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Observing the Early Universe with 21 cm Cosmology

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21 cm cosmology -- the concept of using radio telescopes to observe the highly redshifted 21 cm line of neutral hydrogen on cosmological scales -- is a field with tremendous scientific potential. The technique, however, is faced with a significant challenge: the need to recover a very faint signal behind a sea of foreground emission nearly five orders of magnitude stronger. The first generation of 21 cm cosmology experiments targeting observations of the cosmological Epoch of Reionization have been operating for several years, and significant progress has been made towards addressing the challenges inherent in these observations (with more than a few setbacks encountered along the way). In this talk, I will present an overview of several techniques that have led to the state of the art experimental results, before discussing the latest research moving towards more robust measurements and, ultimately, precise characterization of the 21 cm signal.



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