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Scrape-off layer turbulence (SOLT) simulations of effects of lithium deposition on heat flux characteristics observed in NSTX[1] D.A. RUSSELL, D.A. D'IPPOLITO, J.R. MYRA, Lodestar Research Corporation, J.M. CANIK, Oak Ridge National Laboratory, T.K. GRAY, Princeton Plasma Physics Laboratory — Established benefits of lithium conditioning observed in experiments at NSTX [1] include reduced ELMs, improved energy confinement and lowered H-mode thresholds. Recent measurements of the power exhaust channel [2] found reduced heat flux width (λ_q) at the divertor, compared to experiments with no lithium coating. Gradients of plasma energy and particle density as well as density fluctuations are observed to be reduced at the edge in the presence of lithium [3], suggesting a role for interchange-driven turbulence in setting heat flux characteristics in these experiments. To explore this possibility, we simulate the edge turbulence, in the outboard midplane, driven by plasma profiles measured in two NSTX experiments, with and without lithium, using the SOLT model code, [4] newly expanded [5] to include *self-consistent* ion diamagnetic drift evolution. Simulated and experimentally measured heat flux and λ_q are compared, and the underlying (simulated) turbulence is characterized in detail.

[1] R. Maingi et al., Nucl. Fusion **52**, 083001 (2012). [2] T.K. Gray et al., IAEA 2012, San Diego, paper EX/P5-27. [3] J.M. Canik et al., Phys. Plasmas **18**, 056118 (2011). [4] J.R. Myra et al., Phys. Plasmas **18**, 012305 (2011). [5] D.A. Russell et al., Bull. Am. Phys. Soc., DPP 2012, **57** (12), BP8-159.

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