Abstract Submitted
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Inference of Thermal and Momentum Transport Coefficients in the DIII-D Edge Pedestal[1] W.M. STACEY, Georgia Tech., R.J. GROEBNER, GA — New methodologies for inferring thermal and momentum transport coefficients from measured temperature, density and velocity profiles in the edge plasmas have been developed. The thermal interference methodology, which takes into account radiation and atomic physics cooling, recycling neutrals and convection, in the determination of conductive heat flux profiles, has been applied to the ELM-free phase of a discharge [1]. Now, time-resolved profile data sets averaged over similar inter-ELM intervals have been developed for two discharges. The methodology has been extended to take into account the measured reheating and density buildup in the pedestal between ELMs, and ion and electron thermal diffusivities have been inferred for the various sub-intervals (e.g. 10%-20%, 80%-90%) in the inter-ELM interval. An analogous methodology has been developed for inferring toroidal angular momentum and poloidal momentum transport rates from measured toroidal and poloidal velocity measurements, respectively, and applied to the same two data sets.

[1] W.M. Stacey and R.J. Groebner, Phys. Plasma **13**, 072510 (2007).

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