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NIMROD Simulations of FRC Formation, Translation, Merging and Stability ALES NECAS, TriAlpha Energy, Inc., CA, USA, RICHARD MILROY, University of Washington, TRIALPHA ENERGY TEAM — We report on progress made in using the NIMROD code to simulate formation, translation and merging of FRCs in the C-2 experiment [1]. This sequence is simulated in 2D and 3D, with and without inclusion of the Hall term. As will be shown, the Hall term is responsible for transient toroidal magnetic fields, which annihilate fast after merging, consistent with experiments. Rotational and tilt instabilities are also being investigated via NIMROD in the context of different possible experimental configurations (such as in-situ vs dynamic formation or single vs double sided injection). For example, one-sided translation with an initial tilt perturbation shows that growth of the tilt mode is suppressed with inclusion of Hall MHD. This and other select results will be examined more closely.

[1] M. W. Binderbauer *et al*, Phys.Rev.Lett. **105,** 045003 (2010).

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