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**Core Fueling via Divertor Recycling in DIII-D L-Mode and H-Mode Plasmas,\*** L. Owen, R. Maingi, R. Colchin, ORNL, M. Fenstermacher, LLNL, T. Carlstrom, R. Groebner, General Atomics - Data obtained with a recently developed technique<sup>1</sup> for calibrated, spatially resolved measurement of neutral density near the X-point in DIII-D is analyzed with the B2.5 and DEGAS transport codes. The results validate an analysis procedure that has been extensively applied to DIII-D L-mode discharge data<sup>2</sup>. In this work we compare core fueling in L- and H-modes. Even though confinement improves, the X-point neutral density does not change appreciably from the L-mode to ELM-free H-mode phases. Due to finite wall equilibration time, a net wall source fuels the H-mode density rise after the transition. Our results show approximately a factor of two improvement in particle confinement time after the L-H transition. Data constrained analyses at several times in the ELM-free phase show the evolution of the core particle confinement time, the necessary net wall source, and the core fueling rate and distribution.

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<sup>1</sup> R. J. Colchin, *et al*, submitted to Nucl. Fusion.

<sup>2</sup> Carreras, B.A., *et al.*, Phys. Plasmas **5** (1998) 2623.

Prefer Oral Session  
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