

Keynote - Mapping Neutral Hydrogen: opportunities and challenges on the road to the SKA Observatory

jeudi 12 juin 2025 11:30 (40 minutes)

Intensity Mapping techniques for the 21cm line. In the post-reionization era ($z < 6$), this will allow us to trace the underlying large-scale distribution of matter, opening a new window on dark matter and dark energy. To unlock the full potential of this technique for the SKAO, an intense data-taking campaign has been carried out using the SKAO precursors. I will describe the status of MeerKLASS, the Intensity Mapping survey with the MeerKAT array, and discuss the various challenges concerning flagging and treatment of Radio Frequency Interference, calibration, separation of the bright foreground emission leading to the detection of cross-correlation signal with the galaxy survey, and the first hints of an auto-correlation power spectrum measurement. These results pave the way to routine use of IM also in the SKAO era, potentially allowing radio cosmology to deliver complementary and competitive constraints with galaxy surveys on the cosmological model.

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