Abstract Submitted
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Application of the para-real algorithm to a simple fluid drift-wave turbulence model for transport timescale studies DEBASMITA SAMADDAR, D.E. NEWMAN, Univ. of Alaska Fairbanks, R. SANCHEZ, Oak Ridge National Laboratory, B.A. CARRERAS, BACV Solutions Inc. — In this poster, we will present the results of applying the para-real algorithm [1] to a fluid turbulence code. This new technique efficiently parallelizes the time domain and has been found to significantly reduce the computational wall time. This will allow study of the turbulent transport dynamics on transport time scales something that has heretofore been very difficult. By applying this algorithm, we will characterize the fractional transport exponents in simulations of drift-wave turbulence [2] in slab geometry as a function of the model and sheared flow. Several situations will be explored, in which the relative dominance of the polarization and ExB nonlinearities will be tuned artificially and the transport exponents will be explored as the sheared flow changes. References: [1] Martin J. Gander et al, Siam J. Sci. Comput. Vol.29, No.2, pp.556-578 [2] D.E. Newman et al, Phys. Fluids B 5, 1140 (1993)

David Newman
Univ. of Alaska Fairbanks

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