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Global Particle Simulation of RF-driven Rotation and Er in a Tokamak Plasma JAE-MIN KWON, Princeton Plasma Physics Laboratory and Korea Basic Science Institute, C.S. CHANG, New York University and Korea Advanced Institute of Science and Technology — Numerical simulation of ICRH driven radial transport of minority ions is performed using particle-in-cell guiding center code in a circular tokamak geometry. Generation of radial electric field and plasma rotation are evaluated self-consistently with minority ion heating, finite orbit excursion effects and transport. The simulation is performed over global toroidal plasma with conserving main ion collisions and minority-main plasma collisions. It is found that RF-driven radial transport can induce radial electric field profile which significantly exceeds the conventional neoclassical level under a moderate RF-power. Together with the generation of the radial electric field, spin up of both minority ions and bulk plasma are observed. Time evolution of minority ion distribution function will be described in detail.

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