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Lagrangian and Eulerian statistics in homogeneous, anisotropic flows[1] KARTIK IYER, FABIO BONACCORSO, Department of Physics and INFN, University of Rome, Tor Vergata, FEDERICO TOSCHI, Department of Applied Physics, University of Eindhoven, LUCA BIFERALE, Department of Physics and INFN, University of Rome, Tor Vergata — We report results from highly resolved direct numerical simulations of anisotropic homogeneous flows using up to 2048^3 collocations points. We examine a turbulent Kolmogorov flow with randomly correlated phases in order to recover space homogeneity on average. We present Eulerian and Lagrangian measurements concerning the universality of isotropic and anisotropic contributions using a systematic decomposition based on the eigenfunctions of the SO(3) group of rotations in three dimensions. Additionally, we discuss absolute dispersion statistics of particles in flows subjected to different large-scale anisotropies.

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