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First Assessment of the MST Plasma Wall Interaction RYAN NORVAL, JOHN GOETZ, DANIEL DEN HARTOG, OLIVER SCHMITZ, University of Wisconsin-Madison — Studies of RFP plasma-wall interaction (PWI) have been rather limited. To rectify this, a new program on studying the plasma wall interaction at MST is being developed. A new endoscope camera setup is used to study neutral recycling and impurity production at the poloidal limiter structure of MST, a known area of PWI due to field errors and protective tiles. Initial measurements show a strong dependence of the plasma wall interaction at MST on the magnetic mode structure and 3D equilibrium. The results show that the main interaction domain is shifted from the inboard limiter to the outboard limiter with increasing plasma current. Also, operation in the single helical axis state results in a very strong localization of the plasma wall interaction. The camera provides a temporal resolution of up to 1 kHz. Light from the 400 nm to 1100 nm can be collected by the camera. Emitted light may then be filtered in order to identify different impurity species. The experimental data will be compared to modeling of the magnetic field structure in order to connect the magnetic topology to the plasma equilibrium features. Work Supported by DOE and NSF.

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