

The Third National Workshop on the SKA Project - The Italian Route to the SKAO Revolution



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The LOFAR LBA sky survey: learned lessons

Wednesday, 6 October 2021 09:50 (20 minutes)

The LOFAR Low Band Antenna (LBA) system makes LOFAR a case-of-study for the exploration of ultra-low frequencies (<100 MHz). Understanding how to collect, store, reduce and analyse LOFAR LBA data, is key to have a fast track towards SKA-low science.

In this talk I will give an overview of the LOFAR Sky Surveys with emphasis on the LOFAR LBA Sky Survey, describing the planning, status, data analysis process, and data releases. The survey aims to cover the northern sky in the frequency range 42-66 MHz, reaching the sensitivity of 1 mJy/b at the resolution of 15 arcsec. Thanks to this experience we have now a set of proven-working multi-beam observing schemes, as well as simulation and data reduction codes that can be directly applied to SKA-low observations.

As an example science case, I will present how such data can be used to examine the ultra-low frequency radio emission from low-energy populations of cosmic rays in galaxy clusters giving an overview on the on-going research.

Research area

Extragalactic Continuum (galaxies/AGN, galaxy clusters)

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Session Classification: Non-Thermal Processes in Galaxy Clusters