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**Dependence of Edge Profiles and Stability on Neutral Beam Power in NSTX**[1] P. TRAVIS, UIUC, G.P. CANAL, GA/ORAU, T.H. OSBORNE, GA, R. MAINGI, PPPL, S.A. SABBAGH, Columbia University, NSTX-U TEAM
— Studying the effect of neutral beam injected (NBI) power on edge plasma profiles and magnetohydrodynamic (MHD) stability is central to the understanding of edge-localized modes (ELMs). Higher heating power should quicken the development of pressure and current-driven peeling-ballooning modes. NSTX ELMy H-mode discharges with NBI power of 4, 5 and 6 MW were analyzed with a python-based set of analysis tools [1] that fit plasma profiles, compute kinetic equilibria, and evaluate the MHD stability with the code ELITE. Electron density and temperature from Thomson scattering measurements, and ion density, temperature, and rotation from Charge Exchange Recombination Spectroscopy were inputs to the kinetic equilibrium fits. The power scan provides an opportunity to compare the stability calculations from the ELITE (ideal) and M3D-C1 (resistive) codes. Preliminary analysis shows that edge pressure profiles for the 5 and 6 MW discharges are comparable, suggesting they both reach a stability boundary. The 4 MW case shows lower edge pressure, which is likely limited by edge transport below the edge stability boundary. [1] T. Osborne et al., J. Conf. Phys. Series 123 (2008) 012014.

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