

Abstract Submitted  
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**An FTLE analysis for reaction-diffusion fronts in fluid flows<sup>1</sup>**

JOHN MAHONEY, KEVIN MITCHELL, University of California, Merced — The theory of advective transport depends heavily on the elucidation of organizing structures within the fluid. In a time-independent or time-periodic flow, one can define invariant manifolds. In a time-aperiodic flow, one often employs the finite-time-lyapunov-exponent (FTLE) and Lagrangian coherent structures. It has been recently demonstrated that fronts, e.g. reaction-diffusion fronts, propagating in time-periodic flows can also depend on such organizing invariant manifolds. In this talk, we describe an FTLE analysis for propagating fronts in two-dimensional fluid flows. In particular, we employ a dimension reduction technique to the front system so that a two-dimensional FTLE approach is feasible.

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