

## **A Simultaneous Search for Prompt Radio Emission Associated with GRBs using the OVRO-LWA**

Marin M. Anderson\*<sup>(1)</sup>, Gregg Hallinan <sup>(1)</sup>, and OVRO-LWA Collaboration  
(1) California Institute of Technology, 1200 E California Boulevard MC 249-17,  
Pasadena, CA 91125, USA

Searches for prompt radio emission associated with gamma-ray bursts (GRBs) date back to shortly after the discovery of GRBs, before the connection was made between long GRBs and the collapse of massive stars, and short GRBs and compact object mergers. Originally sought after as a means of probing the intergalactic medium, as well as confirming the extragalactic nature of GRBs, the search for a coherent, prompt radio signature associated with GRBs has recently shifted towards low frequencies, with multiple models that predict this highly speculative but potentially very valuable counterpart to GRBs favoring emission at low ( $<100$  MHz) frequencies. However, no prompt, coherent radio counterparts to GRBs have been discovered to-date, and the search is made difficult by the need for observations that satisfy the dual requirements of (1) high sensitivity at sufficiently low frequency and (2) near-concurrent coverage of GRB detections due to the prompt nature of the emission.

We have conducted the most sensitive search to date at frequencies below 100 MHz for a prompt, coherent radio counterpart associated with GRBs, using the Owens Valley Radio Observatory Long Wavelength Array (OVRO-LWA), a low frequency dipole array located in Owens Valley, California, that is capable of imaging the entire viewable hemisphere at short cadence across 60 MHz of bandwidth. I will discuss the constraints placed on prompt radio counterpart models by our follow-up of short GRB 170112A, as well as describe our GRB follow-up campaign, and the relevance of this search in the current era of gravitational wave detections of compact object mergers.