

Abstract Submitted  
for the DPP09 Meeting of  
The American Physical Society

**ITER Test Blanket Module (TBM) Error Field Experiments in DIII-D**<sup>1</sup> M.J. SCHAFFER, General Atomics, J.A. SNIPES, ITER Organization — Proposed ITER tritium breeding TBMs would contain ferromagnetic steel near the plasma and would make a localized peak magnetic perturbation of about 1.6%. While some effects can be computed, e.g. modified ion orbits, other important consequences cannot, such as global energy confinement and the L- to H-mode transition power. Therefore, an approximate scaled mockup of the error field from two TBMs in one port, as planned for ITER, will be installed temporarily in a DIII-D equatorial port to study its effects on plasmas. The mockup uses active electromagnet coils rather than passive steel for experimental flexibility. Numerical calculations show that the TBM error vacuum field has no strong resonant harmonics, but a natural resonant valley instead. However, the field has strong non-resonant harmonics, and non-resonant braking of plasma rotation is anticipated. The experiments will be performed in Autumn 2009, and we plan to report first results at this meeting.

<sup>1</sup>Work supported in part by the US DOE under DE-FC02-04ER54698 and Economic Stimulus Funds.

Mike Schaffer  
General Atomics

Date submitted: 17 Jul 2009

Electronic form version 1.4