

Abstract Submitted
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Imaging Equilibrium and Perturbed Flow of Dipole-Confined Plasma¹ B.A. GRIERSON, M.W. WORSTELL, M.E. MAUEL, Columbia University — Plasma confined in magnetospheres and laboratory terrella can be characterized by the loss current to the magnetic poles. In the Collisionless Terrella Experiment (CTX) the polar current is imaged at high speed with an array of 70 gridded particle detectors. The detectors measure electron and/or ion currents as a function of the particle's field-aligned energy and of the polar longitude and latitude. This poster will present new techniques to resolve the equilibrium and perturbed plasma structure from analysis of the detected polar currents. Fast gas injection is used to perturb the plasma with a neutral gas, and the interaction of the neutral population with the hot-electron interchange motion has been observed. Measurements of global plasma density evolution, plasma flow, and mixing time-scales will be reported.

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