Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Local Turbulence Suppression and Shear Flow Dynamics During q_{min}-Triggered Internal Transport Barriers on DIII-D[1] M.W. SHAFER, G.R. MCKEE, D.J. SCHLOSSBERG, University of Wisconsin-Madison, M.E. AUSTIN, U. Texas-Austin, K.H. BURRELL, General Atomics — Long-wavelength turbulence ($k_\perp \rho_i < 1$) is locally suppressed simultaneously with a rapid but transient increase in local poloidal flow shear at the appearance of low-order rational q_{min} surfaces in negative central shear discharges. At these events, reductions in energy transport are observed and Internal Transport Barriers (ITBs) may form. Application of off-axis ECH slows the q-profile evolution and increases ρ_{qmin}, both of which enhance turbulence measurements using a new high-sensitivity large-area (8×8) 2D BES array. The measured transient turbulence suppression is localized to the low-order rational surface (q_{min} = 2, 5/2, 3, etc.). Measured poloidal flow shear transiently exceeds the turbulence decorrelation rate, which is consistent with shear suppression. The localized suppression zone propagates radially outward, nearly coincident with the low-order surface.

[1]Work supported by the US DOE under DE-FG02-89ER53296, DE-FG03-97ER54415, and DE-FC02-04ER54698.

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Date submitted: 19 Jul 2008 Electronic form version 1.4