

Abstract Submitted  
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**ELM heat flux study in NSTX**<sup>1</sup> JOON-WOOK AHN, ORNL, KAIFU GAN, ASIPP, JOHN CANIK, TRAVIS GRAY, JEREMY LORE, ORNL, RAJESH MAINGI, FILIPPO SCOTTI, LANE ROQUEMORE, PPPL, ADAM MCLEAN, VLAD SOUKHANIVSKII, LLNL — Dynamic evolution of heat flux profiles for various types of ELMs has been investigated in NSTX. The heat flux width ( $\lambda_q$ ) was found to increase (for type-V and low power type-III ELMs) or decrease (for type-I and high power type-III ELMs) during the ELM compared to the inter-ELM value. This is contrary to the result from conventional tokamaks such as JET and ASDEX-U where  $\lambda_q$  showed clear increase during the type-I ELM. It is also interesting to note that the ELM peak heat flux ( $q_{\text{peak}}$ ) rises with increasing ELM energy loss for the same plasma stored energy ( $W_{\text{MHD}}$ ) in NSTX, which appears to be primarily due to the reduced wetted area ( $A_{\text{wet}}$ ) and poses concern about the ELM heat flux for NSTX-U where higher plasma current and input power are likely to raise the ELM energy loss. This result is compared to the JET data that showed constant peak heat flux over a range of ELM energy losses if the pedestal energy remains the same. Data for several ELM types will be presented and its relation to the pedestal parameters as well as implication to the future machine will be also discussed.

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