

Abstract Submitted
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Mode conversion coupling to electron Bernstein waves¹ D.S. BOONE, JR., A.K. RAM, PSFC, MIT — In NSTX, and generally in spherical tori, the emission of electron Bernstein waves (EBW) from the interior of the plasma can be observed in the vacuum region after mode conversion to the X mode and/or the O mode. The same mode conversion process comes into play when exciting EBWs through externally launched power. We consider the mode conversion process that couples the O mode to EBWs via the X mode. It is shown that density inhomogeneity can change the mode conversion efficiency significantly from that obtained analytically in [1]. Results obtained from a comprehensive model [2] are found to differ from the analytical result as the gradient scale length decreases. A detailed analysis comparing the analytical and computational results will be presented.

[1] E. Mjølhus, *J. Plasma Phys* **31**, 7 (1984).

[2] A. K. Ram and S. D. Schultz, *Phys. Plasmas* **7**, 4084 (2000).

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