Department of Physics and Materials Science

SEMINAR

Identifying Massive Black Holes in Dwarf Galaxies via [Fe X] Coronal-Line Emission

Dr. Mallory Molina

Vanderbilt University

Abstract: Characterizing the black hole (BH) population in dwarf galaxies can provide important constraints on the BH seed population and the evolution of dwarf galaxies. In this talk, I will present the first systematic search for active galactic nuclei (AGNs) in dwarf galaxies using the [Fe X] optical coronal line. I identified 81 [Fe X]-emitting dwarf galaxies in the SDSS, whose [Fe X] luminosities indicate the presence of accreting massive BHs from AGNs or tidal disruption events (TDEs). Approximately 50% of these objects show additional evidence for AGN activity. Furthermore, these BH candidates are found in lower-mass, bluer galaxies typically missed by other selection techniques. I will present the BH candidate sample and its properties, and discuss the implications for the dwarf galaxy BH population.

Bio: Dr. Mallory Molina is currently an assistant professor at Vanderbilt University. They completed their undergraduate work at Ohio State University, and their graduate work at Penn State University. Molina was a Ford Postdoctoral fellow at Montana State University and was an Eccles Astrodata Fellow at the University of Utah. Their work focuses on active black holes in dwarf galaxies, with an emphasis on understanding how black holes and their host galaxies interact with one another. In addition to research, Molina is interested in exploring new ways to make astronomy more inclusive, including creating and running the non-profit organization Towards a More Inclusive Astronomy, which has chapters across the United States.

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Friday Nov. 8th, 3 - 4 PM Manning Hall 201

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