

Abstract Submitted  
for the DPP11 Meeting of  
The American Physical Society

**Three-Axis Magnetic Field Measurements in the TCSU RMF Current Drive Experiment** K.M. VELAS, RPPL, University of Washington, R.D. MILROY, PSI-Center and RPPL, University of Washington — A 3-axis probe was installed on TCSU shortly before its shutdown. The probe has 90 windings that simultaneously measure  $B_r$ ,  $B_\theta$ , and  $B_z$  at 30 radial positions and is fully translatable. Positioning the probe at multiple axial positions and taking multiple repeatable shots allows for a full r-z map of the magnetic field. Initially, data has been processed with a 10 kHz low pass filter to capture the steady field. Higher frequency content has more shot-to-shot variability; it is difficult to map this axially. Plans include using a band pass filter to isolate the RMF frequency, which is consistent between shots. It is anticipated that the RMF field, in conjunction with the steady field, will yield a map of the full 3D rotating field structure. The 3-axis probe measurements are used to calculate the end-shortening torque, which opposes the RMF torque. Data from even- and odd-parity experiments will be compared. The NIMROD code has been adapted to simulate the TCSU experiment using boundary conditions adjusted to match both even- and odd-parity experimental conditions. A comparison of the n=0 components of the calculated fields to the 3-axis probe measurements shows agreement in the magnetic field structure of the FRC as well as in the jet region.

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Date submitted: 26 Jul 2011

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