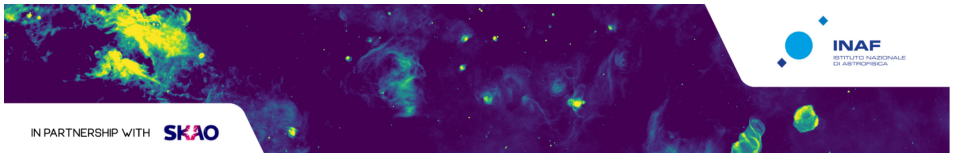

Contribution ID: **42** Type: **not specified**

Small but Mighty: Unveiling Low-Power Radio AGN with the SKA

Wednesday 26 November 2025 11:45 (15 minutes)

Low-power radio active galactic nuclei (AGN) with radio luminosities below 10^{23} W Hz^{-1} represent a numerically dominant but still poorly understood population, crucial for unveiling the full impact of radio-mode feedback on galaxy evolution. Unlike classical FR I/II sources, these faint AGN often lack prominent extended jets and lobes, making them elusive in current surveys and raising open questions about their duty cycle, their connection to host galaxy properties, and their role in regulating star formation through small-scale energy injection. The Square Kilometre Array (SKA) will provide a breakthrough in this field: SKA-Mid and SKA-Low continuum surveys will deliver an unprecedented census of low-luminosity radio AGN across cosmic time, reaching μJy sensitivities and characterizing their spectral and morphological properties, while SKA-VLBI will resolve compact cores and parsec-scale jets, disentangling nuclear activity from star formation in their hosts. I will discuss how these capabilities will allow us to constrain the space density, host demographics, and feedback signatures of low-power AGN, with particular emphasis on the compact FR0 population, and outline the key scientific opportunities for the Italian community in exploiting SKA and its precursors to probe the faint end of the radio-loud AGN population.

Topics

Galaxy Evolution & AGN

Author: BALDI, Ranieri Diego (Istituto Nazionale di Astrofisica (INAF))

Presenter: BALDI, Ranieri Diego (Istituto Nazionale di Astrofisica (INAF))

Session Classification: Galaxy Evolution & AGN