

Abstract Submitted  
for the DPP17 Meeting of  
The American Physical Society

**Development of Spatial Heterodyne Spectroscopy Measurements for the C-2W Plasma Expansion Divertor** DANIEL SHEFTMAN, TADAFUMI MATSUMOTO, MATTHEW THOMPSON, Tri Alpha Energy, TRI ALPHA ENERGY TEAM — Accurate operation and high performance of the open field line plasma surrounding the Field Reversed Configuration (FRC) is crucial to achieving the goals of successful temperature ramp up and confinement improvement on C-2W. Attributes such as the outflow velocity and temperature of charge exchange or impurity ions can be measured through spectroscopic methods. However, light throughput is severely limited due to the low plasma density inside the divertors where the plasma expands rapidly before terminating on biasing plates. A field widened spatial heterodyne spectrometer was developed in order to address the challenge of making accurate spectroscope measurements on the diffuse plasma. Design of a prototype of this spectrometer, including lab calibration and spectral line measurements performed on a compact toroid injector test stand, will be presented.

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Date submitted: 16 Jul 2017

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