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**The Maryland Centrifugal Experiment : status and plans** CATALIN TEODORESCU, ANDREW CASE, RICHARD ELLIS, ADIL HASSAM, ROBERT LUNSFORD, RAYMOND ELTON, JOYDEEP GHOSH, HANS GRIEM, 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 ($n_e > 10^{20}$ 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 Alfvèn 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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