

UCLA Division of Astronomy & Astrophysics

Astronomy Colloquium

Wednesday, May 20 at 3:30 PM

Room 1-434 PAB

Dr. Kishalay De
Columbia University



Dust enshrouded eruptions from planets to supermassive black holes

Eruptive mass loss and the resulting dramatic brightness variations are ubiquitous in the lives of stars, their planetary companions, and their remnants. While these episodes can fundamentally change their evolutionary course, they frequently enshroud them in veils of dust and make them unobservable in the optical, ultraviolet and X-ray bands. In this talk, I will present our efforts toward conducting an all-sky survey of infrared variability, aimed at capturing these poorly observed phases in stellar evolution. I will introduce the WISE Transients Project (WTP), an initiative aimed at an end-to-end exploration of the variable mid-infrared sky using archival data from the NEOWISE sky survey. Reprocessed using state-of-the-art image processing techniques, the NEOWISE data have been repurposed to serve as a transient discovery engine, providing fundamental new insights ranging from the co-evolution of stars and planets to the formation of black holes. I will conclude with an overview of the coming decade of infrared surveys, highlighting emerging opportunities with i) the recently launched SPHEREx mission to provide an unbiased spectral atlas of IR transients, ii) the rise of ground-based IR survey capabilities spearheaded by novel instrumentation and iii) unveiling the faint dusty universe with the Roman space telescope.

Hosted by professors: Smadar Naoz, Alice Shapley, Erik Petigura