



University of Crete
Department of Physics

Physics Colloquium

Thursday, 27 November 2025 | 17:00 – 18:00, Seminar Room 3rd Floor

A NEOWISE view of extragalactic nuclear transients

Dr. Christos Panagiotou

MIT Kavli Institute, USA

ABSTRACT

Tidal disruption events (TDEs) serve as direct probes of the nature and population of supermassive black holes and are nowadays regularly detected in optical and X-ray surveys of the sky. Nevertheless, there's increasing evidence that these surveys provide a biased view of the underlying population. To address this, we performed a systematic search of the NEOWISE archive for mid-infrared bright TDEs using state-of-the-art image subtraction techniques. In this talk, I will present our ongoing efforts to identify and characterize mid-infrared nuclear transients and I will highlight some recent results of this work, including the discovery of the nearest TDE, the analysis of a population of obscured TDEs uniquely identified in the mid-infrared wavebands, and the detection of other extreme transients. I will further discuss how this new population of mid-infrared TDEs alters our understanding of the general population and provides an opportunity to probe the nuclear environment of typical galaxies. I will conclude with remarks for future work using upcoming missions.