

Abstract Submitted
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Gyrokinetic Solver on Linux Beowulf¹ J. CANDY, F.L. HINTON, Y.A. OMELCHENKO, R.E. WALTZ, General Atomics — Progress on a parallel, *full-radius*, electromagnetic, gyrokinetic, *Eulerian* (fluid-like) code is detailed. In particular, we emphasize the inclusion of *passing electron* dynamics required for electromagnetic perturbations. The electron parallel motion is treated using implicit numerical methods, so that the requisite short time-step of any explicit method can be avoided. We hope to elucidate the role of profile effects in plasma transport using a formalism free of uncertainties related to fluid closures, particle noise, and the restriction to electrostatic perturbations.

The development platform is a 16-node parallel distributed memory Linux Beowulf cluster supporting MPI interprocessor communication. Such a development environment is ideal for the production of comparatively stable, well-documented, bug-free, and *portable* code. We expect this code to migrate easily to future TFLOP machines which provide the vast computational resources necessary for production runs.

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- Prefer Oral Session
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