NASSP Honours Project 2025

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Radio Properties of Obscured Quasar Populations

Project Description:

Obscured quasars are a class of active galactic nuclei (AGN) in which the central region is hidden by large amounts of dust and gas. These objects are thought to represent a critical evolutionary stage of massive galaxy evolution characterised by rapid supermassive black hole (SMBH) growth and AGN activity. Due to significant obscuration, these luminous quasars are obscure direct optical observations of their central engines, while the infrared and radio allow us to detect their inner regions and understand the emission mechanisms. Although optical and infrared studies have provided valuable insights into their general properties, understanding the radio properties of these objects, including energetic processes, jet formation, and interaction with their host galaxies, is crucial to gaining a comprehensive understanding of their nature.

This project aims to characterise the radio properties of luminous-obscured quasars through multiwavelength observations. The student will focus on creating a sample from radio observation catalogues, such as the MIGHTEE survey, of luminous obscured quasars and studying their multi-wavelength properties. Through this project, the student will learn the AGN physics and be able to handle large astronomical datasets, cross-match multiwavelength survey catalogues, and apply Python-based tools for data analysis.