Abstract Submitted
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3D MHD Simulations of Spheromak Compression\textsuperscript{1} JAMES E. STUBER, SIMON WOODRUFF, Woodruff Scientific, JOHN O’BRYAN, CARLOS A. ROMERO-TALAMAS, University of Maryland Baltimore County, DARPA SPHEROMAK TEAM — The adiabatic compression of compact tori could lead to a compact and hence low cost fusion energy system. The critical scientific issues in spheromak compression relate both to confinement properties and to the stability of the configuration undergoing compression. We present results from the NIMROD code modified with the addition of magnetic field coils that allow us to examine the role of rotation on the stability and confinement of the spheromak (extending prior work for the FRC \textsuperscript{[1]}). We present results from a scan in initial rotation, from 0 to 100 km/s. We show that strong rotational shear (10 km/s over 1 cm) occurs. We compare the simulation results with analytic scaling relations for adiabatic compression.


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