

Precision Calibration for 21 cm Cosmology with the Hydrogen Epoch of Reionization Array

Joshua S. Dillon

Department of Astronomy, University of California, Berkeley

October 9, 2020

Abstract

21 cm cosmology promises a revolutionary new probe of the astrophysics and cosmology of the Cosmic Dawn and the epoch of reionization (EoR). Realizing that promise requires overcoming daunting calibration challenges to detect a small signal buried under foregrounds orders of magnitude brighter. In this talk, I will discuss our progress with the Hydrogen Epoch of Reionization Array (HERA), a purpose-built interferometer for 21 cm cosmology under construction in South Africa. I will focus on how we are mitigating systematics with redundant-baseline calibration and other techniques as we push toward our first upper limits on the 21 cm power spectrum.