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Dynamically Evolving Topology in Spatiotemporal Chaos NICHOLAS T. OUELLETTE, DOUGLAS H. KELLEY, Yale University — Recent advances in Lagrangian measurements have allowed the robust experimental location of the hyperbolic and elliptic stagnation points in two-dimensional incompressible flow. Here, we extend these techniques to study the dynamics of the stable and unstable manifolds of the hyperbolic points as our experimental quasi-2D electromagnetically driven flow evolves in time. We compare results from nearly stationary flows, where the hyperbolic points move only slightly, and spatiotemporally chaotic flows, where hyperbolic and elliptic points can be created or annihilated in pairs. This work is supported by the National Science Foundation.

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