Abstract Submitted for the DPP17 Meeting of The American Physical Society

Synthetic Camera Diagnostics for Edge Modeling in MST RYAN NORVAL, HEINKE FRERICHS, JOHN GOETZ, OLIVER SCHMITZ, Univ of Wisconsin, Madison — A nearly full coverage camera system on MST aids power balance studies by measuring of spatially resolved D_{α} , other Balmar lines, or broadband visible emission. Camera measurements have found the wall recycling in MST to be asymmetric both in standard RFP mode and Quasi-Single Helically (QSH) mode operation. The EIRENE code is used to interpret the measured light and estimate the neutral density from the Balmar lines and a background plasma. A synthetic camera module for EIRENE is currently being implemented which allows comparison between the images that would result from the simulation to the actual images observed by the cameras. Additional diagnostic data from line integrated D_{α} detectors, and an edge Langmuir probe will help constrain the model. It is expected that an iterative technique to match simulated images to real images will result in more accurate neutral density estimates as well as constraining the relatively unknown edge parameters. This increased accuracy of the neutral profile and edge parameters of MST will allow for better comparison between the standard RFP and the QSH mode with respect to neutral particles acting as an energy loss pathway via charge exchange and radiative losses. Supported by US DOE

> Ryan Norval Univ of Wisconsin, Madison

Date submitted: 13 Jul 2017

Electronic form version 1.4