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Identification of Neutral Particle Sources in MST Plasmas RYAN NORVAL, STEFANO MUNARETTO, JOHN GOETZ, OLIVER SCHMITZ, University of Wisconsin-Madison — The plasma wall interaction (PWI) in the MST RFP has yet to be studied systematically to determine the effects of the edge plasma on overall plasma performance. Two imaging views of the MST plasma currently exist. The first views the outboard toroidal and poloidal belt limiters at the main poloidal gap limiter. The second views the inboard poloidal limiter, as well as a section of the outboard toroidal limiter away from the man gap limiter. Data from viewing outboard limiters reveals PWI structures correlate with the plasma conditions. In standard RFP plasmas at lower plasma currents the PWI is dominated by non-axisymmetric radiation belts. As the RFP plasma current rises, increasing axisymmetry is seen from the edge. When in the 3D equilibria of the quasi-single helicity (QSH) state the PWI correlates with the main magnetic mode of the plasma. The dominant source of light observed from the MST edge is from hydrogen recycling. This will be used to inform neutral particle sourcing in the EIRENE neutral transport code. EIRENE will be used to compare how variations in fueling could affect the neutral profile in MST. This work is supported by the U.S. Department of Energy.

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