

**Abstract Submitted for the Forty-Eighth Annual Meeting  
Division of Plasma Physics  
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Category Number and Subject: 5.6.2. DIII-D Tokamak

Theory      Experiment

**Density Control Using the New Divertor Pumping Configuration in DIII-D,\*** T.W. Petrie, M.A. Mahdavi, N.H. Brooks, P.M. Anderson, J.R. Ferron, C.M. Greenfield, A.W. Hyatt, T.C. Luce, C.J. Murphy, C.C. Petty, M.R. Wade, W.P. West, GA, C.J. Lasnier, *LLNL*, R.J. Colchin, *ORNL*, J.G. Watkins, *SNL* – The lower divertor of the DIII-D vacuum vessel has been modified to improve density control in symmetric double-null (DN), high triangularity plasmas. Achieving good density control is an important component in the effort to demonstrate fully noninductive current drive in DN “AT” plasmas. With three independently-controlled divertor cryopump systems, particles can be exhausted from both outer divertor targets (lower and upper), as well as from the upper inner target. Particle pumping thus can be maintained, even as the up/down balance in the DN is varied. Experimental results using the new divertor show an additional 7 Torr-l/s is exhausted at moderate density in a balanced DN configuration. This result is in good agreement with a design prediction of 6 Torr-l/s at a similar density. Examples of density control in several plasma operating regimes are presented.

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