From Accretion to Outflows: the Physics of Active Galactic Nuclei

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Abstract

Active Galactic Nuclei (AGNs) are among the most energetic and fascinating phenomena in the universe. Driven by supermassive black holes at the centers of galaxies, these cosmic powerhouses release immense energy, often outshining their entire host galaxies. Understanding the complex physical processes governing these cosmic powerhouses requires a detailed look into their multi-wavelength emission. This seminar offers a deep dive into AGN physics through the powerful lens of multi-wavelength spectroscopy. Rather than viewing the central engine as an isolated component, we will explore the intricate physical connections linking the optical, ultraviolet, and X-ray emission regimes. By analyzing these spectral signatures, we will discuss how observational data allows us to map the structure of accretion disks and briefly probe the high-energy corona.