

Abstract Submitted
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Investigation of collisional EBW damping and its importance to EBW emission from NSTX¹ JAKUB URBAN, JOSEF PREINHAELTER, EURATOM/IPP.CR Association, STEPHANIE J. DIEM, GARY TAYLOR, PPPL, LINDA VAHALA, ODU, Norfolk, GEORGE VAHALA, William & Mary, Williamsburg — Collisional damping of electrostatic electron Bernstein waves (EBWs) can play an important role in EBW applications for tokamaks. Electron temperature in the vicinity of the EBW-X-O mode conversion region may be low enough ($T_e \lesssim 15$ eV) to give rise to a significant collisional damping of EBWs, which have rather low group velocity. This can partially block EBW emission or EBW heating. Collisional damping has been investigated by ray-tracing and full-wave simulations, using various collisional terms in the dielectric tensor. The theory of collisional effects for wave propagation in hot magnetized plasmas is still incomplete and different models yield different results. Model results using NSTX experimental data are compared and importance of collisional damping to EBW emission from NSTX is discussed.

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