

Simulating HI Intensity Mapping for MeerKAT/SKA Mid

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Neutral hydrogen (HI) intensity mapping makes it possible to probe large volumes of the Universe. Since fluctuations of HI are a tracer for dark matter fluctuations, we can reconstruct the dark matter density field from HI intensity mapping. For HI intensity mapping systematics are a significant concern, therefore we need simulations to get a good understanding of their effects on the data. We are developing a simulation pipeline for interferometric intensity mapping with MeerKAT and SKA Mid. For that we use a sky catalog simulated by PINOCCHIO showing the HI intensity distribution. With Karabo we reconstruct the images we would get from an observation of line emission. This results in a three-dimensional HI intensity map which can be used to study intermediate cosmological scales.

Primary author: STUDER, Jennifer

Co-authors: REFREGIER, Alexandre; CRICHTON, Devin (ETH Zurich); SPINELLI, Marta; HITZ, Pascal (ETH Zurich); BERNER, Pascale

Presenter: STUDER, Jennifer

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