



清华大学天体物理中心学术报告 THCA Colloquium

52th session in 2017 (188th session since 2015)

New Frontier of Exoplanetary Science: High Dispersion Coronagraphy

Speaker: Dr. Ji Wang (Caltech)

Time: Thursday, December 21, 2017, 02:00pm

Location: 科学馆322报告厅

Abstract:

Thousands of exoplanets have been discovered, but only a handful of them are amenable for atmospheric spectroscopic study. Spectroscopy leads to understanding of physical and chemical processes taking place in an exoplanet. Spectroscopy of exoplanets can also detect biomarkers in potential habitable planets around other stars. The high dispersion coronagraphy (HDC) provides a pathway to search for biomarkers in planets around M dwarfs with next-generation ground-based extremely large telescopes (ELTs, e.g., TMT). The HDC combines high resolution spectroscopy (HRS) with a coronagraph operating behind an extreme adaptive optics (AO) system. The coronagraph spatially filters out starlight while the HRS spectrally discriminates starlight from planet light, reaching a starlight suppression level that enables biomarker detection. I will discuss a roadmap to achieve this ambitious goal. The roadmap consists of rigorous science cases at different stages of hardware developments, from existing facilities on Mauna Kea, to the near-term upgrade, to instruments on TMT, and to future space missions such as HabEx/LUVOIR.

Bio:



I was born in Guilin, a beautiful small city in southeast part of China. I attended the University of Science and Technology of China (USTC) in the city of Hefei. In 2006, I went to the University of Florida in Gainesville to pursue my passion in Astronomy. I spent 6 years in Gainesville and obtained my PhD in 2012. After that, I moved to Yale University in New Haven as a postdoc. Starting in September 2015, I become a postdoc at Caltech.