



Contribution ID: 2

Type: **not specified**

Ongoing efforts for performing Hydrogen Intensity Mapping with MeerKAT

Probing the Universe's large-scale structure (LSS) leads to a wealth of cosmological information. With the advent of the SKA Observatory, we can start using the neutral hydrogen (HI) 21-cm emission to trace the LSS. In particular, a novel observational strategy is catching on: Intensity Mapping (IM). With IM, we relax the requirement of source detection and go after all the integrated 21-cm emissions: we can produce detailed three-dimensional maps of a good fraction of the observable Universe. On the one hand, this strategy carries a potentially revolutionary science output. But, on the other, these observations have been extremely challenging to perform. In particular, disentangling the HI IM signal from orders-of-magnitude more intense and intricate contaminants is the thorniest problem. In this talk, I will discuss how we address this challenge with first-of-their-kind observational data from the MeerKAT radio telescope, a precursor to the SKA Observatory. Our ongoing work demonstrates that a radio array operating as a collection of independent telescopes can probe the IM cosmological signal, marking a milestone for the cosmology science case with the entire SKAO.

Research area

Cosmology

Primary author: CARUCCI, Isabella Paola (Istituto Nazionale di Astrofisica (INAF))

Presenter: CARUCCI, Isabella Paola (Istituto Nazionale di Astrofisica (INAF))

Session Classification: Parallel - EoR, Cosmology