

Abstract Submitted
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Multirate time-stepping least squares shadowing method for unsteady turbulent flow¹ HYUNJI JANE BAE, PARVIZ MOIN, Stanford — The recently developed least squares shadowing (LSS) method reformulates unsteady turbulent flow simulations to be well-conditioned time domain boundary value problems. The reformulation can enable scalable parallel-in-time simulation of turbulent flows (Wang et al. Phys. Fluid [2013]). A LSS method with multirate time-stepping was implemented to avoid the necessity of taking small global time-steps (restricted by the largest value of the Courant number on the grid) and therefore result in a more efficient algorithm. We will present the results of the multirate time-stepping LSS compared to a single rate time-stepping LSS and discuss the computational savings.

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