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Response of Thermo-electrically Driven Scrape-Off-Layer Current (SOLC) during ELMs to Discharge Manipulation in NSTX Tokamak¹ H. TAKAHASHI, E. FREDRICKSON, S. GERHARDT, M. JAWORSKI, R. KAITA, J. KALLMAN, D. MANSFIELD, S. ZWEBEN, PPPL, S. SABBAGH, Columbia U., R. MAINGI, ORNL, I. JOSEPH, LLNL — The halo current diagnostic in NSTX shows that SOLC abruptly rises to robust amplitude during ELMs out of near-noise-level pre-ELM background with dynamic range up to 10² in far SOL, while undergoing temporal and spatial polarity reversals. An examination of response of SOLC to manipulation of the discharge may reveal possible connections of SOLC to ELM triggering and suppressing mechanisms. In preliminary studies to date, limited only to far SOL (R-R(strike pt) > 40 cm), application of n=3 Resonant Magnetic Perturbations resulted in no readily discernible n=3-like structure in SOLC, and ramping up or down of the plasma current made no correlated changes in SOLC. Effect of lithium injection and biasing electrodes imbedded in divertor tiles to drive current will also be studied. Extension of these investigations into near SOL is planned.

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H. Takahashi PPPL

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