Abstract Submitted
for the DPP96 Meeting of
The American Physical Society

Sorting Category: 5.1.1.2 (Experimental)

Core Turbulence Evolution and Characteristics During Negative Central Shear Discharges in DIII–D,[1] C.L. RETTIG, E.J. DOYLE, T.L. RHODES, W.A. PEEBLES, University of California, Los Angeles, K.H. BURRELL, C.M. GREENFIELD, General Atomics, R.J. FONCK, University of Wisconsin, B.W. RICE, Lawrence Livermore National Laboratory, E.A. LAZARUS, Oak Ridge National Laboratory
— Reduced core density turbulence has been observed during record performance plasma discharges with negative central magnetic shear (NCS). In direct comparison between H–mode and NCS discharges, the fluctuations are considerably weaker in discharges with NCS. The core poloidal magnetic field is more strongly sheared with NCS, so a turbulence suppression criteria including effects of sheared poloidal magnetic field and radial electric field is consistent with experimental observations. NCS discharges with reduced core fluctuations were also produced with an L–mode edge and enhanced confinement. In many discharges, a transition to the enhanced confinement regime was observed, accompanied by reduced core fluctuations which exhibited a "bursting" nature, as suggested by recent theory. Data from numerous discharges will be presented along with suggestions for important profile variables.

[1]Work supported by U.S. DOE Contract Nos. DE-AC03-89ER51114, W-7405-ENG-48, DE-AC03-96OR22464, and Grant No. DE-FG03-86ER53225.

Edward J. Doyle
doylej@gav.gat.com
University of California, Los Angeles

[X] Prefer Oral Session
[ ] Prefer Poster Session

Special instructions: O-1-5

Date submitted: August 1, 1996 Electronic form version 1.1