

Abstract Submitted
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Simultaneous tracking of particles and reaction fronts in mixing

JESSE CRAMER, DOUGLAS KELLEY, Univ of Rochester — In mixing problems, the effects of advection are often studied and relatively well understood. However, many real-life mixing problems—e.g. plankton bloom growth, the spread of oil spills—deal with a combination of advection, reaction, and diffusion. How does advection help—or hinder—the rate of reaction and propagation of the reaction fronts? We present an experimental method for producing consistent advection-reaction data sets via the Belousov-Zhabotinsky reaction, and post-processing methods for simultaneously tracking particles (for advection) and tracking wave fronts (for reaction). By adjusting the rate of advection, we determine how advection affects the rate and location of the reaction.

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