Abstract Submitted
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Advancing the Physics Basis of Quiescent H-mode as an Operating Scenario for ITER[1] W.M. SOLOMON, B.A. GRIERSON, PPPL, K.H. BURRELL, A.M. GAROFALO, P.B. SNYDER, General Atomics, M.E. FENSTERMACHER, LLNL — Counter rotating QH-mode is an attractive ELM stable scenario for ITER because it maintains excellent confinement at low levels of neutral beam torque. Recent experiments have investigated the density requirements for QH-mode access and find no correlation with Greenwald fraction, suggesting this is not the relevant physics parameter. Indeed, with high shaping, Greenwald fractions exceeding 80% have now been achieved. Impurity transport in QH-mode with an edge harmonic oscillation is found to exceed the level seen in comparable ELMing discharges. Access to counter-rotating QH-mode without first spinning the plasma with neutral beam torque remains a challenge because the co-intrinsic drive appears to develop faster than the counter torque driven by non-axisymmetric fields. Simultaneous achievement of high beta, high confinement and low q_{95} needed for ITER $Q = 10$ performance has been demonstrated, but work remains to extend this to lower torque and sustained operation.

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