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Modeling of RF/MHD coupling using NIMROD, GENRAY, and the Integrated Plasma Simulator THOMAS JENKINS, D.D. SCHNACK, C.R. SOVINEC, C.C. HEGNA, J.D. CALLEN, F. EBRAHIMI, UW-Madison, S.E. KRUGER, J. CARLSSON, Tech-X Corp., E.D. HELD, J.-Y. JI, Utah State U., R.W. HARVEY, A.P. SMIRNOV, CompX, SWIM PROJECT TEAM — 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 resistive tearing mode stabilization in tokamak (DIII–D–like) geometry via ECCD. Relatively simple (though non–self–consistent) models for the RF–induced currents are incorporated into the fluid equations, markedly reducing 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 (calculating RF propagation and energy/momentum deposition) via the Integrated Plasma Simulator (IPS) framework*** is explained, equilibration of RF–induced currents over the plasma flux surfaces is investigated, and studies exploring the efficient reduction of saturated island widths through time modulation and spatial localization of the ECCD are presented. *[Sovinec *et al.*, JCP **195**, 355 (2004)] **[www.compxco.com] ***[This research and the IPS development are both part of the SWIM project. Funded by U.S. DoE.]

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