

# **Comparison of Full Lorentz Model and Guiding Center Model of Ripple Loss Simulations in NSTX**

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Simulations of energetic particle ripple loss in National Spherical Torus Experiment (NSTX) are presented. Theoretical calculations of large gyroradius effects on magnetic ripple induced particle loss are presented. Of particular interest is the comparison between the full Lorentz code GYROXY and the guiding center code ORBIT in accurately estimating ripple loss. Both codes use the EFIT equilibrium reconstruction of NSTX discharges with a measured magnetic ripple added. Comparison is made in the particle loss rates for the two cases and the validity of the guiding center approximation in NSTX is discussed. The relative magnitude of ripple loss to other loss mechanisms is also presented.