

Abstract Submitted
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Edge Biasing Experiment in C2 FRC (Field Reversed Configuration) XUAN SUN, Tri Alpha Energy, Inc., E. GARATE, B. DENG, D. GUPTA, S. DETTRICK, E. RUSKOV, L. SCHMITZ, H. GUO, M. TUSZEWSKI, TAE TEAM — Edge biasing has long been used in various fusion devices to actively control the plasma potential profile in order to suppress radial transport by decorrelating density and potential fluctuations through flow shear. However, it has mostly not been employed in FRC plasmas except in one recent effort in the Colorado FRC. Owing to their near 2ms lifetime with adequately long quiescent phase, the FRCs in C2 offer a competent testbed for such experiments. Two types of electrodes have been deployed in C2, i.e, a ring electrode and a point electrode. The stationary ring electrode ensures biasing of the whole magnetic surface in the scrape off layer while the movable point electrode can make contact with the FRC separatrix or further inside. Both negative and positive biases, up to 800 Volts, have been applied on C2 FRCs. The influence on the plasma potential, density and edge rotation profiles, fluctuation levels, as well as the global FRC performance, will be reported.

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