Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Exploration of improved neutral fueling and exhaust by a pumped limiter at the edge magnetic island chain of the HSX Stellarator L. STEPHEY, A. BADER, S. KUMAR, O. SCHMITZ, D.T. ANDERSON, J.N. TALMADGE, F.S.B. ANDERSON, C. HEGNA, Univ of Wisconsin, Madison — A carbon limiter was introduced into the natural 8/7 magnetic island flux tube in the edge of HSX. Global H-alpha measurements suggest that this limiter can concentrate the neutral recycling. This limiter setup is similar to the local island divertor at LHD and is an important step on the way to equipping HSX with a localized neutral particle exhaust capability. The aim is to reduce the currently dominant fueling from wall recycling. Molecular dissociation and charge exchange contribute to a high neutral density in the core of HSX. With the recycling source concentrated at the limiter and the exhaust directly removed, fueling from designated gas sources will be significantly enhanced over the contribution from wall recycling. A sophisticated setup of suited spectroscopic diagnostics will be implemented to study the neutral fueling processes and how they are impacted by the limiter. Results from these exploratory steps from the initial observations with a test limiter will be presented. The initial results will also be compared to EMC3-EIRENE modeling.
*Supported by DOE grant DE-FG02-93ER54222

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Date submitted: 10 Jul 2014 Electronic form version 1.4