



Contribution ID: 42

Type: **not specified**

The low HI mass population in the Fornax cluster as never seen before

Wednesday, 29 November 2023 15:30 (20 minutes)

The MeerKAT Fornax Survey has successfully observed the central part of the Fornax cluster with an unprecedented sensitivity and resolution. Reaching a MHI sensitivity of $\sim 10^6 M_\odot$, these data allow us to investigate the low HI mass population of the Fornax cluster.

By analysing deep VST optical images from the Fornax Deep Survey, it is now clear that some of the low-mass HI detections do not have an optical counterpart and are thus clouds of gas floating within the ICM. The remaining low HI mass detections show that only $\sim 6\%$ of dwarf galaxies still host HI, allowing us to measure the timescale (and so the efficiency) of the HI removal in low-mass systems in the Fornax cluster.

The small number of HI-rich dwarfs causes the collapse of the HIMF of galaxies of the Fornax cluster below $\sim 10^7 M_\odot$, which is indicative of how HI removal affects the evolution of low-mass galaxies in clusters.

In this talk I will explore the low HI mass regime that now with MeerKAT and later with SKA is reachable, focusing on the results of the MeerKAT Fornax Survey. Finally, I will also mention the studies on the SFH and the properties of the multi-phase gas of Fornax galaxies that are possible thanks to the availability of ancillary data from MUSE, ALMA and APEX.

The excitement of deep and high resolution data that SKA will provide is high. However, as a precursor of SKA, the MeerKAT telescope already highlights the challenges we will face. The simple question of whether the faint HI emission is a free floating cloud or a faint galaxy would remain unanswered without the availability of deep optical images. Multi-wavelengths data will be essential to be properly equipped in the future exploration of the Universe observed with SKA.

Research area

HI galaxy science

Primary author: LONI, Alessandro (Istituto Nazionale di Astrofisica (INAF))

Presenter: LONI, Alessandro (Istituto Nazionale di Astrofisica (INAF))

Session Classification: Parallel - Galaxy Evolution & AGN