

Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Transport Scaling from C-2 to C-2W Field-Reversed Configuration Experiments ERIK TRASK, RYAN CLARY, NATHAN BOLTE, AND THE TAE TEAM, Tri Alpha Energy, Inc. — In TAE Technologies current experimental device, C-2W (also called Norman)¹, record breaking, advanced beam-driven field reversed configuration (FRC) plasmas are produced and sustained in steady state utilizing variable energy neutral beams (15-40 keV, total power up to 20 MW), advanced divertors, end bias electrodes, and an active plasma control system. New data on the plasma confinement from the C-2W experiment will be presented and interpreted by an improved fidelity model, focusing on confinement variation as a function of both machine and plasma parameters. Experimental confinement times have been collected from TAE Technologies C-2, C-2U and C-2W FRC experiments. Previous work has identified collisionality ($1/\nu^*$) as a strong predictor of electron heat confinement. The emerging electron energy confinement time appears to be proportional to a positive power of the electron temperature², which may ultimately enable advanced fuel fusion concepts.

¹H. Gota et al., **Nucl. Fusion** **59**, 112009 (2019)

²M.W. Binderbauer et al., **AIP Conf. Proc.** **1721**, 030003 (2016)

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Date submitted: 01 Jul 2019

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