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Search for Multiple Resistive Wall Modes at High Normalized Beta in NSTX¹ S.A. SABBAGH, J.W. BERKERY, J.M. BIALEK, Columbia U., L. DELGADO-APARICIO, K. TRITZ, JHU, R.E. BELL, S.P. GERHARDT, B. LEBLANC, PPPL — Resistive wall mode (RWM) research has focused on the behavior and control of the least stable mode. However, at sufficiently high normalized beta, multi-mode theory suggests that stable modes may significantly influence the plasma dynamics. [1] This may affect active RWM control reliability in high beta plasmas. [2] Experiments at very high normalized beta have been conducted in NSTX to search for direct evidence of multi-mode RWM dynamics. Discharges were created with normalized beta reaching 7.4 in conditions with the ideal MHD no-wall limit near 4. Evidence of stable RWMs is examined by both kinetic and magnetic means. Characteristics are consistent with RWM behavior. At sufficiently high normalized beta, stable RWM-level low frequency activity is observed. X-ray data amplitude depends on beta, shows the activity to be global, and propagates in the co-NBI direction at frequencies near the expected peak in resonant magnetic field amplification. Observed growing RWMs appear to be separate from the stable mode activity, with different radial extent, supporting the hypothesis of multiple modes. [1] A.H. Boozer, *Phys. Plasmas* **10** (2003) 1458. [2] S.A. Sabbagh, et al., *Phys. Rev. Lett.* **97** (2006) 045004.

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