

Abstract Submitted  
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**Multi-Wavelength Interferometry and Axial Polarimetry on C-2W** R J SMITH, S A DETTRICK, M ONOFRI, Trialpha Energy, TAE TEAM TEAM — Tri Alpha Energy's C-2W device is operational and represents another major step in a progression of Field-Reversed Configuration (FRC) confinement devices that have prolonged the lifetime, increased stability and added significant neutral-beam injection power to heat and sustain an FRC plasma. Crucial to plasma sustainment and increased lifetime is an understanding of the jet plasma and X-point dynamics. To address these issues, a two-color multi-chord tangentially viewing interferometer has been designed and installed at the high field (mirror) position of the machine. CO<sub>2</sub> and mmwave sources at 10.6 and 1000 um cover the density ranges of the translating FRC and the jet plasma. The small major radius at this location also provides the possibility for near on-axis axial interferometry/polarimetry using a standalone 150 m quantum cascade laser giving a measurement directly related to the amount of reversed flux in the FRC. Recent results from the jet interferometer and on-axis axial polarimetry results for simulated plasmas with ray tracing will be presented.

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