

**Tuesday, October 25th, 2022, 2:30pm in PSE 317**

**Speaker:** Dr. Andreea Petric

**Institution:** Space Telescope Science Institute

**Title:** Obscured AGN – Hiding High Growth at the Cosmic Noon

**Abstract:** Most bulge-dominated galaxies host black holes with masses that tightly correlate with the masses of their bulges. This may indicate that the black holes may regulate galaxy growth or vice versa or grow in lock-step. The quest to understand how, when, and where those black holes formed motivates much of extragalactic astronomy. Of particular interest is the population of galaxies with active black holes in their nuclei (active galactic nuclei or AGN) that are fully or partially hidden by dust and gas: the emission from the broad-line region is either completely or partially obscured with a visual extinction of 1 or above. Though not yet precise, this limit appears to be the point at which the populations of AGN may evolve differently. Several X-ray through Radio imaging missions are geared to detect on the order of  $10^5$  obscured AGN. To realize the full scientific potential of these surveys, we must examine those objects using spectroscopic techniques to study their reddening properties, star-formation histories, and excitation conditions. With massively multiplexed spectroscopic facilities we can efficiently measure ionized and hot molecular gas emission lines, probing star-formation, AGN feedback, and gas flows in and between galaxies and the circum-galactic medium. These key studies will shed light on the role of black holes in galaxy evolution during the epoch of peak growth activity.