

Abstract Submitted
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Progress Towards a Coherence Imaging Ion Temperature Measurement in the DIII-D Divertor¹ CAMERON SAMUELL, STEVE ALLEN, Lawrence Livermore Natl Lab — To address the role of ion temperature in setting the total pressure balance, Doppler Coherence Imaging Spectroscopy (CIS) on DIII-D is being extended to make impurity ion temperature measurements. A key challenge in divertor physics is understanding the transport of particles and energy throughout the scrape-off-layer which is largely driven by strong pressure gradients for which the ion temperature contribution is relatively unknown compared to the routinely measured electron temperature. Here we present progress in using CIS to measure 2D impurity ion temperature profiles in the DIII-D divertor in addition to the routine measurement of flow velocities. While CIS has been used extensively for flow velocity measurements on DIII-D, the technique is being extended using a mixture of small and large delay birefringent crystals in synchronized interferometers to measure impurity ion temperature. A number of diagnostic configurations are compared using a custom-built laser calibration technique for concurrent velocity and temperature calibration. Progress will be presented towards absolutely calibrated measurements of the evolution of the ion temperature as detachment progresses and the pressure profile along field lines is modified.

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