Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Turbulence suppression and confinement improvements with LH power applied to high density H-modes[1] J.L. TERRY, J.W. HUGHES, M.L. REINKE, J.E. RICE, R.M. CHURCHILL, J. IRBY, R.R. PARKER, S. SHIRAIWA, C. THEILER, G.M. WALLACE, P. XU, MIT-PSFC — Injecting LH power into high-density H-mode plasmas has a profound effect on the edge and SOL turbulence. Gas-Puff-Imaging of the outboard midplane region, as well as other diagnostics that measure density fluctuations in the boundary, show that the fluctuation power *decreases significantly* in the edge/SOL when the LH power is applied to the high-density ICRF-heated H-modes, for which core penetration of LH waves is expected to be poor. In many of these discharges, increases in *confinement* are also observed after the LH power is applied. The additional LH power can be quite efficient; for 20% increases in auxiliary power, 30-40% increases in global energy confinement time are observed (H_{98} from 0.6 to 0.9). The confinement increases are best correlated with changes in rotation and increased pedestal temperature gradients. There is not perfect correlation with turbulence suppression. These results suggest the possibility of using LHRF as a tool to affect plasma rotation, confinement, and boundary turbulence via direct modification of quantities at the plasma edge.

[1]Supported by USDoE award DE-FC02-99ER54512.

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Date submitted: 12 Jul 2013 Electronic form version 1.4