

Abstract Submitted  
for the APR06 Meeting of  
The American Physical Society

**Analytically and numerically computed tokamak equilibria at unity beta**<sup>1</sup> RUSSELL NECHES, STEVEN COWLEY, PIERRE-ALEXANDRE GOURDAIN, JEAN-NOEL LEBOEUF, UCLA — The characteristics of near unity- $\beta$  equilibria are investigated with two codes. CUBE is a multigrid Grad-Shafranov solver, and ACUBE was written to compute solutions using analytic unity- $\beta$  equilibria [S.C. Cowley *et. al.*, 1991]. Results from each method are quantitatively compared in several distinct equilibrium conditions. These comparisons corroborate the theoretical results and provide benchmarks for high-resolution numerical results available from CUBE. These tools facilitate exploration of many properties of high- $\beta$  equilibria, such as a highly diamagnetic plasma and its ramifications for stability and transport as  $\beta$  approaches unity.

<sup>1</sup>Work supported by USDOE through the Fusion Science Center for Multiscale Plasma Dynamics

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Date submitted: 13 Jan 2006

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