

Abstract Submitted
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Fast Ion Loss and Search for Current Redistribution due to Energetic Particle Mode Bursts in NSTX¹ DOUGLASS DARROW, E. FREDRICKSON, PPPL, N. CROCKER, UCLA, N. GORELENKOV, PPPL, M. PODESTA, UC Irvine, J. KIM, POSTECH, S. KUBOTA, UCLA, K.C. LEE, UC Davis, S. MEDLEY, PPPL, K. TRITZ, Johns Hopkins, H. YUH, Nova Photonics — Bursts of MHD modes driven by neutral beam ions, termed Energetic Particle Modes (EPMs) are frequently observed in NSTX plasmas. These bursts typically comprise multiple n number modes in the 20-100 kHz frequency range and are believed to be beta induced Alfvén acoustic eigenmodes (BAAEs). The bursts produce sizable drops in the neutron rate, up to 36% in a 100 μ s interval in one instance. A simultaneous loss of beam ions over a wide range of pitch angles is often seen. Details of beam ion diagnostic results will be presented. An effort has also been made to determine whether these modes alter the current profile of the discharge. Initial results indicate some changes in MSE pitch angle profiles concurrent with the bursts. However, these are comparable to changes seen with other types of MHD activity and with the general level of fluctuations seen in virtually every NSTX discharge. Consequently, it is inferred that any effect these bursts have on the current profile is no greater than that created by other frequently occurring phenomena.

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