

Abstract Submitted  
for the DPP09 Meeting of  
The American Physical Society

**Toroidal Mode Coupling in Tokamaks with Anisotropic Viscosity** S.E. KRUGER, Tech-X Corporation, D.P. BRENNAN, University of Tulsa, E.D. HELD, Utah State University, C.R. SOVINEC, C.C. HEGNA, University of Wisconsin-Madison — Most linear and nonlinear theories of toroidal mode coupling of tearing modes in tokamaks [1,2] have used isotropic viscosity. NIMROD's implementation of Braginskii's anisotropic parallel viscosity, however, enables an evaluation of the effect of stress anisotropy on mode coupling for a wide range of collisionality. Numerical simulations with the NIMROD code are used to compare the effect of anisotropy on mode coupling in conditions representing low collisionality. To simplify the analysis, we choose a high aspect ratio, circular cross-section equilibrium. We also present preliminary comparisons with a more complicated coupling of tearing modes with a 1/1 mode using a realistic free-boundary, high beta DIII-D equilibrium [3].

[1] M. Persson and R.L. Dewar, *Phys. Plasmas*, **1** 1256 (1994).

[2] R. Fitzpatrick, *Nucl. Fusion* **33**, 1533 (1993).

[3] D.P. Brennan, S.E. Kruger, and R.J. LaHaye, *to be submitted to Physics of Plasmas*

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Date submitted: 20 Jul 2009

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