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**Benchmarking of the 2DX eigenvalue code** D.A. BAVER, J.R. MYRA, Lodestar Research Corporation, M. UMANSKY, Lawrence Livermore National Laboratory — The 2DX code is a linear eigenmode solver designed for toroidal plasma configurations with an x-point topology. Together with recent upgrades to BOUT, it is part of a project to provide validation and verification capability for large-scale turbulence codes. Comparing linear growth rates to a single simple linear code provides a reproducible result that can be used as a common standard. In addition to its topological capabilities, the 2DX code is distinct in its use of an equation language to input equations to be solved. This gives it the flexibility to handle nearly arbitrary systems of equations, giving it potential applications far beyond the scope of the current project. For purposes of the present project, however, editing the equation language is a potential source of error, so we will be presenting results from a standardized 6-field model instead. We will present 2DX results from both analytic and full geometry test cases. We will also present comparisons with BOUT. These tests will serve to build confidence in the 2DX code as a valuable tool for V&V. Work supported by the U.S. DOE under grant DE-FG02-07ER84718.

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