Abstract Submitted
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Volumetric-driven flows on the Plasma Couette Experiment[1] KEN FLANAGAN, M.M. CLARK, J. LYNN, R. SILLER, M. TABBUTT, J. WALLACE, Y. XU, C.B. FOREST, University of Wisconsin-Madison — Experiments for driving Keplerian-like flow profiles with the goal of exciting the magnetorotational instability (MRI) on the Plasma Couette Experiment Upgrade (PCX-U) are described. Instead of driving flow at the boundaries as is typical in many liquid metal Couette experiments, a global drive is implemented. A large (20+ A) radial current is drawn across a small (1-3 G) axial field generating torque across the whole profile. This volumetric-driven flow (VDF) is capable of producing profiles similar to Keplerian flow with Alfvn Mach numbers of order unity–ideal for MRI studies. Experimental measurements will be compared to numerical calculations that show that at sufficiently high magnetic and fluid Reynolds numbers, VDF can drive the MRI.

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