

**Abstract Submitted for the 50th Annual Meeting
Division of Plasma Physics
November 17–21, 2008, Dallas, Texas**

Category Number and Subject:

Theory Experiment

Demonstration of ITER Operational Scenarios on DIII-D,*
P.A. Politzer for the DIII-D ITER Demo Task Force, *General Atomic* – The DIII-D program has recently begun an effort to provide experimental evaluation of the primary ITER operational scenarios, enabling direct cross-comparisons on a single tokamak. This work incorporates leading features of the ITER scenarios and anticipated operating characteristics. The plasma shape and aspect ratio in DIII-D match the ITER design (size reduced by a factor of 3.7), as does the value of I/aB . Key aspects of the ITER baseline ELMy H-mode (15 MA in ITER), advanced inductive (13 MA), hybrid (11 MA), and steady-state (9 MA) scenario plasmas have been replicated, providing a unified basis for transport and stability modeling and performance extrapolation. In all scenarios performance equals or closely approaches that required to realize the physics and technology goals of ITER. Baseline plasmas with normalized beta of 1.8-2.0 were studied (limited by tearing modes); for the other scenarios, the normalized beta was in the range 2.7-3.0. Confinement with $H_{98y2} > 1$ was seen in all cases. Significant differences from ITER assumptions include low internal inductance and peaked density profiles.

*Work supported by the US DOE under DE-FG02-01ER54615.