

Abstract Submitted
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Linear Analysis and Verification Suite for Edge Turbulence¹ J.R. MYRA, D.A. D'IPPOLITO, D.A. RUSSELL, Lodestar Research Corp., M. UMAN-SKY, LLNL — Tokamak edge physics research is becoming increasingly reliant on large-scale plasma simulation. The accuracy and reliability of software codes must be insured through rigorous verification and validation. Kinetic edge physics simulation codes such as those being developed under the ESL and CPES projects could benefit from standardized benchmarks. Measurement of the linear growth rate of unstable modes emerging from a known, established equilibrium configuration provides one of the few quantitative ways of rigorously benchmarking turbulence codes with each other and with a universal standard. The present paper discusses the proposed development of a community-standard suite of edge instability codes for linearized, nonlocal (e.g. separatrix-spanning) modes in axisymmetric (realistic divertor), toroidal geometry. The suite will consist of a new eigenvalue code, as well as the recently revised BOUT code, and will be geared to provide a community-wide benchmarking/verification tool for nonlinear edge plasma simulations. Initial progress will be reported.

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