

Abstract Submitted  
for the DPP16 Meeting of  
The American Physical Society

**Characterization and Stability of High Beta Spherical Flows<sup>1</sup>**

ROBERT SILLER, VLADIMIR MIRNOV, CARY FOREST, Univ of Wisconsin, Madison — The fluid response of a fully compressible, isothermal plasma is investigated in a spherical system with application to the Madison Plasma Dynamo Experiment (MPDX). Numerical results are found in a fully spectral code, solving separately for the equilibrium profile of a given drive, and the linear eigenmodes of the system. The example flows are driven by a large radial current drawn across a small axial field generating torque across the system. Numerical calculations show sample conditions near achievable conditions for exciting various instabilities, with the MRI and the dynamo instabilities of primary focus.

<sup>1</sup>DoE and NSF

Robert Siller  
Univ of Wisconsin, Madison

Date submitted: 15 Jul 2016

Electronic form version 1.4