

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

Category Number and Subject: 5.6.2.

Theory Experiment

Inferred Edge Thermal Transport in L- and ELM-Free H-Mode in DIII-D, * W.M. Stacey, *Georgia Tech*, and R.J. Groebner, *General Atomics* – We have recently developed a methodology for inferring thermal transport coefficients in the plasma edge from measured density and temperature profiles which takes into account important convective, ion-electron equilibration and atomic physics effects [1]. This methodology has been applied to infer ion and electron thermal diffusivities, $\chi_{i,e}(r)$, profiles in the edge of a DIII-D shot with L-mode and ELM-free H-mode phases. The expected order of magnitude reduction in transport coefficients was found, but across the entire edge region including both the pedestal “flattop” and “steep-gradient” regions, rather than just in a localized “transport barrier” coincident with the steep-gradient region. The inferred $\chi_{i,e}(r)$ are compared with various theoretical predictions.

[1] W.M. Stacey and R.J. Groebner, *Phys. Plasmas* **13** (2006).

*Work supported by US DOE under DE-FC02-04ER54698.