Abstract Submitted
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MCX Results and Plans[1] RICHARD ELLIS, RYAN CLARY, RAYMOND ELTON, ADIL HASSAM, CARLOS ROMERO-TALAMAS, CATALIN TEODORESCU, ILKER UZUN-KAYMAK, WILLIAM YOUNG, University of Maryland, SARAH MESSER, SAMUEL BROCKINGTON, ANDREW CASE, DOUGLAS WITHERSPOON, HyperV Technologies — An overview of the Maryland Centrifugal Experiment (MCX) and recent results are described. Major results include: a) IR interferometers at two axial locations and an axial array of diamagnetic loops demonstrate centrifugal confinement at higher mirror ratio; b) diamagnetic loop and magnetic pickup coil data are compared to an MHD equilibrium model; c) an extensive study of the maximum rotational velocity shows it is limited from above by the Alfven velocity and the critical ionization velocity(CIV) ; d) attempts to inject momentum into MCX using plasma guns have not been successful - experiments will be reported; e) a multi chord Halpha array has measured the radial profiles of neutral hydrogen which are dominated by neutrals at the edge and are hollow at plasma center . Efforts to measure impurity concentrations will also be described. Upgrade plans include a central vessel of 1m diameter, new larger and higher field magnets for the center region, and a discharge capacitor bank of 40kV.

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