

Abstract Submitted  
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**Impurity Transport Measurements in the HSX Stellarator** C. CLARK, D.T. ANDERSON, F.S.B. ANDERSON, K.M. LIKIN, J.N. TALMADGE, HSX Plasma Lab - UW Madison — Predictive models of impurity transport are required to ensure the successful operation of future magnetic confinement fusion devices. As a step towards the creation and validation of such models for stellarator devices, experiments are under way to measure the impurity transport diffusivity and convective velocity in HSX, the first quasisymmetric stellarator. A laser blow-off impurity injection system is used to rapidly deposit a small, controlled, quantity of aluminum into the confinement volume. Seven AXUV photodiode arrays, some of which are equipped with filters that block the visible portion of the spectrum, are used to take time-resolved measurements of the impurity radiation. One-dimensional emissivity profiles are recovered from those measurement using an inversion process that accounts for the fully three-dimensional detector views. The temporal evolution of the emissivity profiles during impurity injection will be presented for a scan of the line-averaged densities and input powers available to HSX.

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