

Abstract Submitted
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Modeling of Dynamic FRC Formation YUNG MOK, DAN BARNES, SEAN DETTRICK, Tri Alpha Energy, Inc. — We have developed a 2-D resistive MHD code, Lamy Ridge, to simulate the entire FRC formation process in Tri Alpha's C2 device, including initial formation, translation, merging and settling into equilibrium. Two FRC's can be created simultaneously, and then translated toward each other so that they merge into a single FRC. The code couples the external circuits around the formation tubes to the partially ionized plasma inside. Plasma and neutral gas are treated as two fluids. Dynamic and energetic equations, which take into account ionization and charge exchange, are solved in a time advance manner. The geometric shape of the vessel is specified by a set of inputs that defines the boundaries, which are handled by a cut-cell algorithm in the code. Multiple external circuits and field coils can be easily added, removed or relocated through individual inputs. The design of the code is modular and flexible so that it can be applied to future devices. The results of the code are in reasonable agreement with experimental measurements on the C2 device.

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