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Flow Measurements of a Hot, Rotating, Unmagnetized Plasma

J. JARA-ALMONTE, C.B. FOREST, R. KENDRICK, C. COLLINS, University of Wisconsin Madison — The initial construction of the Plasma Couette Experiment (PCX) has been completed at the University of Wisconsin Madison. PCX aims to demonstrate magnetorotational instability (MRI), a proposed mechanism for angular transport in accretion disks, in a laboratory plasma. A hot and unmagnetized plasma is created using a lanthanum hexaboride cathode inside a high-order axisymmetric multicusp confinement scheme consisting of rings of permanent magnets. Electrodes located between cusp lines drive ExB drift of the plasma at the boundary, and viscous coupling provides bulk plasma rotation. Flow measurements are made using a Mach probe, and plasma parameters are established using a swept Langmuir probe. This poster will present an overview of the PCX, as well as initial data from the probes.

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