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Transport of Finite-Sized Particles in Chaotic Flow[1] NICHOLAS OUELLETTE, Yale University, P.J.J. O'MALLEY, J.P. GOLLUB, Haverford College — By extending traditional particle tracking techniques, we study the dynamics of neutrally buoyant finite-sized particles in a quasi-2D spatiotemporally chaotic flow. We simultaneously measure the flow field and the trajectories of millimeter-scale particles so that the two can be directly compared. While the single-point statistics of the particles are indistinguishable from the flow statistics, the particles often move in directions that are systematically different from the underlying flow. These differences are especially evident when Lagrangian statistics are considered.

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