
Realizing the Promise of 21 cm Cosmology with HERA

Josh Dillon*¹

¹University of California [Berkeley] – United States

Abstract

21 cm cosmology promises to provide an exquisite and perhaps revolutionary new probe of the astrophysics and cosmology of the Cosmic Dawn and the epoch of reionization (EoR). Realizing that promise requires overcoming daunting experimental challenges. We're looking for a small signal buried under foregrounds orders of magnitude brighter. We need large interferometers, precisely calibrated, producing mountains of data to have any shot of seeing the signal. In this talk, I will discuss our progress with the Hydrogen Epoch of Reionization Array, a purpose-built interferometer currently under construction in South Africa that is designed not just to detect the EoR but to characterize its evolution and to push deeper into the Cosmic Dawn. I will discuss the calibration and analysis techniques we've developed and the progress we've made separating the 21 cm signal from astrophysical foregrounds.

*Speaker