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Lagrangian motions and distribution of particles in strained turbulence CHUNG-MIN LEE, California State University Long Beach, PRASAD PERLEKAR, FEDERICO TOSCHI, Eindhoven University of Technology, ARMANN GYLFASON, Reykjavik University — Direct numerical simulation is employed to study the influence of straining on the motions of passive and inertial particles in turbulent flows. Our focus is on parametric dependencies of particle distribution statistics, as well as Lagrangian velocity and acceleration statistics. Results are compared with our new experimental data, as well as existing numerical and experimental data. Our numerical algorithm is based on the Rogallo method and simulates the flow field in a non-cubical, deforming domain and our particle advancing scheme assumes one-way coupling between the flow field and the particle field and is specifically adapted to the present flow geometry.

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