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Simulations of Galactic polarized synchrotron emission for Epoch of Reionization observations - 15'

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Observations of the Epoch of Reionization (EoR) through the redshifted 21 cm line represent a new frontier in observational cosmology and have motivated the construction of several low frequency radio arrays.

Detection of the redshifted 21 cm line emission is complicated by the contamination from foreground sources that are brighter by several orders of magnitude.

The dominant foreground is Galactic synchrotron emission caused by cosmic ray electrons interacting with the galactic magnetic field. Synchrotron emission can also be polarized.

Every EoR experiment with an instrumentally polarized response, may have to face a leakage of polarization into intensity. In this case, the polarized synchrotron becomes a potentially problematic foreground emission with its complex frequency dependent structure. Dedicated simulations are needed in order to estimate the level of contamination of this foreground emission.

In this talk I will discuss how we tackle the issue of Galactic polarized emission, present our simulations and some applications to EoR studies down to Cosmic Dawn.

Primary author: SPINELLI, Marta (Istituto Nazionale di Astrofisica (INAF))

Co-authors: Dr BERNARDI, Gianni; Prof. SANTOS, Mario (UWC)

Presenter: SPINELLI, Marta (Istituto Nazionale di Astrofisica (INAF))

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