

Abstract Submitted
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Generalized resistive wall boundary conditions for cylindrical and toroidal geometry in NIMROD¹ ANDREA MONTGOMERY, C.C. HEGNA, C.R. SOVINEC, University of Wisconsin, Madison, S.E. KRUGER, Tech-X Corp., S.A. SABBAGH, Columbia University — A generalized resistive wall boundary condition is implemented in NIMROD, making it possible to study both cylindrical and toroidal geometries with arbitrary axisymmetric shaping. The magnetic fields inside the computational domain are matched at the wall with external fields found using a vacuum-field solver. With this extended capability, NIMROD is used to study the stability of resistive wall modes for an advanced scenario ITER constructed equilibrium with normalized beta of 2.9 (above the n=1 no-wall stability limit) and toroidal rotation. The non-linear, self-consistent interactions between a rotating plasma, unstable modes and a resistive wall are considered. Methods to extend the generalized boundary condition physics to include external resonant magnetic perturbations will be discussed.

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