

Patrick McMillin
PHYS 493 Dr. Lau
7 March 2018

Colloquium Date: 7 March 2018

Colloquium Speaker: Dr. Andrea Banzatti

Colloquium Title: Planets, Planets, and yet more Planets: At the Origins of a Mystery Enshrouded in Disks

Speaker Affiliation: Department of Astronomy, University of Arizona

Dr. Banzatti is an observational astronomer who focuses on protoplanetary disks. He began the talk with an overview of the theory behind the spectroscopy and spatial resolution used in his observations, as well as a brief overview of the history of exoplanet discoveries. After this introduction, he discussed the problem that the current field faces concerning spatial resolution. As Dr. Banzatti discussed, even the newest array of telescopes (ALMA) can only resolve the size of Jupiter's orbit in relatively nearby protoplanetary disks. However, Dr. Banzatti brought up the spectroscopy of the disks. Since the central star heats up the gas in the disk, there is emission that can be measured through spectroscopy. Additionally, through the measurement of the distribution of the wavelength and knowing the Keplerian velocities, it is possible to understand the distribution of gases such as CO throughout the disk. This gives valuable information about the disk's chemistry. Dr. Banzatti talked quite a bit about combining many ideas and parameters to further the research in protoplanetary systems, and touched on how current simulation models can be improved, and talked about their value in his field. Overall, I enjoyed Dr. Banzatti's talk, and was particularly intrigued about the distribution of elements throughout the disk through simple kinematic measurements and spectroscopy.