

## UW EoR Power Spectrum Pipeline

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Several new instruments, including the Murchison Widefield Array (MWA), the Low Frequency Array (LOFAR) and the Precision Array for Probing the Epoch of Reionization (PAPER), have recently been built to detect the redshifted 21 cm neutral hydrogen emission from the Epoch of Reionization (EoR). These instruments are not capable of directly imaging the EoR but they are sensitive enough to measure the power spectrum of that emission and to place limits on models of the ionization history and reheating of the universe. The central challenge for precision measurements of the EoR power spectrum are the foregrounds which are 4-5 orders of magnitude brighter than the signal and instrumental mode-mixing which throws foreground power into parts of the power spectrum which would otherwise be signal dominated.

In addition to the challenges presented by the foregrounds and mode-mixing there are also challenges due to the polarized response of the dipole antenna elements and the very large amounts of data required to make a detection of the EoR with these early instruments. I will describe a power spectrum pipeline developed at the University of Washington to produce power spectra from hundreds of hours of data collected during the MWA EoR observing campaign. Our focus is on tracing the errors from the initial observations through all the calculations to generate precision power spectra with rigorous error bars for each mode. We also work to mitigate mode-mixing as much as possible, using simulation-based mode-mixing priors for our calculations and using Fast Holographic Deconvolution to remove diffuse and confusion-level foregrounds.