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Measurement of ion velocity profiles in a magnetic reconnection layer via current sheet jogging G. STEIN, Cornell University, J. YOO, M. YAMADA, H. JI, S. DORFMAN, E. LAWRENCE, C. MYERS, T. THARP, PPPL — In many laboratory plasmas, constructing stationary Langmuir and Mach probe arrays with resolution on the order of electron skin depth is technically difficult, and can introduce significant plasma perturbations. However, complete two- dimensional profiles of plasma density, electron temperature, and ion flow are important for studying the transfer of energy from magnetic fields to particles during magnetic reconnection. Through the use of extra "Shaping Field" coils in the Magnetic Reconnection Experiment (MRX) at the Princeton Plasma Physics Laboratory, the inward motion of the current sheet in the reconnection layer can be accelerated, or "jogged," allowing the measurement of different points across the sheet with stationary probes. By acquiring data from Langmuir probes and Mach probes at different locations in the MRX with respect to the current sheet center, profiles of electron density and temperature and a vector plot of two-dimensional ion velocity in the plane of reconnection are created. Results from probe measurements will be presented and compared to profiles generated from computer simulation.

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