

Abbie Stevens – Astronomy Seminar 9/5/2018

Title: Mapping Matter in Strong Gravity: Spectral-Timing of Black Holes and Neutron Stars

Abstract:

The light curves of low-mass X-ray binaries show variability on timescales from milliseconds to months. The shorter (sub-second) variability is particularly interesting because it probes the inner region of the accretion disk and compact object. X-ray spectral-timing is a new type of analysis that seeks to investigate how matter behaves in the strong gravitational field around the compact object. During my PhD I developed a technique for phase-resolved spectroscopy of quasi-periodic oscillations (QPOs) and coherent pulsations of sources without known ephemerides. In this talk, I will present analysis of QPOs from different classes of sources and different accretion states, and I will discuss how this sets the stage for my NSF fellowship research.