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Development of XGC-RF for Global Guiding-Center Particle Simulation of minority ICRH heated Plasmas in a General Tokmak Geometry JAE-MIN KWON, Princeton Plasma Physics Laboratory, U.S.A. and Korea National Fusion Research Center, Korea, C.S. CHANG, S. KU, Courant Institute, New York University, New York, U.S.A., D. MCCUNE, C.K. PHILLIPS, Princeton Plasma Physics Laboratory, Princeton, NJ, USA — A global guiding center particle in cell code (called XGC-RF) has been developed for kinetic simulation of minority ICRF heating on multi-species tokamak plasmas. The code can treat arbitrary axisymmetric toroidal equilibrium and limiter geometry given by GEQDSK data format. A prescribed RF wave field form provided by TORIC full wave solver is used for the RF heating model in the simulation. With these new features of the code, generation of radial electric field, plasma rotation, and energetic particle distribution are studied self-consistently in realistic geometry. By comparing these with the results from simplified circular geometry and homogeneous RF wave field, the effects of the plasma shaping and the detailed form of RF field distribution are studied. The code coupling of XGC-RF and full wave solver for more realistic simulation will be discussed. Also the status of coupling of XGC-RF derived capability to the NTCC NUBEAM fast ion module will be described.

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