

Abstract Submitted  
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**Overview of Edge Simulation Laboratory (ESL)<sup>1</sup>** R.H. COHEN, M. DORR, J. HITTINGER, T. ROGNLIEN, M. UMANSKY, A. XIONG, X. XU, LLNL, E. BELLI, J. CANDY, P. SNYDER, GA, P. COLELLA, D. MARTIN, T. STERNBERG, B. VAN STRAALEN, LBNL, K. BODI, S. KRASHENINNIKOV, UCSD, AND THE ESL TEAM — The ESL is a new collaboration to build a full-f electromagnetic gyrokinetic code for tokamak edge plasmas using continuum methods. Target applications are edge turbulence and transport (neoclassical and anomalous), and edge-localized modes. Initially the project has three major threads: (i) verification and validation of TEMPEST, the project's initial (electrostatic) edge code which can be run in 4D (neoclassical and transport-timescale applications) or 5D (turbulence); (ii) design of the next generation code, which will include more complete physics (electromagnetics, fluid equation option, improved collisions) and advanced numerics (fully conservative, high-order discretization, mapped multiblock grids, adaptivity), and (iii) rapid-prototype codes to explore the issues attached to solving fully nonlinear gyrokinetics with steep radial gradients. We present a brief summary of the status of each of these activities.

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Ronald Cohen  
LLNL

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