

Abstract Submitted
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Laser Blow-Off Impurity Injection Experiments at the HSX Stellarator¹ J.F. CASTILLO, A. BADER, K.M. LIKIN, D.T. ANDERSON, F.S.B. ANDERSON, S.T.A. KUMAR, J.N. TALMADGE, University of Wisconsin-Madison — Results from the HSX laser blow-off experiment are presented and compared to a synthetic diagnostic implemented in the STRAHL impurity transport modeling code in order to measure the impurity transport diffusivity and convective velocity. 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 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. Modeled intensity signals calculated from a synthetic diagnostic code provide direct comparison between plasma simulation and experimental results. An optimization algorithm with impurity transport coefficients acting as free parameters is used to fit the model to experimental data.

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