Abstract Submitted
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**Transport and stability analyses supporting disruption prediction in high beta KSTAR plasmas*** J.-H. AHN, S.A. SABBAGH, Y.S. PARK, J.W. BERKERY, Y. JIANG, J. RIQUEZES, Columbia U., H.H. LEE, L. TERZOLO, NFRI, S.D. SCOTT, Z. WANG, PPPL, A.H. GLASSER, U. Washington — KSTAR plasmas have reached high stability parameters in dedicated experiments, with normalized beta $\beta_{\mathrm{N}}$ exceeding 4.3 at relatively low plasma internal inductance $l_i$ ($\beta_{\mathrm{N}}/l_i>6$) [1]. Transport and stability analyses have begun on these plasmas to best understand a disruption-free path toward the design target of $\beta_{\mathrm{N}}=5$ while aiming to maximize the non-inductive fraction of these plasmas. Initial analysis using the TRANSP code indicates that the non-inductive current fraction in these plasmas has exceeded 50 percent. The advent of KSTAR kinetic equilibrium reconstructions now allows more accurate computation of the MHD stability of these plasmas. Attention is placed on code validation of mode stability using the PEST-3 and resistive DCON codes. Initial evaluation of these analyses for disruption prediction is made using the disruption event characterization and forecasting (DECAF) code [2] The present global mode kinetic stability model in DECAF developed for low aspect ratio plasmas is evaluated to determine modifications required for successful disruption prediction of KSTAR plasmas. [1] Y.S. Park, S.A. Sabbagh, W.H. Ko et al., Phys. Plasmas **24** (2017) 012512 [2] J.W. Berkery et al., Phys. Plasmas **24** (2017) 506103
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