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Disks, Jets, and Surprises: Exploring the X-ray Variability of Jetted AGNs (Blazars and Jetted NLSy1 Galaxies).

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In this talk I will discuss X-ray timing and spectral characteristics of two fascinating kinds of jetted Active Galactic Nuclei (AGN)—blazars and Fermi-detected Narrow-line Seyfert 1 (NLSy1) galaxies. In the first section, we highlight a two-decade-long X-ray monitoring program of several notable blazars: Mrk 421, 3C 273, and PKS 2155-304, revealing interesting multi-epoch, spectral, and temporal patterns. In the second section, we focus on jetted NLSy1 galaxies, separating disc and jet contributions by integrating NuSTAR, XMM-Newton, and ZTF data. The identification of thermal disc fingerprints in the soft X-ray and optical bands, cases of pure jet-dominated X-ray emission, and evidence for disc-jet coupling are discussed. The accretion-jet relationship in these low-mass, high-accretion AGN is uncovered using a variety of X-ray timing and spectral approaches. In a nutshell, these findings demonstrate the highly variable, stochastic X-ray behavior of jetting AGNs and the value of multi-epoch, multi-instrument studies in revealing the physics behind them.

Author: CHAUDHARY, Suvas (Department of Physics, University of the Free State, 205 Nelson Mandela Dr., Bloemfontein, 9300, South Africa.)

Presenter: CHAUDHARY, Suvas (Department of Physics, University of the Free State, 205 Nelson Mandela Dr., Bloemfontein, 9300, South Africa.)

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