

ASTROPHYSICS SEMINAR SERIES

**Probing Inhomogeneous Reionization
with Lyman alpha Surveys:
From the ground to WFIRST**

**DR. JAMES RHOADS
NASA GODDARD**

Lyman alpha provides a sensitive local probe of the ionization state of intergalactic gas. We are pursuing large narrowband surveys for Lyman alpha at $z=7.0$ (the LAGER survey) and $z=7.7$ (the Cosmic DAWN survey). Both surveys have identified spectroscopically confirmed galaxies in the epoch of reionization. I will present the latest results from both surveys, with particular attention to spatial inhomogeneities in the Lyman alpha source density that point towards inhomogeneous reionization. Additionally, I will discuss prospects for studying reionization with WFIRST. WFIRST is a 2.4m space telescope with a 300 megapixel near-IR instrument capable of imaging and slitless spectroscopy from about 0.6 to 2.0 microns. These capabilities will revolutionize our understanding of reionization, both through Lyman alpha searches yielding direct constraints on the IGM neutral fraction, and also through a census of ionizing source populations across the full history of reionization.

**RUTHERFORD BELL ROOM
24 SEPT. 2019 - 3:30 PM**