

Abstract Submitted
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Effects of Multi-Point Current-Injection Feedback on Interchange Turbulence in a Dipole-Confined Plasma¹ MELISSA C. ABLER, ALEXANDER BATTEY, MICHAEL MAUEL, Columbia University, T. MAXIMILLIAN ROBERTS, Dartmouth College — Plasma confined by a strong dipole field exhibits low-frequency interchange turbulence, which previous experiments have shown responds locally to active feedback, primarily in the direction of the electron magnetic drift [1]. New experiments on the Collisionless Terella Experiment (CTX) use a system of two electrodes with 90° azimuthal separation to study the effects of multi-point current-injection feedback on interchange turbulence. Initial open-loop experiments to excite low-frequency waves at a variety of relative phases and amplitudes indicate a significantly stronger spatial coherence when two electrodes are used rather than one. These driven low-frequency waves also generate harmonics which can persist throughout the plasma. In a closed-loop active feedback configuration, this system may be used to regulate the turbulent dynamics in new ways.

[1] Roberts, Mauel, and Worstell, Phys Plasmas **22**, 055702 (2015).

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