

Abstract Submitted
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Measurements of fast ion confinement and transport using dual-view Fast-Ion D-Alpha Diagnostics on NSTX-U. G.Z. HAO, W.W. HEIDBRINK, D. LIU, L. STAGNER, UC,Irvine, M. PODESTA, E. FREDRICKSON, A. BORTOLON, D. DARROW, PPPL — On spherical tokamak NSTX-U, it is found that the fast-ion transport induced by sawtooth is larger for passing particles than for trapped particles. The result is identified by the fact that the sawtooth induces the slight decrease of both vertical and tangential FIDA signal at the inner channels, whilst strongly enhances t-FIDA signal at outer channels. FIDA results are consistent with the SSNPA measurements which identify the enhanced passing particle losses caused by sawtooth. Here, the vertical/radial and tangential views of FIDA and SSNPA are sensitive to the trapped and passing particles, respectively. In addition, low frequency mode (<60 kHz) decreases both trapped and passing fast-ion population in the core region, and increases the passing particle population in the edge area. Furthermore, for FIDA data analysis, background subtraction technique works well for v-FIDA, however, requires the improvement for t-FIDA at edge channels which are more sensitive to the plasma condition. Work supported by U.S. DOE DE-AC0209CH11466, DE-FG02-06ER54867, and DE-FG03-02ER54681

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