

Abstract Submitted  
for the DPP14 Meeting of  
The American Physical Society

**Time-evolution of ion-temperature radial profiles for high performance FRC (HPF) plasma in C-2** DEEPAK GUPTA, E. GRANSTEDT, S. GUPTA, R. MAGEE, D. OSIN, M. TUSZEWSKI, Tri Alpha Energy, TAE TEAM — Measurements of ion temperature profile and its time evolution is important for the understanding of FRC confinement and transport properties. Recently, in C-2 plasma device, FRCs with significantly improved confinement and transport properties are observed (HPF14) using higher formation DC field and Lithium wall conditioning. Time evolutions of ion-temperature profiles in these FRCs are measured using upgraded impurity ions passive Doppler spectroscopy system. Measured line integration profiles are inverted to get the local ion-temperature profiles, by taking in to consideration the local emissivity and directed ion-velocity. These profiles are measured under different C-2 operation conditions; for example, Neutral Beam power, plasma gun and magnetic field configurations. Radial profiles of ion temperature and its time evolution will be presented. Comparison of ion-temperature time-evolution with neutron measurements, deuterium-ion temperature measurements, and 1-d transport modeling will also be presented.

Deepak Gupta  
Tri Alpha Energy

Date submitted: 10 Jul 2014

Electronic form version 1.4