

Abstract Submitted  
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**Impurity transport measurements in the HSX stellarator**<sup>1</sup> J.F. CASTILLO, K.M. LIKIN, D.T. ANDERSON, F.S.B. ANDERSON, J.N. TALMADGE, S.T.A. KUMAR, A. BADER, Univ of Wisconsin, Madison — The future design and operation of magnetic confinement fusion devices depend on accurate predictive models of impurity transport. Experiments are being conducted at HSX to measure the impurity transport diffusivity and convective velocity in order to advance the development of such models for stellarator devices. A laser blow-off impurity injection system is used to rapidly deposit a small, controlled quantity of aluminum into the confinement volume. Five 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. The spatially one-dimensional impurity transport code STRAHL is used to calculate a time-dependent plasma emissivity profile. A synthetic diagnostic code that integrates the resulting emissivity profile along the experimental lines of sight will provide modeled intensity signals. These modeled signals provide direct comparison between plasma simulation and experimental results.

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