

Abstract Submitted
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Progress Toward Long-Pulse High Performance Discharges in the DIII-D Tokamak¹ T.C. LUCE, P.A. POLITZER, J.R. FERRON, C.M. GREENFIELD, E.J. STRAIT, R.I. PINSKER, L.L. LAO, General Atomics, M.R. WADE, M. MURAKAMI, ORNL, B.W. RICE, LLNL, A.M. GAROFALO, Columbia U., M.E. AUSTIN, U.Texas — Discharges with high normalized performance ($\beta_N \lesssim 4$, $H_{89}\beta_N \lesssim 10$) have been sustained for up to 2 s with an ELMing H-mode edge. The performance was limited by resistive wall modes, not neoclassical tearing modes. The pressure is well above the calculated no-wall limit and $\beta_N > 4\ell_i$ for the entire high performance phase. Measurements of the internal loop voltage show that about 75% of the current is supplied non-inductively and greater than 50% of the total current is calculated to be bootstrap current. The q profile is flat, as is the calculated bootstrap current profile, due to the absence of any sharp internal transport barrier. The remaining inductive current is localized around the minor radius $\rho = 0.5$ which agrees with the design modeling. Density control is necessary to apply the ECCD in these discharges, and preliminary experiments with the cryopump have reduced the density by $\sim 20\%$.

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Prefer Oral Session
 Prefer Poster Session

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Special instructions: DIII-D Contributed Oral Session, immediately following SL Allen

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