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Recent Results from the Quiescent Double Barrier Regime on DIII-D[1] E.J. DOYLE, K.H. BURRELL, T.A. CASPER, J.C. DEBOO, D. ERNST, A.M. GAROFALO, P. GOHIL, C.M. GREENFIELD, R.J. GROEBNER, J.E. KINSEY, C.J. LASNIER, M.A. MAKOWSKI, G.R. MCKEE, R.A. MOYER, G.D. PORTER, T.L. RHODES, D.L. RUDAKOV, G.M. STAEBLER, B.W. STALLARD, G. WANG, W.P. WEST, L. ZENG, DIII-D National Fusion Facility — The Quiescent Double Barrier (QDB) regime combines internal transport barriers with a quiescent, ELM-free H-mode edge (QH-mode), yielding sustained, high performance plasmas. In recent experiments, physics understanding of the mechanisms leading to the formation of the QDB plasmas has been improved, and both absolute ($\beta \leq 3.8\%$, $S_n \leq 5.5\times10^{15}\,\mathrm{s}^1$) and relative ($\beta_N H_{89} = 7$ for $10\,\tau_E$) performance increased A signature of operation with a QH-mode edge appears to be very large radial electric fields in the edge and SOL. In the plasma core, simulations and modeling replicate many of the features of the observed transport and fluctuation behavior, including the ion temperature profile and turbulence correlation lengths.

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E.J. Doyle
doylej@fusion.gat.com
University of California, Los Angeles

☐ Prefer Oral Session
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