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Effects of TAE Avalanches on the neutral beam driven current profile in NSTX and NSTX-U plasmas[1] DOUGLASS DARROW, PPPL, ALESSANDRO BORTOLON, Univ. Tenn., Knoxville, NEAL CROCKER, UCLA, ERIC FREDRICKSON, NIKOLAI GORELENKOV, MARINA GORELENKOVA, PPPL, SHIGEYUKI KUBOTA, UCLA, MARIO PODESTÀ, PPPL, DAVID SMITH, Univ. Wisconsin, Madison, ROSCOE WHITE, PPPL — Strong bursts of TAEs with multiple n numbers present, termed TAE avalanches, are observed in NSTX plasmas, including early in the discharge, when the plasma current is being ramped up. These avalanches cause radial redistribution, rapid slowing down, and often loss of beam ions from the plasma. Loss measurements show particularly pronounced losses during these events. All of these changes in the beam ion distribution can affect the beam driven current profile. Measurements and modeling of the beam ion population and driven currents in NSTX will be compared, including the effects of avalanches and associated MHD activity during the current ramp up phase. In addition, since NSTX-U will utilize additional neutral beams with different orientations from the set on NSTX, modeling of the effects of avalanches on the distribution of beam ions and associated beam driven current from the new beam lines will also be discussed.

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