Abstract Submitted
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Modeling of EBW Propagation and Damping in PEGASUS and MST[1] S.J. DIEM, ORNL, J.K. ANDERSON, M.W. BONGARD, R.J. FONCK, C. FOREST, A. REDD, A. SELTZMAN, UW-Madison, R.W. HARVEY, Y. PETROV, CompX — Electron Bernstein waves (EBW) can be used for localized heating and current drive (CD) in overdense devices, such as the spherical torus, Pegasus, and the reversed field pinch, Madison Symmetric Torus (MST), located at UW-Madison. Numerical modeling of EBW propagation and damping has been explored using the GENRAY ray-tracing code and the CQL3D Fokker-Planck code in support of current and proposed heating and CD experiments on both devices. In Pegasus, calculations were performed investigating a proposed EBW system for available sources at 2.45, 3.6 and 5.55 GHz frequencies for waves launched 25° above the midplane. Preliminary results show between -35 kA/MW to 65 kA/MW can be driven at r/a $>$ 0.5 with the available sources. Edge current profile modification is being explored to improve particle and energy transport in MST. Calculations of 5.5 GHz injection estimate $>$ 10 kA/MW can be driven off axis at r/a $>$ 0.65 via the Ohkawa CD method. The effect of large stochastic particle transport on CD efficiency was investigated by varying the radial transport model included in CQL3D.

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S.J. Diem
ORNL

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