

Title

**First systematic study of a large sample of galaxy groups**

Abstract

We propose MeerKAT observations for a sample of 32 galaxy groups selected through the first Data Release of the SGR/eROSITA All-Sky Survey. The main observational deliverables of this project will be UHF-band and L-band continuum images of 32 galaxy groups, as well as spectral index and polarisation maps. The high resolution and sensitivity of MeerKAT, combined with the unique survey capabilities of eROSITA, will enable to investigate for the first time the impact of Active Galactic Nuclei (AGN) feedback in a large sample of galaxy groups through the combination of state-of-the-art radio and X-ray images. Scientific outcomes will include unique insights into the role of feedback in galaxy evolution, its dominant mode in galaxy groups, and a thorough view of the interplay between thermal and non-thermal emission in these environments. This project will pave the way for a larger proposal in the near future, which will dramatically increase the sample size and finally enable accurate comparisons with clusters sample and state-of-the-art simulations, which currently struggle to reproduce the observed properties of galaxy groups.