



University
of Victoria

PHYSICS AND ASTRONOMY SEMINAR (In Person)

Dr. Madeline Marshall

Herzberg Astronomy and Astrophysics (HAA)

“Observing the Host Galaxies of High-Redshift Quasars with JWST”

Abstract

Studying the host galaxies of high-redshift quasars provides vital insights into the early growth of supermassive black holes and the black hole—galaxy connection. However, observing high-redshift quasar hosts in the rest-frame ultraviolet/optical has eluded even the Hubble Space Telescope, with the bright emission from the quasar completely concealing the underlying host galaxy. The James Webb Space Telescope (JWST) has launched a new era in this field, providing the opportunity to observe the stellar components of these host galaxies for the first time. I will discuss how JWST can be used to detect high- z quasar hosts, showing our detailed predictions using the BlueTides simulation. I will also present our latest JWST results from the NIRSpec Galaxy Assembly IFS GTO team. We have used the JWST NIRSpec IFU to observe two $z=6.8$ quasars, measuring the first reliable black hole masses at high- z , and a wide range of host properties, for example their interstellar medium structure and kinematics, star formation rates, and excitation mechanisms, as well as discovering merging companion galaxies. I will also outline the plans for the rest of our upcoming Cycle 1 observations.

Wednesday, March 15, 2023

11:30 am PST in ECS 104