Abstract Submitted
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Edge profile and stability analysis as ELMs disappear with increasing lithium wall coatings in NSTX[1] D.P. BOYLE[2], Princeton Plasma Physics Laboratory, R. MAINGI, Oak Ridge National Laboratory, J. MANICKAM, PPPL, T.H. OSBORNE, P.B. SNYDER, General Atomics — Future tokamaks are not likely to be successful unless edge localized modes (ELMs) in high confinement plasmas can be eliminated or greatly reduced. Recently, lithium wall coatings in the National Spherical Torus Experiment have led to complete suppression of ELMs. Previous edge stability calculations indicated that ELMy pre-lithium discharges were unstable to low-n peeling or ballooning modes, while broader pressure profiles stabilized the ELM-free post-lithium discharges.[3] This poster presents analysis of edge stability for the entire lithium coating thickness scan, i.e. intermediate cases in which lithium has reduced ELM frequency and generated small periods of ELM-free quiescence. In general the stability calculations show that the ideal growth rates are continually reduced as the lithium is increased.

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[3]R. Maingi, et. al., Phys. Rev. Lett. 103, 075001 (2009)

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