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Modeling of EBW Propagation and Damping in MST[1] S.J. DIEM, Oak Ridge National Laboratory, J.K. ANDERSON, C. FOREST, A. SELTZMAN, University of Wisconsin - Madison, R.W. HARVEY, CompX — Edge current profile modification is being explored to improve particle and energy transport in the Madison Symmetric Torus (MST) reversed field pinch (RFP). To this end, we report on modeling results of an electron Bernstein wave experiment under development in MST. Numerical modeling of EBW propagation and damping has been explored using the GENRAY ray-tracing and CQL3D Fokker-Planck codes in support of this upgraded 5.55 GHz EBW heating and current drive system. Calculations were performed for EBWs launched with a 4.5 cm poloidal extent, -19 degrees below the midplane, to investigate off-axis current drive. Current was driven at $\rho/a > 0.65$ with current drive efficiency > 10 kA/MW via the Ohkawa current drive method. The effect of high RFP diffusion on the current drive efficiency was investigated by varying the radial transport coefficient included in CQL3D. Additionally, CQL3D has been used to model the soft x-ray flux resulting from the EBW distortion of the electron distribution function, for comparison with experimental data.

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