

Abstract Submitted
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Variability of reaction in chaotic flows - an approach based on Lagrangian coherent structures¹ WENBO TANG, CHRISTOPHER LUNA, ADITYA DHUMUNTARAO, Arizona State University — The study of reactive-diffusive systems in the presence of background flows is an important problem of biological, geophysical and engineering interest. The coupling between stirring and reaction brings new complexity, which may lead to strong variability of the outcome of reaction, as compared to homogeneous reaction processes. In this talk, I will discuss several examples of reaction processes, whose variability can be tied to Lagrangian coherent structures (LCS), the deterministic tool developed to address passive scalar transport in chaotic flows. We find that LCS plays different roles in different reaction processes, but the overall strategy to approach such problems has a unified theme.

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