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Breakup of liquid films under the action of a pressure drop in the ambient gas. (English. Russian original) [Zbl 0638.76116](#)

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The stability of motion of a thin, plane liquid film in the direction normal to it under the action of a drop in the gas pressure on the two sides of the film is analyzed in a linear approximation. The rate of growth of harmonic disturbances is determined for films of viscous and viscoelastic liquids and an elastic resilient solid. The stabilizing role of preliminary longitudinal stretching of films of elastic liquids is demonstrated.

MSC:

[76T99](#) Multiphase and multicomponent flows
[76D08](#) Lubrication theory
[76E99](#) Hydrodynamic stability
[76M99](#) Basic methods in fluid mechanics
[76A10](#) Viscoelastic fluids

Cited in **1** Document

Keywords:

stability of motion; thin, plane liquid film; linear approximation; growth of harmonic disturbances; viscoelastic liquids; elastic resilient solid; longitudinal stretching of films of elastic liquids