

Abstract Submitted
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Magnetic Structures and Bursty Events in a Current-Carrying Arcade D. CRAIG, C. ADAMS, M. CARTOLANO, M. MCMILLAN, Wheaton College — We report on new magnetic field observations of the current-carrying arcade produced in the Wheaton Impulsive Reconnection Experiment (WIRX). The experiment is composed of two parallel electrodes linked by a magnetic arcade that is generated by a coil surrounding the electrodes. Fast imaging diagnostics are used to follow rapid changes in the plasma emission. A newly completed array of internal magnetic probes is used to connect these emission features with magnetic structures. In general, regions of higher emission correspond to regions of more intense current density. Under some conditions, bursty events appear which may correspond to reconnection events. ICCD camera images suggest a spontaneous emission of plasma from the arcade during these events. Correlation analysis of magnetic data imply a rapid redistribution of current density and a propagating magnetic disturbance associated with this rapid change. At large discharge current, both emission diagnostics and magnetic probe arrays indicate that the plasma grows to fill a larger volume. Studies are ongoing to identify candidate locations for three dimensional magnetic reconnection in these plasmas. Work supported by U.S.D.O.E. grant DE-FG02-08ER55002.

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