

Abstract Submitted
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Spectroscopic Studies of Merging Spheromak Plasmas In the Magnetic Reconnection eXperiment A.J. CARVER, U of Wisconsin-Madison, M. YAMADA, H. JI, S. GERHARDT, A. KURITSYN, Y. REN, PPPL, M. INOMOTO, Osaka University — Magnetic reconnection, the topological breaking and reconnection of magnetic field lines, occurs in many magnetized plasmas e.g. in the solar corona, Earth's magnetosphere, and tokamaks. The ubiquity of plasmas in the universe and the potential use of current-carrying plasmas in fusion power plants warrants an improved understanding of magnetic reconnection. The Magnetic Reconnection eXperiment (MRX) is dedicated to improving our understanding of magnetic reconnection. We used nine fiber optic guides leading to a spectrometer and CCD camera to measure spectral line widths and shifts along many lines of sight within MRX, hence mapping the MRX ion temperature and toroidal plasma velocity. This diagnostic allows us to study flow patterns and ion heating during the merging of two spheromaks. These measurements are compared to measurements from other MRX diagnostics. A.J. Carver was supported by the Department of Energy's Summer Undergraduate Laboratory Internship program. Contract number DE-AC02-76CH03073

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