Abstract Submitted
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Simulation of neoclassical transport with the continuum gyrokinetic code COGENT[1] M. DORF, R.H. COHEN, J.C. COMPTON, M. DORR, T.D. ROGNLIEN, LLNL, J. ANGUS, S. KRASHENINNIKOV, UCSD, P. COLELLA, D. MARTIN, P. MCCORQUODALE, LBNL — COGENT is a continuum gyrokinetic code for edge plasmas being developed by the Edge Simulation Laboratory collaboration. The code is distinguished by 4th order conservative discretization and mapped multiblock grid technology to handle the geometric complexity of the tokamak edge. It is written in $v_{||}$, μ velocity coordinates, and the gyro-Poisson equation is implemented for calculation of the self-consistent electric potential. We report on a verification campaign involving neoclassical simulation of tokamak transport. The results include recovery of neoclassical fluxes, and verification tests of the self-consistent potential model. Work in progress includes investigation of the large radial electric field effects on the neoclassical transport coefficients and flow velocities. There has also been substantial progress in applying the mapped-multiblock capability to divertor geometry; we anticipate presenting initial results. We also report on studies incorporating a model diffusion oerator to model the effects of anomalous transport.

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