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**A first look at resistive MHD stability differences between NSTX and NSTX-U high beta discharges**[1] L. A. MORTON, Oak Ridge Associated Universities, R. J. LA HAYE, General Atomics, J. W. BERKERY, Columbia University, J. E. MENARD, N. M. FERRARO, Princeton Plasma Physics Laboratory, D. P. BRENNAN, Princeton University, S. A. SABBAGH, Columbia University, L. F. DELGADO-APARICIO, Princeton University, K. TRITZ, Johns Hopkins University — Comparison is made of the onset, growth rate and saturation of m/n = 2/1 tearing modes in NSTX and NSTX-U high beta discharges. NSTX-U has stronger toroidal field, higher electron temperature (thus longer resistive diffusion time) and a larger aspect ratio (due to the expansion of the center stack). Experimental identification of the mode helicity, radial location, and width is accomplished by synergistically combining information from soft x-ray emission, Thomson scattering ($T_e$ profile), Charge Exchange Recombination ($T_i$ profile) and Mirnov diagnostics. Fitting the generalized Rutherford equation to the time-evolution of the island width allows evaluation of the different drive and stabilizing terms. Linear stability calculations have also been performed with M3D-C1. The possibility of a reduction in the stabilizing interchange effect due to curvature at somewhat larger aspect ratio in NSTX-U is one focus of the analysis.

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