Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Carbon impurity measurements in the HSX stellarator[1] J. M. MOHONEY, S. T. A. KUMAR, K. M. LIKIN, D. T. ANDERSON, Univ of Wisconsin, Madison — Impurity behavior in stellarators is not fully understood despite important implications on device performance, in particular, an accumulation of core impurities can lead to degradation of plasma energy due to radiative losses. Experiments are being conducted at HSX to measure the radial profiles and the time history of carbon impurity density using the charge exchange recombination spectroscopy (CXRS) diagnostic. Measurements of fully ionized carbon have been performed on various magnetic configurations, showing a peaked profile at the core in the standard configuration. An inversion technique was also developed to calculate localized C +5 profiles. Comparisons of impurity behavior between the standard and broken-symmetry configurations are presented.

[1]Work supported by the US DOE under grant DE-FG02-93ER54222 and the Hilldale Research Fellowship

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Date submitted: 14 Jul 2017 Electronic form version 1.4