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NIMROD simulations of ICC devices CHARLSON C. KIM, University of Washington - PSI Center, NIMROD TEAM — We present ongoing NIMROD simulations of Plasma Science and Innovation (PSI) Center supported experiments. This poster focuses on two experiments; the Levitated Dipole EXperiment (LDX) and flux injection from coplanar gun. It has been proposed that nonlinear saturation of interchange instabilities in the LDX experiment lead to a robust, marginally stable profile. NIMROD simulations of interchange instabilities in a dipole field are used to examine this conjecture. Our simulations begin with a vacuum dipole field and 'grow' a plasma with a heat source. Anisotropic heat conduction and the heat source produces a steady state plasma pressure profile. These profiles are then used to study interchange instabilities and their nonlinear evolution. Simulations of flux injection from a coplanar gun examine the parameter space of 'gun lambda' ($\lambda_{gun} = \frac{\mu_0 I_{gun}}{\psi_{gun}}$ ratio of injected current to initial flux) and flux distribution, $\psi(r)$, to characterize optimal parameters for maximum flux amplification and/or closed flux generation. We are particularly interested in robust spheromak formation. Visualization tools that are useful to diagnosing these 3-D simulations will be highlighted.

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