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The continuum science pathfinder experiment for the SKA, a.k.a. the superMIGHTEE project

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The MeerKAT International GHz Tiered Extragalactic Exploration (MIGHTEE) is one of eight approved Large Survey Projects on the MeerKAT Square Kilometre Array (SKA) precursor telescope. It has devoted nearly 2000 hours of MeerKAT time over several years to secure deep imaging at 2 micro-Jy sensitivity covering 20 sq. deg. over a bandwidth of 0.9-1.6 GHz. Alongside, the upgraded Giant Metrewave Radio Telescope SKA pathfinder telescope offers the matching imaging angular resolution and sensitivity between 250-850 MHz as the MeerKAT MIGHTEE project. Thus, this ultra-broad data, 250-1600 MHz from two major facilities not only has tremendous scientific potential for the MIGHTEE deep fields, i.e., it provides extraordinary opportunities to study and characterise the deep radio sky, but also presents us with several technical challenges that must be addressed for the wide-band surveys with the SKA. We will summarise this continuum science pathfinder for the SKA, a.k.a. the superMIGHTEE project, present early results from it. More specifically, we will show that the scientific output of it will have a profound impact on our understanding of several science drivers, e.g., (i) the evolution of active galactic nuclei and star-forming galaxies over cosmic time as functions of stellar mass and environment; (ii) the evolution of neutral hydrogen; (iii) the evolution of cosmic magnetic fields in galaxies, groups of galaxies and clusters of galaxies.

keywords

deep fields, survey, imaging, calibration, RFI, clusters, AGN, polarisation

In-person or online?

unsure

Career level

Mid-Senior

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