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**FRC Simulations using the NIMROD Code** R.D. MILROY, University of Washington, A.I.D. MACNAB, C.C. KIM, C.R. SOVINEC, PSI Center, University of Wisconsin, Madison — The recently formed Plasma Science and Innovation Center (PSI-Center) is benchmarking and refining the NIMROD code for simulations of field-reversed configurations (FRCs). The NIMROD code can resolve highly anisotropic heat conduction and viscosity [C.R. Sovinec, et al., JCP 195, 355 (2004)]. This combined with its ability to include two-fluid effects, allows us to capture more detailed physics than previous calculations. Recent modifications to the radial boundary conditions capture most of the effects of multiple discrete coils found in many FRC experiments. With this enhancement combined with the ability to include Hall physics, we have begun testing the ability of the code to predict FRC formation and translation, as well as toroidal field generation due to non-symmetric formation. We will also test the prediction of the details of FRC spin-up due to end-shortening, and investigate recent observations [H.Y. Guo, et al., Phys. Rev. Lett. 95, 175001 (2005)] that imply that a small toroidal field could help stabilize the  $n=2$  rotational instability.

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