Abstract Submitted
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**Measurements and modeling of prompt loss of neutral beam ions from NSTX**[1] DOUGLASS DARROW, PPPL, JOSHUA BURBY, Cornell Univ., MICHAEL JOKUBAITIS, Drew Univ., RYAN NORA, Colorado School of Mines — Prompt loss of neutral beam ions in tokamaks can occur when the injected neutrals are ionized such that their orbits intersect solid objects near the plasma. Such losses are typically large at low plasma current, but diminish rapidly with increasing current. NSTX is equipped with a scintillator fast ion loss diagnostic that can detect prompt losses. Since other plasma phenomena, such as MHD activity, can also induce beam ion loss, it is useful to have a model that can predict the range of pitch angles that will experience prompt loss to the detector in a given plasma configuration. This then permits identification of which losses are prompt and which arise from other causes. A velocity space based prompt loss model has been developed for NSTX that predicts pitch angle distributions similar to those measured in NSTX plasmas. The model offers some possibility for extension to other fast ion diagnostics and to other loss mechanisms.

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