## Abstract Submitted for the DPP02 Meeting of The American Physical Society

Sorting Category: 5.6.2 (Experimental)

Equilibrium and Stability Characteristics of DIII-D Discharges with Low Edge Safety Factor<sup>1</sup> R.J. JAYAKU-MAR, LLNL, A.M. GAROFALO, G.A. NAVRATIL, H. REIMERDES, Columbia U., T.H. JENSEN, R.J. LA HAYE, J.T. SCOVILLE, E.J. STRAIT, A.D. TURNBULL, General Atomics, M. OKABAYASHI, PPPL — A low safety factor plasma has a good potential for reactor applications, since the fusion power and gain increase with reduction in safety factor. Experiments are being carried out in the DIII-D to investigate the equilibrium profiles and stability limits of such plasmas. Plasmas with flat q profiles  $q_{min} > 1$  and  $q_{95} < 2.5$  have been obtained with  $\beta_N$  (>2.0) above no wall limits during current ramp and using resistive wall mode feedback. The discharge followed a current profile evolution predicted by the code CORSICA. The ideal wall and no wall beta limits for such discharges are being investigated using the codes GATO and DCON, for different current and pressure profiles. Simultaneously, the current profile and its evolution are being modeled for a variety of plasma cross sectional shapes and discharge formation scenarios to select an optimal scenario for the 2003 experimental run. The experimental results to date and modeling results will be presented.

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