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Analysis of fast-ion D-alpha data from NSTX[1] E. RUSKOV, W HEIDBRINK, D. LIU, UC Irvine, A. BORTOLON, E. FREDRICKSON, M. PODESTA, PPPL — Measured fast-ion D-alpha (FIDA) data from an extensive NSTX database are compared to "classical" predictions that neglect transport by instabilities. Even in the absence of detectable MHD, in virtually all cases, the measured radiance is lower, the profile peaks at smaller major radius, and the profile is broader than the predictions. Abrupt large-amplitude MHD events flatten the FIDA profile, as do most toroidal Alfven eigenmode (TAE) avalanche events. Generally, the onset of a long-lived mode also flattens the FIDA profile. There is a shortfall of high-energy ions at large major radius in discharges with repetitive TAE bursts.

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