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☐ Theory ☒ Experiment

Investigation of Edge Pedestal Profiles in DIII-D,* W.M. Stacey, *Georgia Tech*, and R.J. Groebner, *GA* – We have previously found [1,2] that, when experimental profiles of E_r and V_θ and average values of momentum and heat transfer coefficients inferred from experiment were used as input, the radial profiles of n , T_i and T_e in the edge pedestal could be calculated directly from particle, momentum and energy balance requirements. The pedestal structure (localized steep gradient region) was found to result from a combination of an edge peaking in the ion outward V_r caused by the ionization of recycling neutrals and a strong edge peaking in the inward ion V_{pinch} caused by strong edge peaking in E_r and V_θ . There is theoretical evidence that the peaking in E_r and V_θ may be caused by the peaking in V_r , suggesting the ionization of recycling neutrals as the ultimate cause of the edge pedestal structure. We are carrying out further calculations and examinations of the data to investigate this possibility.

[1] W. M. Stacey, Phys. Plasmas **11**, 5487 (2004).

[2] W. M. Stacey and R. J. Groebner, Phys. Plasmas **12**, 042504 (2005).

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☐ Oral ☒ Poster