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Reduced Transport Near Rational q-surfaces in DIII-D NCS Plasmas[1] M.E. AUSTIN, K.W. GENTLE, University of Texas, K.H. BURRELL, General Atomics, R.J. JAYAKUMAR, LLNL, J.E. KINSEY, Lehigh U., L. ZENG, T.L. RHODES, UCLA — In a class of low density negative central shear discharges on DIII-D, changes in core transport are correlated with the minimum in q being near a low-order rational value. Spontaneous increases in T_e, T_i, and v_ϕ, and are observed near q_{min} values of 3, 2, and 4/3 in otherwise steady-state conditions. Electron transport code simulations show that the improvements in confinement are consistent with a drop in χ_e near the location of q_{min} that starts just before the low-order rational comes into the plasma. Comparisons of the maximum growth rate of microinstabilities to the E×B shearing rate indicate that shear reduction of turbulence may contribute to the improved transport.

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M.E. Austin
austin@fusion.gat.com
U. Texas

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