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Shape Dynamics of Lagrangian Clusters in Two-dimensional Flow ALEXANDRE DE CHAUMONT QUITRY, Yale University, DOUGLAS KELLEY, SOPHIA MERRIFIELD, NICHOLAS OUELLETTE — In an effort to understand the dispersion of passive scalars in two-dimensional flows, we investigate the shape evolution of three-particle clusters. We compute the trajectories of virtual Lagrangian points in an electromagnetically driven experimental flow. While our working flow is not turbulent, we observe the same stationary isotropic limit previously observed in turbulent flows. Further, we find that at different scales the triangles adopt preferred statistical shape distributions insensitive to their initial configuration. Our results thus emphasize the role of scale-dependent Lagrangian flow structures in the mixing process. This work is supported by the National Science Foundation.

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