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An Irregularly Portioned FDF Solver PATRICK PISCIUNERI, S. LEVENT YILMAZ, University of Pittsburgh, PETER STRAKEY, National Energy Technology Laboratory, PEYMAN GIVI, University of Pittsburgh — The “Irregularly Portioned Lagrangian Monte Carlo” (IPLMC) [1] in LES/FDF is extended to include the Eulerian flow solver in a coupled manner. The resulting methodology is for LES of reacting flows on massively parallel platforms, and is intended for LES of turbulent reacting flows described by complex kinetics. The new solver provides much improved scalability over its predecessor for utilization of a higher number of processors. Sample results are presented of LES of non-premixed flames, along with scalability benchmarks.

[1] Yilmaz, S. L., Nik, M. B., Sheikhi, M. R. H., Strakey, P. A., and Givi, P., An Irregularly Portioned Lagrangian Monte Carlo Method for Turbulent Flow Simulation, *J. Sci. Comput.*, **47**(1):109–125 (2011).

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