Observations at radio wavelengths offer unique and powerful diagnostics of processes relevant to solar physics: coronal magnetic fields, magnetic energy release, electron acceleration and transport, coronal shocks, and plasma dynamics. These provide the basis for a comprehensive solar science program as well as providing avenues for new diagnostics of space weather drivers. The need for a high-performance radio telescope optimized for ultra-broadband imaging spectropolarimetry has long been recognized but, as a midscale infrastructure project, identifying the means for funding the telescope has been challenging – until recently. With the availability of an NSF mid-scale funding line it is time to move forward with opening this powerful wavelength domain for study. In this talk the instrument, its science drivers, and recent progress in demonstrating key techniques will be highlighted.

Observations of the 2017 September 10 flare by the Expanded Owens Valley Solar Array. The red end of the color table indicates long wavelengths and the blue end indicates short wavelengths. See Gary et al. (2018); Chen et al (2020); Fleishman et al (2020).