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Uncertainties in Lagrangian mixing WENBO TANG, ALEX MA-
HALOV, Arizona State University — Lagrangian Coherent Structures have been
discovered to be the building blocks of chaotic mixing in turbulent flows and math-
ematical tools have been developed to extract the invariant manifolds that highlight
Lagrangian mixing. These mathematical tools are based on deterministic velocity
fields and it is unclear how random processes can modify chaotic mixing. In this
talk we discuss archetypical geophysical flow examples embedded in an environment
of Gaussian white noise. We examine how the deterministic nonlinear background
flow fields alter the Gaussian statistics and the consequences of stochastic processes
on Lagrangian mixing.

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