

**Abstract Submitted for the Forty-Eighth Annual Meeting  
Division of Plasma Physics  
October 30<sup>th</sup>-November 3, 2006, Philadelphia, Pennsylvania**

Category Number and Subject:

Theory       Experiment

**Magnetic Field Error Correction in DIII-D After Reduction of TF-Coil Error,\*** M.J. Schaffer, R.J. La Haye, E.J. Strait, A.M. Garofalo, A.W. Hyatt, A.M. Jacques, J.A. Leuer, J.T. Scoville, *General Atomics* – A new current feed at the DIII-D toroidal field (TF) coil 210° feed point reduced this feed’s magnetic error field at the plasma by ~10-fold, but other error sources remain unchanged. The modified DIII-D intrinsic error, in addition to requiring that a new empirical algorithm be developed for routine error correction by the DIII-D C-coil, offers a rare opportunity to study the effects of magnetic error field geometry on plasmas in the same tokamak. Initial results show a moderate ~30% improved locked mode avoidance in the standard, low-density, Ohmic, locked-mode test plasmas used in the past. The C-coil makes further improvement, as in the past, and the DIII-D I-coil, used alone for error correction for the first time, makes even more improvement. A search for large spatial scale (not TF coil “ripple”) TF coil errors is underway and will be reported. The combined correction and error fields will be analyzed to identify the error field features that are most and least deleterious to the plasma.

\*Work supported by U.S. DOE under DE-FC02-04ER54698.