

# **Growth from localized perturbations in Rayleigh-Taylor and Richtmyer-Meshkov instability**

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This paper will present the results and analysis of large-scale large eddy simulations of the growth of mixing instabilities from initial surface perturbations with spatially localised variations.

The theoretical analysis of the growth of instabilities in stratified media is usually framed in terms of the growth of Fourier modes, and initial perturbations are prescribed using Gaussian random fields. However, there is no fundamental reason why the initial conditions need take such a form. Indeed it seems likely that significant correlations in the phase of the modes will exist in many systems, due to the presence of spatially localized processing defects.

The analysis of the growth of instabilities from perturbations with spatially localized features also gives a distinct insight into the factors which control the growth of mixing layers for more general perturbations.

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