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# Giant Radio Galaxies in the MeerKAT Fornax Survey

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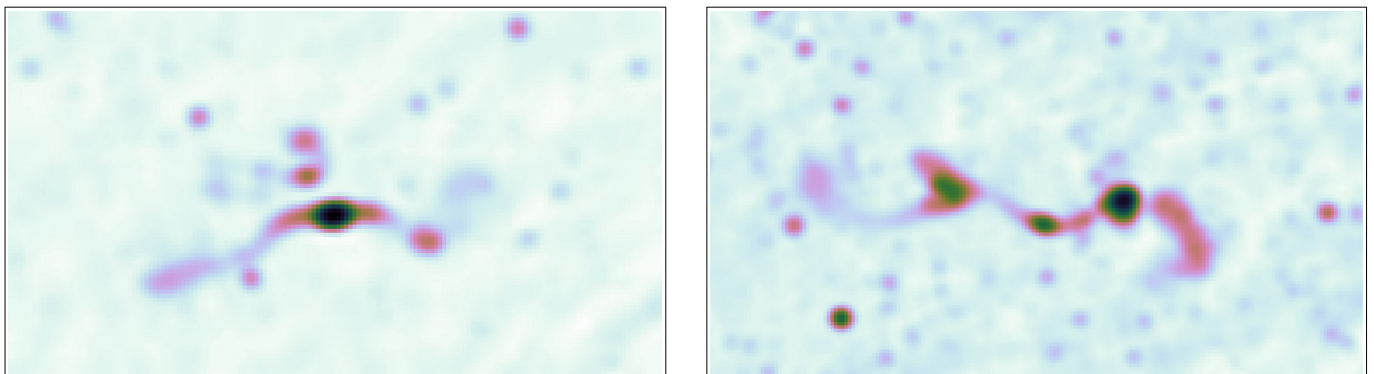
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The goal of this project is to characterize the properties of the Giant Radio Galaxies in the MeerKAT Fornax Survey. These objects are new discoveries and therefore the work could be part of a scientific publication.

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**Rationale:** Giant Radio Galaxies (GRGs) are the largest individual objects in the Universe with projected linear sized exceeding 0.7 Mpc. It was thought these objects reside in low density environment where that the jets and lobes could easily reach the observed high distances from the central Active Galactic Nucleus (AGN) (e.g. Mack et al 1998, Malarecki et al. 2015). However, recent works (Dabhade et al. 2020a,b; Lan & Prochaska 2021) demonstrate that the environment of GRGs is similar to that of normal galaxies. In addition, the properties of the AGN are not peculiar. Another scenario is that the GRGs form thanks to old AGN whose activity last enough to produce these large systems. However, a combination of factors could explain the existence of the GRGs (see Dabhade et al. 2023).

In a region of the MeerKAT Fornax Survey (Serra et al. 2023), we discovered two GRG.



Both the GRGs shows hints of interaction with the environment. The spectral index associated with these object could suggest the radiative age of the sources and therefore help to understand the origin of these GRGs.

**The project:** The student will learn how to image radio data and explore the image quality using different strategies. The student will make in-band spectral index map. The basic properties of GRGs such as radio surface brightness, luminosity, largest linear size, spectral index and age, will be derived from the total intensity and spectral index images and compared with the literature.

**Required skills/knowledge:** Familiarity with python is required.