Abstract Submitted
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**Tearing Mode Stability of Steady-State Scenario Plasmas in DIII-D**[1] F. TURCO, Oak Ridge Institute for Science Education, T.C. LUCE, J.R. FERRON, C.C. PETTY, P.A. POLITZER, A.D. TURNBUL, General Atomics, D.P. BRENNAN, U. Tulsa, T.A. CASPER, C.T. HOLCOMB, Lawrence Livermore National Laboratory, M. MURAKAMI, Oak Ridge National Laboratory — Tearing mode stability is crucial for high-performance scenarios intended for steady-state operation. The appearance of tearing modes in DIII-D discharges leads to loss of energy confinement, but more importantly to redistribution of the current profile that is not recoverable with the available non-inductive current drive sources. Tearing modes can appear after 1-2 s at constant pressure (i.e., on the resistive evolution time scale). The stability is strongly affected by the location and distribution of the applied electron cyclotron current drive (ECCD), but not through direct interaction with the mode rational surface. The local evolution of the current density (as measured by motional Stark effect spectroscopy) will be shown for a sequence of similar discharges that vary only in the applied ECCD distribution. Comparison to ideal and resistive MHD linear stability calculations will be carried out.

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