

Seminario

Departamento de Física Teórica

“What's Itching at the AGN Bellies? Radio Interferometry Enlightens High-Energy Flares”

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Abstract:

Some AGNs, especially blazars, exhibit gamma-ray flares with flux increases by factors of 10–100 on days-to-weeks timescales. While theoretical models suggest that these flaring events likely arise from shocks or magnetic reconnection in jets, physical principles, such as shock propagation, and key parameters, such as magnetic field strengths and emission locations, remain elusive and are still under debate. Observations with Very Long Baseline Interferometry (VLBI) techniques in radio bands can reach resolutions of the order of milli-arc seconds and probe the innermost regions of AGNs to investigate the physics behind this phenomenology. The Interferometric Monitoring of Gamma-ray Bright AGNs (iMOGABA) program, using the Korean VLBI Network, delivers quasi-monthly multi-frequency (22–129 GHz) observations of ~30 sources. Combining multi-wavelength observations across the spectrum offers critical constraints for understanding the phenomenology of AGN flaring activity. Results reveal evidence for shock-in-jet scenarios with embedded magnetic fields and particle energization.

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