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Category Number and Subject:

☐ Theory ☒ Experiment

Scaling of the Heat Flux Width with Plasma Density in DIII-D,* M.A. Makowski, C.J. Lasnier, *LLNL*; J. Nichols, *PPPL*; A.W. Leonard, T.H. Osborne, P. Snyder, *General Atomics* – The previous study of the relationship between the heat flux width and upstream profiles [1] is extended with the addition of density scans. These scans range from a low-density, attached state to a high-density, detached state on both the inner and outer divertors in both L- and H-mode discharges. Under attached conditions in L-mode both the inner and outer heat flux profiles are well fit by Eich's fitting function [2] and clearly indicate the transition from attached to detached states. Analysis of the density scans will be combined with previous scaling results to extend the heat flux width database. Comparisons to a critical gradient model will also be made to assess its validity under these new conditions.

[1] M.A. Makowski, et al., *Phys. Plasmas* **19**, 056122 (2012).

[2] T. Eich et al., *Phys. Rev. Lett.* **107**, 215001 (2011)

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