Abstract Submitted for the DPP16 Meeting of The American Physical Society

**Confinement and Transport in a Laboratory Magnetosphere** ETHAN PETERSON, MICHAEL CLARK, University of Wisconsin - Madison, CHRISTOPHER COOPER, Lawrence Livermore National Laboratory, DOU-GLASS ENDRIZZI, JOHN WALLACE, University of Wisconsin - Madison, DAVID WEISBERG, General Atomics, CARY FOREST, University of Wisconsin - Madison — Measurements of density, temperature, diamagnetic currents, and ion flows throughout a dipole magnetosphere immersed in a homogeneous plasma are presented. A 1-D ambipolar diffusion transport model developed for multi-cusp confinement systems is adapted for a dipole magnetosphere geometry and compared to measurements. In addition, differential azimuthal flow is imposed on the magnetosphere through electrically driven flow at the boundary of the machine. Modifications to the transport and confinement due to differential rotation are presented as well.

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Date submitted: 15 Jul 2016

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