

Abstract Submitted  
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**The Maryland Centrifugal Experiment : status and plans**  
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University of Maryland, College Park, MD 20742 — The Maryland Centrifugal Experiment (MCX) studies supersonic rotation of plasma produced by the application of a steady state electric field perpendicular to a linear confining magnetic field. MCX has achieved high density ( $n_e > 10^{20} \text{ m}^{-3}$ ) fully ionized plasmas rotating supersonically with azimuthal velocities  $v_\phi$  in the range of 100 - 250 km/sec with ion temperatures typically 30 eV and sonic Mach numbers ( $v_\phi/v_{ti}$ ) in the range of 1 to 3 and Alfvén Mach numbers ( $v_\phi/v_A$ ) of somewhat less than unity. Plasmas remain stationary for milliseconds, much longer than MHD instability timescales. MCX has implemented extensive new diagnostics including a multi-chord ion Doppler spectrometer, arrays of magnetic probes, an  $H_\alpha$  emission array of detectors, and a two color interferometer. Results will be reported on velocity profiles and related MHD activity. A higher voltage (20 kV) discharge capacitor bank is being tested and results on velocity limits will also be reported. The major upgrade plans include increasing the midplane magnetic field to 1 T and installing extensive surface conditioning. Work supported by USDOE.

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