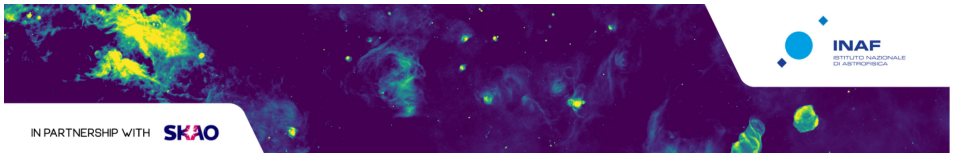

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The emerging population of high-energy radio galaxies

Tuesday 25 November 2025 14:42 (3 minutes)

The release of the 4th Fermi/LAT AGN catalogue, based on more than a decade of observations, has confirmed that blazars dominate the GeV sky, accounting for 98% of the detected sources. The remaining 2% includes other AGN classes such as radio galaxies, narrow-line Seyfert 1 galaxies, compact steep-spectrum radio sources, and steep-spectrum radio quasars. The advent of new large-scale radio surveys, such as the VLA Sky Survey (VLASS) and the Rapid ASKAP Continuum Survey (RACS), carried out with the latest generation of radio telescopes, has opened up new opportunities for the classification and study of extragalactic gamma-ray sources, particularly misaligned AGN. The improved sensitivity and angular resolution of these surveys now enable a more accurate morphological and spectral classification, leading to the discovery of an emerging population of radio galaxies emitting in the GeV regime. Further objects of this class are expected to be identified in the near future with the advent of the Square Kilometre Array (SKA), which will significantly enrich the GeV sky.

This talk will discuss the prospects with SKA, to be presented in a chapter of the next SKA White Book. Specifically, SKA-Low will allow us to probe the extended lobe emission at low frequencies, while SKA-Mid will provide the frequency coverage required for spectral energy distribution (SED) studies and synchrotron ageing analyses. Finally, SKA-VLBI will resolve the innermost regions of AGN cores, unveiling potential signatures of jet reorientation or the onset of a new activity phase.

Topics

Galaxy Evolution & AGN

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