

Abstract Submitted
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Beam ion susceptibility to loss in NSTX-U plasmas¹ DOUGLASS DARROW, ERIC FREDRICKSON, MARIO PODESTA, PPPL, DEYONG LIU, UC Irvine, ROSCOE WHITE, PPPL — NSTX-U has operated with three additional neutral beam sources whose tangency radii of 1.1, 1.2, and 1.3 m are significantly larger than the 0.5, 0.6, and 0.7 m tangency radii of the neutral beams previously used in NSTX. These latter beams have also be retained for NSTX-U. Here, we present an estimate of the susceptibility of the beam ions from all the various sources to loss under a range of NSTX-U plasma conditions. This estimation is based upon TRANSP calculations of beam ion deposition in phase space, and the location of the FLR-corrected loss boundary in that phase space. Since losses are often observed at the injection energy, a simple measure of loss susceptibility is the change in canonical toroidal momentum required to move beam ions from their deposition point to the loss boundary, as a function of magnetic moment. To augment this simple estimate, we intend to report some associated transport coefficients of beam ions due to AE activity.

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