

ESTIMATION OF FOREGROUNDS IN WIDE-FIELD MEASUREMENTS OF REDSHIFTED 21 CM POWER SPECTRA WITH THE HYDROGEN EPOCH OF REIONIZATION ARRAY

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ABSTRACT

Keywords: cosmology: observations — dark ages, reionization, first stars — large-scale structure of universe — methods: statistical — radio continuum: galaxies — techniques: interferometric

1. INTRODUCTION

Hydrogen Epoch of Reionization Array (HERA³; De-Boer et al. 2015, Murchison Widefield Array (MWA; Lonsdale et al. 2009; Bowman et al. 2013; Tingay et al. 2013), Precision Array for Probing the Epoch of Reionization (PAPER; Parsons et al. 2010), Low Frequency Array (LOFAR; van Haarlem et al. 2013)

Wedge papers (Ali et al. 2008; Bernardi et al. 2009, 2010; Bowman et al. 2009; Liu et al. 2009, 2014a,b; Datta et al. 2010; Liu & Tegmark 2011; Ghosh et al. 2012; Morales et al. 2012; Parsons et al. 2012; Trott et al. 2012; Dillon et al. 2013; Dillon et al. 2014; Poher et al. 2013; Thyagarajan et al. 2013, 2015b,a)

2. DELAY SPECTRUM

(Parsons et al. 2012)

3. THE WIDE-FIELD “PITCHFORK” EFFECT

(Thyagarajan et al. 2015b,a)

4. SIMULATIONS

We describe the instrument and foreground models used in our simulations.

4.1. *The Hydrogen Epoch of Reionization Array*

4.1.1. *Antenna Power Pattern*

(Neben et al. 2015)

4.1.2. *Antenna Reflectometry*

Patra et al. 2015 (submitted), Ewall-Wice et al. 2015 (submitted)

4.2. *Foreground Model*

5. ANALYSIS OF FOREGROUND SIGNATURES

6. SUMMARY

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