## CTAO: An Advanced Frontier in the Study of Extreme Phenomena in Misaligned Jetted AGN

Monday, 26 May 2025 10:45 (15 minutes)

It is now well established that active galactic nuclei (AGN) are the dominant class of extragalactic sources in the gamma-ray sky. Among them, blazars—AGN with jets oriented toward the observer—constitute the majority. In contrast, misaligned AGN, or radio galaxies, account for only about 2% of the 4LAC-DR2 catalog of AGN detected by Fermi in the gamma-ray band. At TeV energies, only six radio galaxies have been detected so far.

Recently, the Large High Altitude Air Shower Observatory (LHAASO) reported the first detection of a low-luminosity AGN with a compact radio jet, NGC 4278, at TeV energies. This discovery suggests that even low-power, compact jets can efficiently accelerate particles up to TeV energies, potentially revealing a new class of TeV-emitting sources.

In this contribution, I will discuss the main properties of these subdominant classes of gamma-ray emitters. The source statistics at very high energies will be significantly improved by the forthcoming Cherenkov Telescope Array Observatory (CTAO), thanks to its unprecedented sensitivity. These advancements will help us better understand the particle acceleration and radiative processes occurring in extragalactic jets.

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Session Classification: Rapid talks