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Examination of Up-Down Asymmetry Effects on CQL3D Calculation of ECCD and Multi-Species FW Heating in the DIII-D Tokamak[1]
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— The CQL3D Fokker-Planck code [1] which calculates the 3D (r, $v_\perp$, $v_{//}$), time-dependent electron and ion distributions has been recently upgraded to include effects of non-up-down symmetry, and also to simulate simultaneous quasilinear diffusion of multiple ion species. We make applications to two types of previous modeling of the DIII-D experiment: (1) ECCD, now particularly as regards effects on up-down asymmetric equilibria; and (2) D/minority-H modeling of a canonical DIII-D fast wave shot. Code modification issues, and results for ECCD and the effects of minority-H on the higher harmonic ion absorption of the FW, are presented.

[1] R.W. Harvey and M. McCoy, The CQL3D Fokker Planck Code, Proceedings of the IAEA Technical Committee Meeting on Simulation and Modeling of Thermonuclear Plasmas, Montreal, Canada, 1992; also, http://www.compxco.com/cql3d.html.

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