

Abstract Submitted  
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Sorting Category: 6.6.2 (Experimental)

**Progress Toward Long-Pulse High Performance Discharges in DIII-D**<sup>1</sup> T.C. LUCE, GA, M.R. WADE, ORNL, P.A. POLITZER, GA, J.G. WATKINS, SNL, M.A. MAHDAVI, E.J. STRAIT, A.D. TURNBULL, C.C. PETTY, GA, J.E. KINSEY, Lehigh U., R.J. JAYAKUMAR, LLNL, L.L. LAO, C.M. GREENFIELD, R. PRATER, GA — An operating scenario has been developed on DIII-D which has the potential for fully non-inductive operation at  $\beta_N H_{89} \sim 10$  with  $\beta$  approaching 5%. Discharges at this level of performance with 75% of the current driven non-inductively were demonstrated for about half the current redistribution time ( $\sim 1$  s) during last year's campaign. In order to realize this scenario fully non-inductively both density control and current drive at the half radius are required. To achieve these, an additional cryopump and a four-gyrotron ECCD system have been implemented. Significant improvement in controlling the density rise at the L-H transition has been achieved; however, changes correlated with the shape modifications necessary for pumping have a noticeable influence on the stability of the resistive wall mode, which is the performance limiting mode in these shots.

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- Prefer Oral Session  
 Prefer Poster Session

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Special instructions: 2nd oral presentation (to follow deGrassie)

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