Supermassive black holes (SMBHs) are ubiquitous in massive galaxies and grow through the accretion of galactic circumnuclear material. During periods of growth, radiation from these active galactic nuclei (AGNs) can dominate the electromagnetic spectrum. The various radiative mechanisms present in AGNs contribute to different energy regimes in distinct ways, and infrared surveys have affirmed that a large fraction of the AGN population shows signs of obscuration by dense, intervening material. Spectral X-ray observations are a favored method for probing the densities of such obscuring material, but recent work has shown that even the highest energy X-rays can be obscured from detection. As such, there exists no direct method to determine the full population of heavily obscured, Compton-thick (CT) AGNs. In this talk, I will present my work using observations of luminous IR sources to identify obscured AGNs frequently missed in large optical surveys, a significant fraction of which lack X-ray counterparts—a typical signature of AGN activity. Using a novel approach, I forward model the distribution of AGN obscuration to infer the total fraction of CT AGNs in the local universe (z ≤ 0.8). I find that at least 50% of the total population of AGNs are CT, which is in excellent agreement with other recent work using completely independent but comparable methods. This result has major implications for our understanding of black hole accretion physics and the role of AGNs in cosmic evolution.

“Hidden Monsters: Uncovering the Full Population of Obscured Supermassive Black Holes”

Host: Dr. Vivienne Baldassare

ZOOM Information: Meeting ID: 910 2578 6983 • Passcode: physastro