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Alfvén Mode Similarity Experiment Between NSTX and DIII-D[1] Y. LUO, W.W. HEIDBRINK, University of California, Irvine, S. BERNABEI, E.D. FREDRICKSON, N.N. GORELENKOV, Princeton Plasma Physics Laboratory, T.L. RHODES, UCLA — The major radius dependence of Alfvén mode stability is studied by creating plasmas with similar minor radius shape, magnetic field (0.5 T), density ($n_e \simeq 4 \times 10^{19}$ m^{-3}), electron temperature (1.0 keV) and beam-ion population (near-tangential 80 keV deuterium injection) on both NSTX and DIII-D. The major radius of NSTX is half the major radius of DIII-D. The super-Alfvénic beam ions that drive the modes have nearly identical values of v/v_A in the two devices. Observed beam-driven instabilities include toroidicity-induced Alfvén eigenmodes (TAE) and compressional Alfvén eigenmodes (CAE). Preliminary analysis indicates that the stability threshold for the TAE is similar in the two devices but the most unstable toroidal mode number n increases with major radius.

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