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Chasing the Cosmic Dawn with LEDA

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Total-power radiometry with individual meter-wave antennas is a potentially effective way to study the Cosmic Dawn ($z \sim 20$) through measurement of the sky brightness arising from the 21~cm transition of neutral hydrogen, provided this can be disentangled from much stronger Galactic and extra-galactic foregrounds. In the process, measured spectra of integrated sky brightness temperature can be used to quantify the foreground emission properties.
In this talk, I present results from a subset of data from the Large-aperture Experiment to Detect the Dark Age (LEDA) in the $50 - 87$~MHz range. I will present the constraints on the foreground spectral index β in the northern sky visible from mid-latitudes, focusing on two zenith-directed LEDA radiometers, and discuss how estimates of β vary with local sidereal time (LST). Combining all data gathered during the extended campaign between mid-2018 to mid-2019, I will discuss the progress made in the quest for a cosmological signal.

Reasearch area

Epoch of Reionization

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