Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Status of RF heating model in NUBEAM[1] B.H. PARK, NFRI, M. GORELENKOVA, R.V. BUDNY, PPPL, JAE-MIN KWON, NFRI, S. JARDIN, PPPL, D. GREEN, ORNL — The ion Monte-Carlo orbit integrator NUBEAM, which is used in TRANSP and also available via the NTCC modules library, has been enhanced to include the interaction of RF fields and fast ions. The standard ion orbit integration uses a magnetic-flux coordinate system. However, in order to implement a RF quasi-linear operator which is localized in space, a second orbit integrator was added to NUBEAM in 2007. It uses cylindrical coordinate fast ion orbit integration. This, RZ orbit integrator incorporates the Kennel-Engelmann quasi-linear RF operator and uses the results of a full wave RF code, TORIC. There are some important issues related to power balance between TORIC and NUBEAM, control of goosing and time step for error control, and convergence characteristics for Monte Carlo particle number and time step which are being investigated. In this presentation we show the specific quantities most affected by this orbit integrator in relation to the above issues. Additional issues concerning the consistent coupling of a RF code and NUBEAM will also be discussed. Comparisons with measurements in plasma discharges in which both neutral beam and ion-cyclotron heating are conducted will be presented.

[1]This work supported by US DoE contract DE-AC02-09CH11466 and by KSTAR project.

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Date submitted: 24 Jul 2012 Electronic form version 1.4