Abstract Submitted
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A Nonlinear Gyrokinetic Vlasov-Maxwell System for High-frequency Simulation in Toroidal Geometry[1] PENGFEI LIU, Department of Modern Physics, University of Science and Technology of China, WENLU ZHANG, Center for Plasma Theory and Computation, Institute of Physics, Chinese Academy of Sciences, JINGBO LIN, Department of Modern Physics, University of Science and Technology of China, DING LI, CHAO DONG, Center for Plasma Theory and Computation, Institute of Physics, Chinese Academy of Sciences — A nonlinear gyrokinetic Vlasov equation is derived through the Lie-perturbation method to the Lagrangian and Hamiltonian systems in extanded phase space. The gyrokinetic Maxwell equations are derived in terms of the moments of gyrocenter phase-space distribution through the push-forward and pull-back representations, where the polarization and magnetization effects of gyrocenter are retained. The goal of this work is to construct a global nonlinear gyrokinetic vlasov-maxwell system for high-frequency simulation in toroidal geometry relevent for ion cyclotron range of frequencies (ICRF) waves heating and lower hybrid wave current driven (LHCD).

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