

Abstract Submitted
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Progress with and status of COGENT¹ R.H. COHEN, J.C. COMPTON, M. DORF, M. DORR, T.D. ROGNLIEN, LLNL, J. ANGUS, S. KRASHENINNIKOV, UCSD, P. COLELLA, LBNL, D. MARTIN, LLNL, P. MC-CORQUODALE, LBNL — COGENT is a continuum gyrokinetic code being developed by the Edge Simulation Laboratory for edge plasmas. The code is distinguished by application of 4th order conservative discretization, and mapped multiblock grid technology to handle the geometric complexity of the tokamak edge. We report on a verification campaign involving simulation of geodesic acoustic modes. We have performed simulations over a range of safety factors and at multiple values of T_e/T_i , and extended the evaluation of the analytic formalism of Gao *et al.* to encompass the simulation parameter domain. We compare COGENT results with the theory and with results from other codes, and in particular find excellent agreement between COGENT and theory. We will also report on several lines of code upgrade activity, including application of the mapped multiblock capability to divertor geometry, incorporation of a simple collision operator and a spatial diffusion operator to model the effects of anomalous transport, implementation of implicit time advance for diffusive operators, and an automated code testing system.

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