

Abstract Submitted  
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**EBW Propagation and Damping in Proto-MPEX**<sup>1</sup> STEFFI DIEM, T. BIGELOW, J.F. CANESES, J.B.O. CAUGHMAN, R.H. GOULDING, D.L. GREEN, Oak Ridge National Laboratory, R.W. HARVEY, YU.V. PETROV, CompX, J. RAPP, Oak Ridge National Laboratory — Linear plasma devices, such as Proto-MPEX, are an economic method to study plasma-material interactions under high heat and particle fluxes. The Proto-MPEX device at ORNL is a high-density helicon plasma generator with additional resonant electron heating to study plasma-material interactions in ITER-like conditions. Heating of the overdense plasma is being studied using a microwave-based system. Power levels up to 100 kW at 28 GHz are injected into low  $T_e$ , high  $n_e$  plasma. A modified version of the GENRAY ray-tracing code, GENRAY-C, has been used to determine EBW and ECH wave accessibility for these overdense plasmas. Modeling has shown that greater than 80% mode conversion to EBW is possible near the 28 GHz fundamental and second harmonic resonance locations. Comparisons of experimental and modeling results will be presented for a variety of plasma configurations. Calculations show a strong dependence on the electron density gradient and injection angle.

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