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On nonlinear Rayleigh Taylor instabilities

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摘要 Some of the mathematical properties of the interface between two incompressible inviscid and immiscible fluids with different densities under the influence of a constant gravity field g are investigated. The purpose of this paper is to prove that linearly unstable modes for Rayleigh--Taylor instabilities give birth to nonlinear instabilities for the full nonlinear system. The main ingredient is a general instability theorem in an analytic framework which enables us to go from linear to nonlinear instabilities.

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Abstract Some of the mathematical properties of the interface between two incompressible inviscid and immiscible fluids with different densities under the influence of a constant gravity field g are investigated. The purpose of this paper is to prove that linearly unstable modes for Rayleigh--Taylor instabilities give birth to nonlinear instabilities for the full nonlinear system. The main ingredient is a general instability theorem in an analytic framework which enables us to go from linear to nonlinear instabilities.

Key words [Fluid Mechanics](#) [Instability](#) [Nonlinear](#) [Spectrum](#) [Analytic regularity](#)

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