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**Particle dynamics at the onset of shear** CHUNG-MIN LEE, California State University Long Beach, ARMANN GYLFASSON, Reykjavik University, FEDERICO TOSCHI, Eindhoven University of Technology — Small passive and inertial particles are present in many natural or industrial flows. The mixing and transportation of these particles are enhanced by turbulence. Many numerical and experimental studies have been carried out on the effect of turbulence on particle dynamics, but most of them deal with an underlying flow that is stationary. In many situations, however, a flow may evolve from being isotropic to anisotropic. Thus we aim to investigate particle dynamics during the development of a mean flow. We explore such flows by employing direct numerical simulation to simulate homogeneous isotropic turbulence and then apply a sudden shear deformation. Particles with various inertia are also simulated alongside of the flows with a couple of different shear rates. Lagrangian velocity and acceleration statistics and the changes with respect to the local flow field during the transition period will be reported.

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