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Modeling of EBW Propagation and Damping on Pegasus[1] S.J. DIEM, P.C. EFTHIMION, G. TAYLOR, Princeton Plasma Physics Laboratory, R.J. FONCK, G.D. GARSTKA, University of Wisconsin-Madison — Numerical modeling of electron Bernstein wave (EBW) propagation and damping on the very-low-aspect ratio Pegasus Toroidal experiment has been explored using the GENRAY ray tracing code and CQL3D Fokker-Planck code in support of planned heating and current drive experiments. Calculations were performed for 2.45 GHz waves launched with a 10 cm poloidal extent for a variety of equilibrium configurations. Poloidal launch scans show that driven current is a maximum when the poloidal launch angle is between 10 and 25 degrees, supporting a launcher placed near the midplane. Calculations predict that 400 kW of coupled EBW power will drive 10 kA of plasma current in plasmas with an I_{tf} of 90-150 kA. RF-driven current densities reached 20-100 kA/cm^2 between a normalized minor radius of 0 to 0.2 where the central density and temperature are 4.5e19 m^{-3} and 310 eV, respectively. Current drive was primarily via the Fisch-Boozer mechanism. Initial results of O-X-B mode coupling calculations will also be presented.

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Gregory Garstka
garstka@engr.wisc.edu
University of Wisconsin-Madison

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