

Abstract Submitted
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Edge/SOL Plasma Parameter/Magnetic Field Profile and Fluctuation Measurements at C-2U Mid-plane T. ROCHE, A. NECAS, B. DENG, D. OSIN, K. ZHAI, K. KNAPP, Tri Alpha Energy, TAE TEAM¹ — C-2U is the premier advanced beam-driven FRC at Tri Alpha Energy. It has been found that edge interaction plays a significant role in core stability. In particular, the radial electric field in the scrape-off-layer (SOL), generated by applying a voltage to the central electrode panel of the divertors, can suppress $n = 1$ and $n = 2$ MHD modes [1]. The conduction path for the currents that generate this field is very long. Measurements of plasma parameters, including n_e , T_e and V_f , in the edge region at the mid-plane of the C-2U confinement vessel have been performed with an insertable triple probe. In conjunction with other diagnostics these measurements allow us to generate complete radial profiles of these parameters. In addition to the absolute values of said parameters, fluctuations have been analyzed. Radial profiles of magnetic-field fluctuations have been measured by a new insertable 3D B-dot probe. The data indicate the presence of the Alfvén Ion Cyclotron (AIC) instability. Profile measurements and fluctuation analysis will be presented. [1] M. Binderbauer *et al.*, Phys. Plasmas **22**, 056110 (2015).

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