

**Abstract Submitted for the Forty-Sixth Annual Meeting
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Category Number and Subject: 5.6.2 DIII-D Tokamak

Theory Experiment

Comparison of Calculated and Measured Profiles in the DIII-D Edge Pedestal,* W.M. Stacey, *Georgia Tech*, and R.J. Groebner, *GA* – The edge profiles of density, temperature, radial electric field, poloidal velocities, etc. in DIII-D have been resolved experimentally in some detail. In order to understand the cause of the “pedestal” structure found in measurements for H-mode edge plasmas, a calculation model for these quantities has been developed from the particle, momentum and energy balance equations and coupled with a calculation of recycling neutral transport [1]. Initial results indicate that these coupled nonlinear equations have a solution with a pedestal structure that is in reasonable agreement with measured profiles and provide new insight as to how the recycling neutrals influence the determination of the edge density profile. Comparison of calculated and measured profiles will be presented for several DIII-D shots.

[1] W.M. Stacey, *Phys. Plasmas*, to be published (2004).

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