Direct numerical simulation of strained turbulence and particles within CHUNG-MIN LEE, California State University Long Beach, PRASAD PERLEKAR, FEDERICO TOSCHI, Technische Universiteit Eindhoven, ARMANN GYLFASON, Reykjavik University — We present results from direct numerical simulations of strained turbulent flows. Our focus is on the influence of the straining on the motions of passive and inertial particles of varied Stokes numbers. The results are compared with existing numerical and experimental data, and we seek to emphasize the effects of the strain geometry and strain rate on the particle behavior. Eulerian flow field results, and the Lagrangian particle velocity and acceleration statistics are presented. The Rogallo algorithm is applied for simulating the flow field in a non-cubical domain.

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