Abstract Submitted
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Validation study of gyrokinetic simulation (GYRO) near the edge in Alcator C-Mod ohmic discharges[1] C. SUNG, A. WHITE, N. HOWARD, PSFC, MIT, D. MIKKELSEN, PPPL, C. HOLLAND, UCSD, J. RICE, PSFC, MIT, M. REINKE, University of York, C. GAO, P. ENNEVER, M. PORKOLAB, PSFC, MIT, R. CHURCHILL, PPPL, C. THEILER, EPFL, J. WALK, J. HUGHES, A. HUBBARD, M. GREENWALD, PSFC, MIT — A validation study of local gyrokinetic simulations (GYRO [J. Candy and R. E. Waltz, J. Comput. Phys. **186**, 545 (2003)]) near the edge region ($r/a \sim 0.85$) has been performed for two C-Mod ohmic discharges, namely one that is in the Linear Ohmic Confinement (LOC) regime and the other one in the Saturated Ohmic Confinement (SOC) regime. Comparing the simulated heat fluxes and synthetic T_e fluctuations with the experiments, it is found that GYRO can reproduce the ion heat flux and the T_e fluctuation level measured by the Correlation ECE (CECE) diagnostic within their uncertainties, while the simulated electron heat flux is under-predicted. Furthermore, the synthetic T_e spectral shape is not matched with the measured spectrum in both LOC/SOC discharges. We have also performed global simulations to consider the interaction of turbulence within the sampling volume of the CECE diagnostic, enabling us to evaluate the importance of global simulations in applying a synthetic CECE diagnostic in this study. The LOC/SOC transition physics will be also explored.

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