

53rd IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) –
The Next Steps (A4)
SETI 1: SETI Science and Technology (1)

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IMAGE PLANE SETI WITH MODERN INTERFEROMETERS

Abstract

Interferometric SETI observations offer a number of advantages over the single dish searches that have traditionally dominated technosignature research, including the ability to form multiple beams with high spatial resolution, and to more confidently reject radio frequency interference (RFI). This transition has been driven primarily by an increase in our ability to process the vast data rates produced by large antenna arrays, and has enabled innovate commensal observing systems such as COSMIC on the VLA and BLUSE on MeerKAT, as well as dedicated SETI instruments such as the the Allen Telescope Array. These systems are capable of recording raw antenna voltages to disk around signals of interest (found by doppler drifting signal search algorithms), allowing for arbitrary signal analysis (including correlation) to be performed offline. While it is currently infeasible to perform high time and frequency resolution image searches across the entire observing bandwidth, offline correlation and imaging of the raw data corresponding to signals of interest opens a new avenue for signal validation and RFI rejection. I will demonstrate early results from efforts to image offline correlated data from the ATA, COSMIC, and MeerKAT, and discuss the benefits for SETI science as well as in the broader field of radio transients.