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Measurements of Divertor Particle and Energy Deposition Profiles During Transient Events in NSTX VIJAY SURLA, MICHAEL JAWORSKI, VLAD SOUKHANOVSKII, TRAVIS GRAY, ROBERT KAITA, JOSH KALLMAN, HENRY KUGEL, ADAM MCLEAN, DAVID RUZIC, FILIPPO SCOTTI — Transient events like edge localized modes (ELMs) or disruptions pose a serious problem to the plasma facing component (PFC) material and knowledge of the power loads on PFCs is important for the design considerations of NSTX upgrade and next generation devices. Thus, it is important to obtain particle and energy deposition profiles on the divertor target during an ELM. In this study, the particle and energy flux profiles arriving at the divertor plate are determined by the use of a high density Langmuir probe (HDLP) array, which when operated in triple probe configuration gives a time resolution of 4 μs. Typically, it is found that the evolution of an ELM from the probe is characterized by a steep rise and a gradual decrease of current signal. This burst like structure is seen by the Langmuir probes as a rise in the ion saturation current with a width of a few milliseconds. In this presentation, the utility of the Langmuir probe for characterizing ELMs is presented. In addition, analysis from diagnostics like IR camera and D_α camera during transient events are presented for comparison. Work supported by DOE contract No. DE-PS02-07ER07-29, DE-AC02-09CH11466, DE-AC05-00OR22725, and DE-AC52-07NA27344.

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