

Abstract Submitted  
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**Burning lobes in an advection-reaction-diffusion system**<sup>1</sup> DELORA GASKINS<sup>2</sup>, TOM SOLOMON, Bucknell University — We use the tools developed for chaotic fluid transport to describe the propagation of a reaction front in a chain of oscillating vortices. Specifically, we expand the concept of lobes (turnstile) bounded by stable and unstable manifolds to account for the propagation of a reaction front. A “burning lobe” is a passive lobe that grows due to the reactive medium. We propose that a reaction front will propagate from one vortex to the next in an oscillation period if a portion of the front was within the burning lobe. This framework is used to explain mode-locking of reaction fronts propagating in an oscillating vortex array.

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