

Abstract Submitted
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Compression of compact tori by use of efficient drivers¹ SIMON WOODRUFF, ANGUS MACNAB, Woodruff Scientific, LLC — 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, possibly allowing a means to reach fusion conditions in a compact pulsed system. Here we consider the compression both of the FRC and Spheromak, both with a coil compression [1] and with an imploding liquid liner [2]. Of critical importance in choice of target for compression is the scaling of the confinement with convergence, time-scale for compression and obtainable beta. We present analytic scaling relations for the compression schemes, and MHD simulations of the target plasmas in preparation for the design of a new experiment.

[1] P. M. Bellan Scalings for a Travelling Mirror Adiabatic Magnetic Compressor Rev. Sci. Instrum. 53(8) 1214 (1982)

[2] P. Turchi, D. J. Book, R. L. Burton, A. I. Cooper Stabilized Imploding Liner Research for High Magnetic Field Plasma Compression J. Magnetism and Magnetic Materials 11 p373-375 (1979)

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