

Brett Morris – Colloquium – October 16, 2025
Space Telescope Science Institute

Title:

The Stars Behind The Planets

Abstract:

Observations of exoplanet atmospheres measure atmospheric chemical abundances, temperature structures, and dynamics. As we observe a growing sample of planets, we hope to probe bigger questions: how did this planet form, how has it evolved over time, and could this planet be habitable today? It is sometimes overlooked that each planet is illuminated by an equally interesting host star. Stellar photospheres vary in both wavelength and time, driven by rotation, convection, and magnetism. Time-domain exoplanet transit observations must account for the star behind the planet to accurately measure atmospheric properties of exoplanets. I will: (1) review stellar magnetic activity and its impact on exoplanet transmission observations; (2) present observational and theoretical approaches to measure, model, and mitigate stellar magnetic activity contamination in exoplanet observations; and (3) share my unconventional path to working on these problems while hired as a software engineer.