

Abstract Submitted
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Iterative addition of perpendicular kinetic effects to finite-difference simulation of radio-frequency heating¹ DAVID GREEN, Oak Ridge National Lab, LEE BERRY, XCEL Engineering, RF-SCIDAC COLLABORATION — In previous work we have demonstrated² the iterative addition of parallel kinetic effects to finite-difference frequency-domain simulation of radio-frequency (RF) wave propagation in fusion relevant plasmas. Such iterative addition in configuration space bypasses several of the difficulties with traditional spectral methods for kinetic RF simulation when applied to problems that exhibit non-periodic geometries. Furthermore, the direct numerical integration of particle trajectories in real magnetic field geometries removes violations of the stationary phase approximation inherent in the spectral approach.³ Here we extend this approach to include perpendicular kinetics.

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²D. L. Green and L. A. Berry, “Iterative addition of parallel temperature effects to finite-difference simulation of radio-frequency wave propagation in plasmas,” *Comp. Phys. Comm.*, 185(3), pg. 736-743 (2014); doi:10.1016/j.cpc.2013.10.032

³D. L. Green and L. A. Berry, “Investigating stationary phase violations in kinetic RF simulation of real plasmas,” <http://meetings.aps.org/link/BAPS.2013.DPP.BP8.70>

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