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Heat flux and scrape-off layer width scaling in NSTX and NSTX-U¹ TRAVIS GRAY, JOON-WOOK AHN, Oak Ridge National Laboratory, KAIFU GAN, University of Tennessee - Knoxville, MICHAEL JAWORSKI, RAJESH MAINGI, Princeton Plasma Physics Laboratory, ADAM MCLEAN, VLAD SOUKHANOVSII, Lawrence Livermore National Laboratory — While it has been shown experimentally that the inter-ELM scrape-off layer width, λ_q in tokamaks scales as I_p^{-1} , the underlying physical mechanism for this scaling is not yet understood. Additionally, the physics behind the broadening of the heat flux profile during detachment, described by the S parameter in the so-called Eich fitting function [Eich NF 2013], is just beginning to be explored. During the final run campaigns of NSTX, it was shown experimentally that the addition of evaporative lithium wall coatings reduced λ_q and S and correlated with a reduction in overall divertor pressure. Conversely during detachment experiments with CD₄ injection, while divertor total pressure increased during CD₄ injection, both λ_q and S increased correspondingly. This is in qualitative agreement with measurements made on other tokamaks and shows a clear scaling of λ_q and S with upstream density, which is used as a proxy for divertor density. Expected behavior and preliminary results from NSTX-U will also be presented.

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