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Unveiling the Cosmic Dawn and Reionization with LOFAR-AARTFAAC

Wednesday 1 June 2022 10:00 (15 minutes)

Observations of the redshifted 21-cm signal of neutral hydrogen from the Cosmic Dawn and Reionization epochs promise to provide valuable insights into the (astro)physical processes that governed the structure formation in the early Universe. The AARTFAAC wide-field imager of the LOFAR telescope is an excellent instrument to measure the redshifted 21-cm signal on large angular scales from the Cosmic Dawn and Reionization. We commenced the AARTFAAC Cosmic Explorer (ACE) programme to measure the power spectrum of the 21-cm signal at redshift $z \sim 18$. Additionally, we proposed the AARTFAAC REionization Survey (ARES) programme as a part of the upgraded LOFAR2.0 large programmes. The ARES programme aims to map the low-frequency diffuse radio emission in the northern sky and 21-cm power spectrum measurement from the Epoch of Reionization with AARTFAAC-HBA. The talk will focus on the results and updates from the analysis of ACE data and an overview of the proposed ARES program.

Presenter: GEHLOT, Bharat Kumar (University of Groningen)

Session Classification: Plenary Session