University of Victoria

PHYSICS AND ASTRONOMY SEMINAR
(In Person)

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"A New Look at the Molecular Dusty Torus of Active Galactic Nuclei"

Abstract

The classical picture to explain the type 1/type 2 classification of active galactic nuclei (AGN) requires a geometrically and optically thick torus of molecular gas and dust. This structure obscures the central engine from some lines of sight. For more than two decades, the torus was believed to be a compact (pc-scale), isolated, and rotating structure. The Galactic Activity, Torus, and Outflow Survey (GATOS) has forever changed the picture of the torus and its immediate surroundings. In this talk, I will summarize our recent work using high angular resolution ALMA and mid-IR observations, including some taken with JWST/MIRI in cycle 1, of nearby GATOS Seyfert galaxies. ALMA reveals AGN tori with sizes of a few tens of parsecs, which are now observed as rotating and, sometimes, outflowing structures. The extended mid-infrared emission in the nuclear regions of Seyfert galaxies is often detected in the direction perpendicular to the torus, but there are other components present, which are not necessarily associated to nuclear dusty winds. The nuclear mid-IR AGN spectra, now seen with JWST/MIRI, show a variety of shapes and features. I will show what we can learn about the nature of the AGN obscuring material by comparing them with state-of-the-art torus models.

Monday, September 11th, 2023
1 p.m. PDT
Clearihue A313