

Abstract Submitted  
for the DPP10 Meeting of  
The American Physical Society

**Plasma Equilibrium in the Maryland Centrifugal eXperiment with variable axial temperature**<sup>1</sup> PARVEZ GUZDAR, WILLIAM C. YOUNG, ADIL HASSAM, IREAP, University of Maryland, College Park, MD, USA — Recent observations have shown that the centrifugal confinement in the Maryland Centrifugal eXperiment (MCX), seems to be better than that predicted by conventional MHD theory. For the magnitude of rotations achieved in MCX one expected a density ratio of about six between the central value and that measured at the mirror throat. Observations seem to indicate that this ratio is twelve, double of that predicted by theory. One possible explanation is that the temperature is not constant along a field line and that there may be an axial variation in the temperature. To take this variation into account we have developed a new relaxation code to determine the equilibrium density profile since the non-constant temperature case does not lend itself to an analytical solution of the equilibrium density. With knowledge of this new pressure profile one can then solve the Grad-Shafranov equation with flow to compute the perturbed magnetic field and then compare it with the recent observations obtained from the axially located diamagnetic loops on MCX.

<sup>1</sup>Work supported by DOE.

Parvez Guzdar  
IREAP, University of Maryland, College Park, MD, USA

Date submitted: 17 Jul 2010

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