



Indian Institute of Astrophysics

भारतीय खगोलभौतिकी संस्थान

IIA COLLOQUIUM

Prof. Dimitra Rigopoulou

Professor of Astrophysics

University of Oxford, U.K



Professor Dimitra Rigopoulou's research focuses on the evolution of galaxies and the growth of structure in the Universe. She works with multiwavelength datasets to gain new insights into galaxy formation and evolution by contrasting the views provided by radiation emitted in different wavelengths. She studies nearby galaxies where the increased spatial resolution afforded by ground based telescopes and space based observatories enables a better understanding of the physical processes governing galaxy evolution. She also studies dust emission in galaxies near and far, especially Polycyclic Aromatics Hydrocarbons (PAH), with JWST (MIRI-MRS+NIRSpec) instruments.

Hunting the most dust-obscured galaxy nuclei with the JWST: growing super-massive black holes or compact starbursts?

Understanding the coeval growth of super-massive black holes (SMBH) and their host galaxies is crucial to constraining models of galaxy evolution. Dust obscuration however, poses significant challenges in uncovering SMBH that could be deeply embedded within galactic nuclei. Extremely compact and dusty nuclei have been found in the centres of Luminous and Ultra-luminous IR galaxies (U/LIRGs). The high infrared luminosities within such compact sizes point towards the presence of a hidden AGN that is likely rapidly growing behind vast quantities of gas and dust. Could these compact hidden nuclei represent an important phase of rapid accretion onto an obscured SMBH? Or do these hidden nuclei host an unusual compact starburst? In this talk I will present a new technique that enables us to identify dust-obscured nuclei based on spectral features from Polycyclic Aromatic Hydrocarbon (PAH). Observations with the James Webb Space Telescope provide an unprecedented view of the centres of these deeply obscured nuclei. Using a host of atomic, ionic and molecular species we are able to investigate the nature of these hidden nuclei and assess their role in galaxy evolution.

11:30 AM, Monday, December 30, 2024, Auditorium, Indian Institute of Astrophysics

High Tea 11:00 am, First Floor Lounge, IIA

Indian Institute of Astrophysics

II Block, Koramangala, Bengaluru-560034

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