

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Direct Measurement of Impurity Transport in a Field Reversed Configuration T. ROCHE, N. BOLTE, W.W. HEIDBRINK, R. MCWILLIAMS, F. WESSEL, UCI — An optical tomography system has been developed and implemented in the Flux Coil Generated Field Reversed Configuration (FCG-FRC) at Tri Alpha Energy. Sixteen chords view $\sim 35\%$ of the FRC at the mid-plane. The chords are arranged in two identical fans of eight chords each. To measure transport of an impurity species, argon, an FRC is generated using either Nitrogen or Deuterium as the primary species. A puff valve is activated prior to the shot such that the argon begins to bleed in to the vacuum chamber as the FRC is formed. The gas is puffed at the optimal location for tomographic reconstruction. Each chord is collimated to illuminate a fiber optic cable which is fed to an array of photomultiplier tubes which are fitted with neutral density and band pass filters to allow the appropriate amount of light from the emitting, singly ionized, argon at $434.8nm$ to be measured. Using a preliminary assumption that density of argon is proportional to light intensity gathered data have been used to reconstruct density profiles. These profiles often peak near the field null. The data are being analyzed to determine diffusive and convective transport coefficients.

Thomas Roche
UCI

Date submitted: 14 Jul 2011

Electronic form version 1.4