

Abstract Submitted
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FRC edge physics using NIMROD ALES NECAS, Tri Alpha Energy, Inc., Rancho Santa Margarita, CA 92688, RICHARD MILROY, PSI Center, University of Washington, Seattle, WA 98195, TRIALPHA ENERGY TEAM — We have studied issues related to edge physics of the HPF regime FRC [1] using the NIMROD extended MHD code [2]. By modifying the end boundary conditions, we impose an electrostatic bias representing the experimentally applied bias voltage. The resulting self-consistent electric potential is a flux quantity (*i.e.* follows field lines along the machine) as observed experimentally. Further, we observe that the open plasma rotation is controlled by the magnitude of the applied boundary potential. We also observe the penetration of this edge rotation into the closed field FRC by viscosity. Transport is affected by the resulting sheared rotation. Various rotationally related modes are observed and discussed.

[1] M. Tuszewski, *et al.*, *Phys. Rev. Lett.* **108**, 255008 (2012).

[2] C. R. Sovinec, *et al.*, *J. Comp. Phys.* **195**, 355 (2004).

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