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Modeling of RF/MHD coupling using NIMROD and GENRAY THOMAS G. JENKINS, D.D. SCHNACK, C.R. SOVINEC, C.C. HEGNA, J.D. CALLEN, F. EBRAHIMI, University of Wisconsin-Madison, S.E. KRUGER, J. CARLSSON, Tech-X Corporation, E.D. HELD, J.-Y. JI, Utah State University, R.W. HARVEY, A.P. SMIRNOV, CompX — We summarize ongoing theoretical/numerical work relevant to the development of a self-consistent framework for the inclusion of RF effects in fluid simulations, specifically considering the stabilization of resistive tearing modes in tokamak (DIII–D–like) geometry by electron cyclotron current drive. Previous investigations [T. G. Jenkins et al., Bull. APS 52, 131 (2007)] have demonstrated that relatively simple (though non-self-consistent) models for the RF-induced currents can be incorporated into the fluid equations, and that these currents can markedly reduce the width of the nonlinearly saturated magnetic islands generated by tearing modes. We report our progress toward the self-consistent modeling of these RF-induced currents. The initial interfacing of the NIMROD^{*} code with the GENRAY/CQL3D^{**} codes (which calculate RF propagation and energy/momentum deposition) is explained, equilibration of RF-induced currents over the plasma flux surfaces is investigated, and initial studies exploring the efficient reduction of saturated island widths through time modulation of the ECCD are presented. Conducted as part of the SWIM*** project; funded by U. S. DoE. *www.nimrodteam.org **www.compxco.com ***www.cswim.org

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