

## Simulating synthetic data for rare radio galaxies for SKA precursors

In the past few years MeerKAT and ASKAP have significantly changed our view of the radio sky at meter-wavelengths. Sensitive observations from these telescopes have challenged our views of traditional radio source populations and revealed new kinds of radio sources. This paradigm shift is expected to continue with the upcoming MeerKAT extension and LOFAR 2.0 facilities, which will produce an enormous amount of radio data.

To deal with this flood of data and the complexity of sources we need new strategies which optimize science extraction and minimize manual effort by astronomers. To capture the underlying astrophysics of sources with complicated and rare morphologies as well as create realistic test data on which automated data analysis strategies can be tested, we need realistic synthetic image-plane data for SKA precursor facilities.

The aim of this project is to use existing source models of rare radio galaxies provided by cutting-edge MHD simulations to produce realistic synthetic data for a variety of MeerKAT array configurations and observation parameters like frequency and declination. In the process we expect the student to learn about practical know-how of radio data management and assessment and the astrophysical processes giving rise to rare radio galaxies.

Special Requirements: Familiarity with python coding and linux environment is a must. Access to a laptop is required.

Research Area: Astronomy

Project Level: Masters

This Project Is Offered At The Following Node(s):  
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