Abstract Submitted
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Study of Alfvén Eigenmodes (AEs) stability on JET with active antennas and modeling with MHD and gyrokinetic codes.[1] N. FIL, M. PORKOLAB, 1), A. TINGUELY, 1) MIT, PSFC, USA, S. DOWSON, M. FITZGERALD, S. E. SHARAPOV, H SHEIK, 2), J. MAILLOUX, 2) CCFE, UK, P. PUGLIA, A. FASOLI, 3), D. TESTA, 3) EPFL, SPC, Z. LIN, 4) , J. BAO, 4) UCI, USA, M. PODESTA, 5) PPPL, USA, JET CONTRIBUTORS TEAM[2] — JET DT campaign planned by the end of 2020 will be a significant opportunity to explore fast ion fusion physics before ITER operations. The AEs Active Diagnostic (AEAD) will play a critical role to study the interaction between alphas and Alfvén modes [1]. Recent efforts have been made on JET to develop a scenario to observe unstable TAEs attributed to fusion α's in DT plasma [2]. In preparation of these experiments, a wide range of experimental and theoretical studies have been undertaken with a full range of isotope experiments (DD and TT). We use the synergy between the AEAD and modeling codes [1] such as the MHD code MISHKA and the gyrokinetic code GTC to study AEs stability in various JET plasmas. GTC self-consistently treats bulk ions, fast ions, electrons and fields which allows us to study both unstable AEs observed passively and stable AEs excited resonantly by the AEAD. Good agreement is obtained between simulations and experiments which adds confidence to further predictions (JET-DT and ITER). [1] V. Aslanyan et al., NF **59** (2019) 026008. [2] R. Dumont et al., NF **58** (2018) 082005.

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[2]See E. Joffrin et al., NF special issue, 27th Fusion Energy Conference.

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