

Abstract Submitted
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Development of Finite Orbit Width features in the CQL3D code¹ YU. PETROV, R.W. HARVEY, CompX — The bounce-averaged Collision-Quasilinear Fokker-Planck equation solver, CQL3D [1], is being upgraded to include the Finite-Orbit-Width (FOW) effects. For the RF Quasilinear operator, the finite width guiding center orbits are traced for each particle in the distribution. For the collisional operator, a fast lookup table is used to determine the radial coordinate for the particles interacting with given particle along its orbit. The lookup table is based on mapping of the Constants-Of-Motion (COM) space onto the coordinates of orbits' crossing with the midplane. The same lookup table is used to form a particle source and for the Neutral Particle Analyzer synthetic diagnostic. The results are compared with the first-order FOW corrections recently added to the CQL3D [2].

[1] R.W. Harvey and M. McCoy, "The CQL3D Fokker Planck Code," www.compxco.com

[2] R.W. Harvey, Yu. V. Petrov, E.F. Jaeger, W.W. Heidbrink, G. Taylor, C.K. Phillips, B.P. LeBlanc, Proc. of the 38th EPS Conf. on Plasma Phys., Strasbourg, P4.017, (2011).

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