Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Application of the delta-f method to ICRF heating[1] ERNEST VALEO, CYNTHIA PHILLIPS, PPPL, Princeton, NJ — Inclusion of ion kinetic effects (which resolve resonances and determine ion absorption) into the computation of plasma response to ICRF wave fields has often involved simplifications, such as small-but-finite Larmor radius expansions and neglect of drift excursions (finite banana width). The accuracy of such approximations is not always clear. Time-domain particle-based techniques don't suffer such restrictions, but do suffer from sampling noise. The utility of an optimized (for noise reduction) delta-f particle-based computation of self-consistent plasma currents is examined for a prototypical mode-conversion problem–electromagnetic to plasma wave conversion at the critical layer (where the em wave frequency equals the plasma frequency). A prescription for incorporation of the method into full-wave ICRF propagation solvers is discussed.

[1]This work supported by U.S. Doe Contract No. DE-AC02-09CH11466.

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Date submitted: 13 Jul 2012 Electronic form version 1.4