MKT-20192

HI study of ultra-diffuse galaxies and galaxy evolution in the central region of Hydra I

Abstract

We propose a single pointing deep L-band HI observation in 32k mode of the core of the southern galaxy cluster Hydra I with MeerKAT. Our primary goal is to investigate the HI content and dynamics of 12 Ultra-diffuse galaxies (UDGs) and 15 low surface brightness galaxies (LSBs) recently identified in the Hydra cluster. By measuring the redshifts, baryonic masses and rotation velocities of the UDGs, we will characterise their properties and explore their relationship with HI in their surroundings, to obtain insight into how they form and evolve in clusters. The excellent sensitivity and high spatial and velocity resolution that MeerKAT provides will allow us to map the HI spatial distributions and velocity fields of ~ 6 of the largest UDGs in the sample, doubling the number of such galaxies that have been spatially resolved to date. Furthermore, these deep HI observations will enable us to follow up in much more detail the evolutionary processes such as tidal and ram-pressure stripping seen in the central region of the cluster in previous shallower MeerKAT HI 4k observations.