48th IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) – The Next Steps (A4) SETI 1: SETI Science and Technology (1)

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TOWARDS A UK SETI CAPABILITY WITH E-MERLIN/EVN

Abstract

I will describe the possibility of using the technique of radio interferometry for SETI survey and verification observations. In particular, I will talk about establishing such a capability here in the UK using e-MERLIN/EVN, an array of radio telescopes that includes the Jodrell Bank Lovell Telescope. Employing long baseline interferometric techniques offers several advantages to SETI including: (i) a reduced number of false-positive signals due to the suppression of Radio Frequency Interference (RFI) signals, (ii) improved confidence regarding the detection of (non-repeating) signals via independent detections on all baselines, (iii) increased sensitivity with the accumulation of significant collecting area via the participation of multiple large radio telescope apertures, (iv) sufficient resolution and field-of-view to discriminate between multiple SETI targets in the field (primary beam), with the potential to measure precise source positions that should be invariant on time scales of a few hours, (v) the ability to precisely track moving signals in the Milky Way Galaxy, on timescales of days/years depending on the relative velocities/distances involved.