

Abstract Submitted
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Adiabatic compression of a Field Reversed Configuration (FRC)¹

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The adiabatic compression of magnetized plasmas has come to the fore in recent times as an interesting hybrid of both inertial and magnetic fusion energy schemes, opening up the high density route to fusion energy [1]. Magnetized target fusion, or MTF, is possible with a range of different magnetic configurations [2], although here we consider the compression of a FRC. The literature relating to the efficient adiabatic compression of FRCs is reviewed. The key issues with the MTF schemes lie with obtaining highly efficient compression (considering various drivers and liners), and maximizing the period that the plasma remains compressed (dwell time). We present analytic modeling, initial MHD simulations and an outline for an experiment (including diagnostic plan) to explore the physics of compression on a small-scale (<1MJ bank energy).

[1] Siemon, et al Com. Plas. Phys. Control. Fus., 18, p (1999).

[2] D.D. Ryutov, R.E. Siemon. Com. on Mod. Phys, 2, p185 (2001).

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