



# PHYSICS AND ASTRONOMY SEMINAR

**Dr. Allison Man**

Dunlap Institute, University of Toronto

**“The role of AGN in galaxy star formation: A case study of a radio galaxy at  $z=2.6$ ”**

## Abstract

Radio galaxies are ideal sites to scrutinize the physics of active galactic nuclei (AGN) feedback, as they are massive galaxies with jets that interact with the surrounding medium. I will present a detailed analysis of the recent star formation history and conditions of a starbursting, massive radio galaxy at  $z=2.6$ . In the 8.5-hour VLT/X-Shooter spectrum, we detect unambiguous signatures of stellar photospheric absorption lines originating from OB-stars. Comparison with model spectra suggests that more than one burst took place in its recent past. ALMA observations of the atomic carbon emission line indicates that it has lower molecular gas fraction and shorter depletion time than other star-forming galaxies. Most intriguing is the modest velocity dispersion of these photospheric lines and the cold gas. We attribute its efficient star formation to compressive gas motions, induced by radio jets and/or interaction. Star formation works in concert with the AGN to remove any residual molecular gas and eventually leads to star formation quenching.

Wednesday, December 4, 2019

12:30 p.m.

ECS – Room 130