

Abstract Submitted
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Rotation Studies on the C-2 FRC Experiment DEEPAK GUPTA, BIHE DENG, SEAN DETTRICK, JON DOUGLASS, EUSEBIO GARATE, HOUYANG GUO, JOHN KINLEY, EMIL RUSKOV, XUAN SUN, MATTHEW THOMPSON, Tri Alpha Energy Inc., LOTHAR SCHMITZ, UCLA, THE TAE TEAM — Although high rotation velocity in a FRC may lead to rotational instabilities, it is also believe that shear flow helps in improving FRC stability and transport. In the C-2 experiment [1], diagnostics such as multi-chords and fast-response ion Doppler spectroscopy, multi-chords CO₂ interferometry, bolometer tomography, Doppler backscattering, Mirnov probe arrays and mach probes are available to measure the rotation, its profile and associated instabilities. In past, suppression of n=2 rotational mode and associated reduction in the rotation velocity have been reported on C-2 via the use of quadrupole magnetic field [2]. Recently, biased electrodes are used on C-2 to control the rotation profile of the edge plasma layer. Local velocity, rotation profile and macroscopic rotation measurements as well as mode analysis were performed. Results on FRC rotation and effects of electrode biasing will be presented.

[1] M.W. Binderbauer *et al*, Phys.Rev.Lett. **105**, 045003 (2010)

[2] H.Y. Guo *et al*, Phys.Plasmas **18**, 056110 (2011)

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