



Detailed Radio Imaging of a CME with the Murchison Widefield Array

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Solar radio observations allow us to constrain the dynamics of high energy electron beams accelerated in both flares and coronal mass ejections (CME). In particular, the synchrotron emission from erupting flux ropes should give important information about the distributions of energetic electrons trapped in the cores of CMEs. The Murchison Widefield Array is one of several new radio interferometric instruments, and is particularly well-suited to imaging the Sun and solar transients at multiple frequency channels between 80 and 300 MHz. This instrument holds great promise for improving the status of direct CME imaging in the radio. Here we present imaging observations with high frequency and time resolution of a CME, which occurred on November 4, 2015. The observations allow us to obtain detailed frequency spectra of the plasma and synchrotron emission. In addition, such observations may provide independent information about the thermal electron density, as well as the magnetic field strength in the CME flux rope. Finally, these observations provide information about the detailed evolution and kinematics of the CME and its flux rope in its early stages. The new observations demonstrate the capability of the MWA to contribute to the monitoring and detailed analysis of solar eruptions through its high sensitivity, high dynamic range radio imaging.