

Abstract Submitted
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3-D Measurement of Recycling and Radiation in MST RYAN NORVAL, JOHN GOETZ, OLIVER SCHMITZ, Univ of Wisconsin, Madison — The MST reversed-field pinch (RFP) can undergo spontaneous transition to a helical core state, associated with the growth of the innermost resonant magnetic mode. Currently multiple 2-D imaging cameras are in place allowing for nearly full vessel viewing and measurement of recycling and impurities fluxes. The transition from the standard to helical RFP causes an observable change in edge plasma. While in the helical state the plasma wall interaction (PWI) on MSTs poloidal limiter strongly correlates with the helicity of the core mode. PWI on the toroidal limiter overall is reduced, with the remaining PWI sites corresponding the the helicity of the core mode, or the locations of diagnostic limiters and the error fields they create. EIRENE, a neutral particle code use for modeling edge plasmas, is used to compute the neutral profiles based on measured recycling fluxes. EIRENE computes the radiative and charge exchange power losses. Comparison is made between the standard and helical RFP plasmas. Bolometer measurements of total radiation are currently in progress to supplement the modeling. This work is supported by the U.S. Department of Energy

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