

Abstract Submitted  
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**The Effect of Different Fast-ion Instabilities on the Fast-ion Profile**<sup>1</sup> E. RUSKOV, W. HEIDBRINK, D. LIU, UC Irvine, E. FREDRICKSON, A. BORTOLON, PPPL — Fast-ion driven instabilities in NSTX take many forms, including steady, bursting, and avalanching toroidal Alfvén eigenmodes (TAE), avalanching global AEs, energetic particle modes (EPM), long-lived modes (LLM) and abrupt large-amplitude events (ALE). The occurrence or absence of these modes on Mirnov signals correlates with the ratio of fast-ion to Alfvén speed and the ratio of fast-ion to thermal pressure [1]. The drop in neutron rate at these events correlates differently with mode amplitude for the different types of events [1]. In this study, we expand this database to investigate the correlation of vertical fast-ion D-alpha (FIDA) data with the different types of MHD. The measured profiles are compared with classically-predicted profiles.

[1] E. Fredrickson et al., “Parametric dependence of fast-ion transport events on the NSTX,” Nucl. Fusion 54 (2014) in press.

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