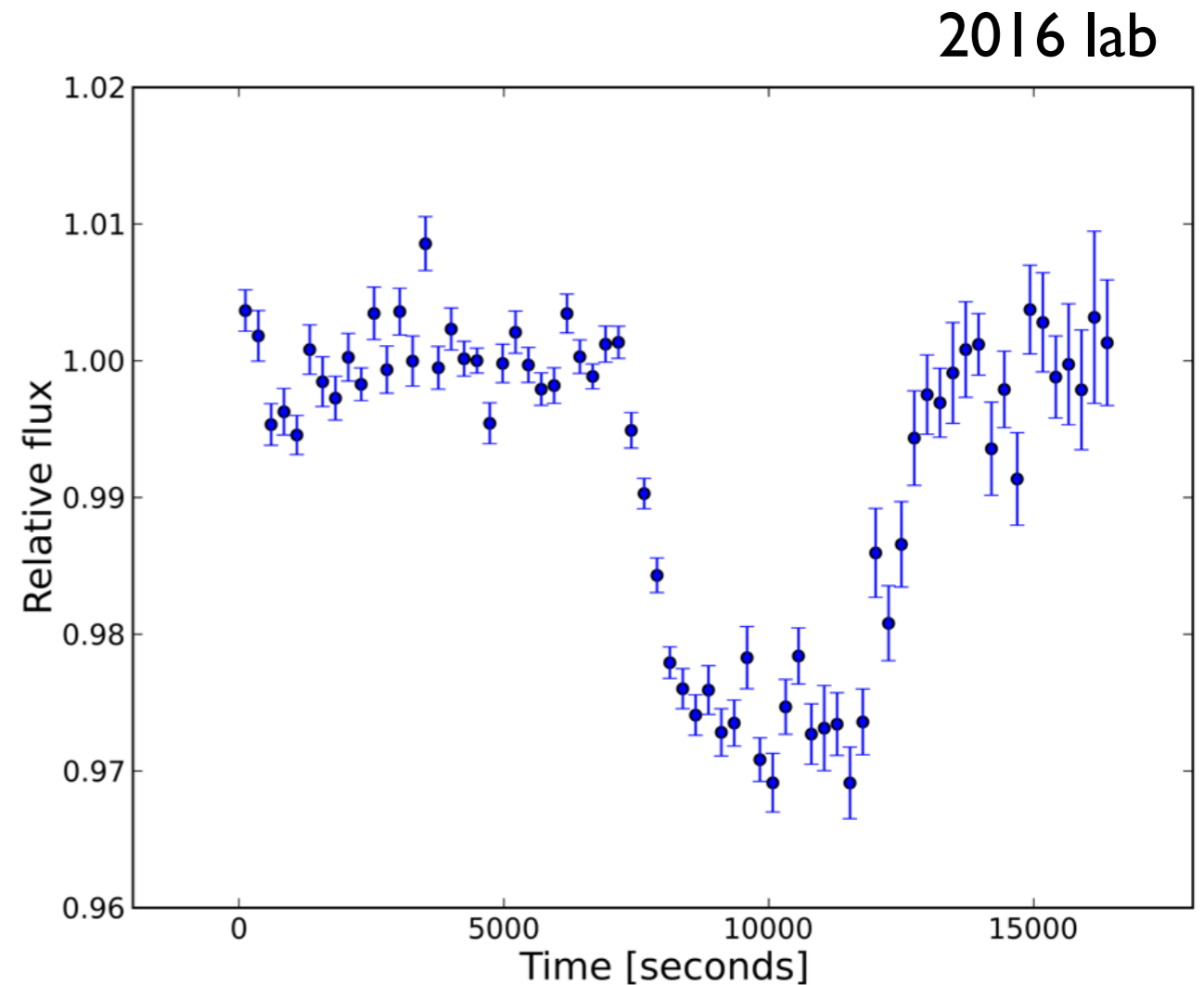
SBU Astronomy Club

# Lab 1 - optical imaging; time-series photometry

- detect an exoplanet transit



Deeg & Garrido 2000

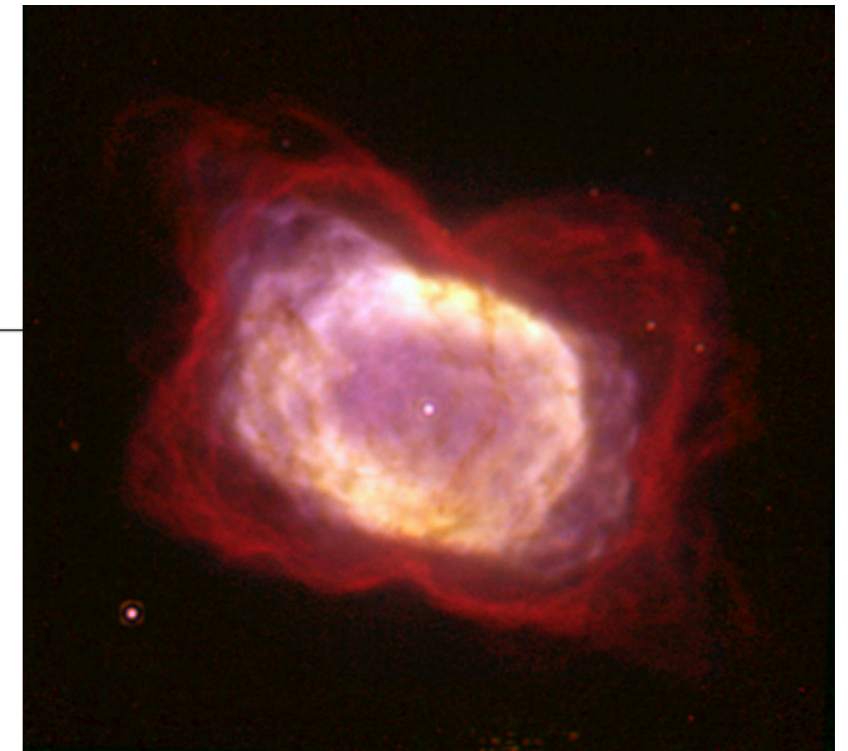
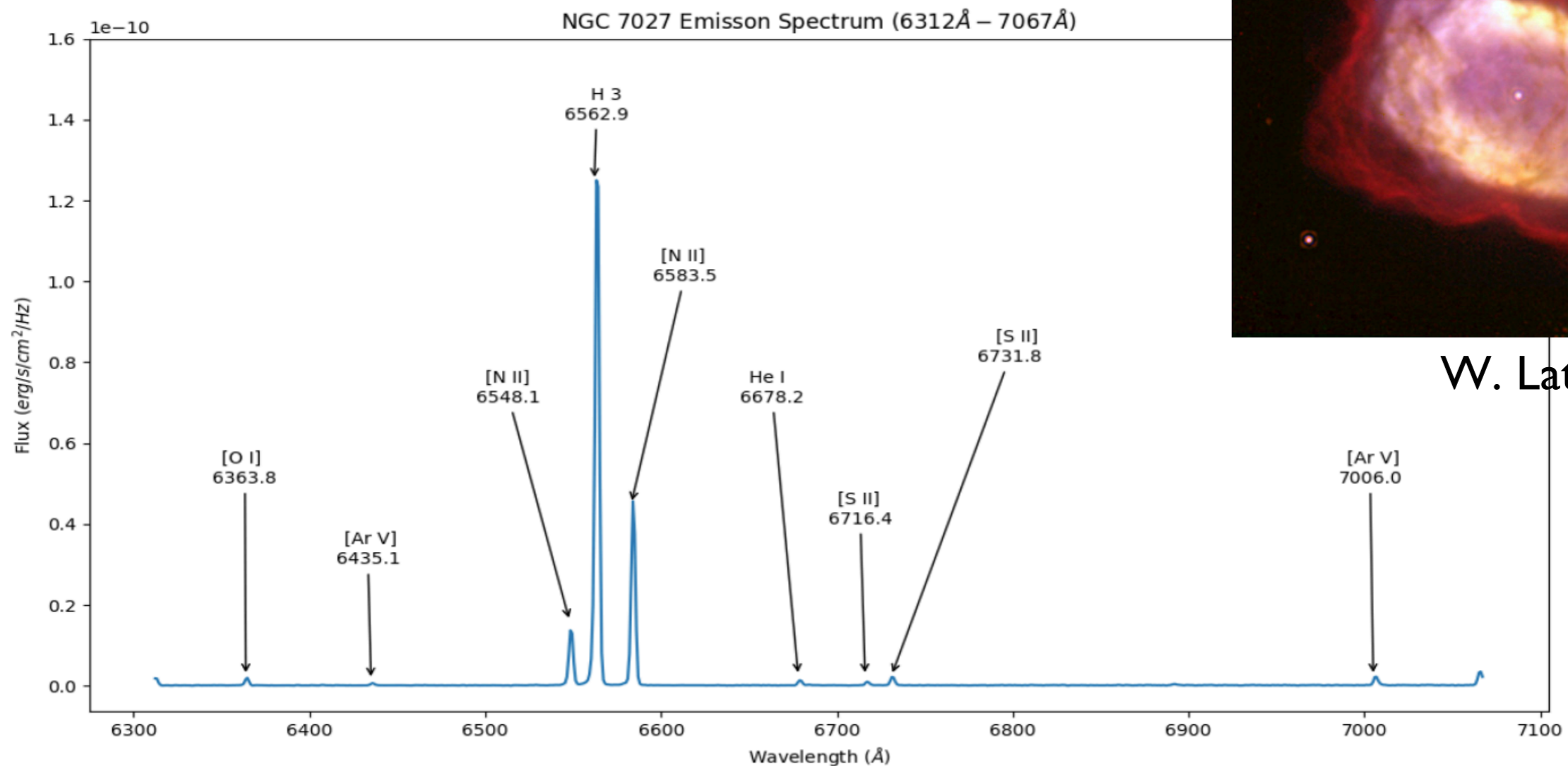


Note that there is also a Lab 0 to familiarize yourself with the equipment in the day-time, and practice writing a lab report

# Lab 2 - optical spectroscopy

- measure the gas temperature of a gaseous nebula

2017 lab



W. Latter / NASA

# Lab 3 - your proposal

- come up with your own project idea, write a telescope proposal
- we will hold a Time Allocation Committee - just like real astronomers!
- each lab team will conduct their top-ranked project

# The Fine Print

- you should already know (some) programming and (some) statistics before you take the class
- the optical labs have to be done at night, with clear weather  
→ you have to be prepared to schedule 9 night-time observing sessions, and have some flexibility for weather conditions
- this is not an “easy out” to PHY 515 - it is at least the same amount of work (arguably more)
- class fills up quickly - sign up when the undergrads do (April)