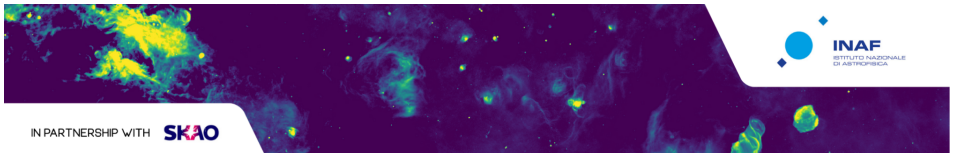

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Understanding the AGN accretion and ejection physics with SKA-VLBI observations

Wednesday 26 November 2025 11:30 (15 minutes)

The accretion-ejection mechanism acting in Active Galactic Nuclei (AGN) is one of the main astrophysical open issues, being connected to the role of AGN feedback in galaxy formation evolution studies. Radio Quiet AGN constitutes the large majority of radio sources in the sky. The absence of luminous jets allows us to investigate their radio emission originating from a wide range of possible mechanisms, from the host galaxy kpc scale down to the innermost region near the SMBHs: star formation, AGN driven wind, free-free emission from photo-ionized gas, low power jet, and the innermost accretion disc coronal activity. All these mechanisms will be probed over a wide range of frequencies with unprecedented sensitivity, wide-field survey capabilities and in particular with high-resolution imaging of VLBI. Monitoring variability and spectral properties will help understand dynamics and environmental interactions. Nuclear regions will be mapped from sub-pc to kpc scales. With these tools, we will address the diversity of AGN populations and their radio activity mechanisms from the local Universe to the cosmic dawn, across different accretion regimes and jet powers. Here, we discuss strategic observational approaches, theoretical frameworks, and the integration of multi-wavelength data to disentangle the contributions of various emission components. Our aim is to bridge gaps between observations and theory, with the aim of advancing our knowledge of accretion and ejection processes and their role in shaping the cosmos.

Topics

Galaxy Evolution & AGN

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