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## **Experimental study into the Rayleigh-Taylor instability evolution in a continuous distribution density layer**

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Experimental results concerning growth of perturbations being generated in the middle of a continuous distribution density layer at different initial and boundary conditions under action of the Rayleigh-Taylor instability have been obtained by the SOM facility. The layer of certain width forms owing to mutual diffusion of two different density miscible liquids through a flat contact boundary for a certain time. The liquids of different refraction indexes are located in an ampoule of square cross section with transparent windows for recording by a light-shadow technique. The Rayleigh-Taylor instability arises owing to acceleration of the ampoule along a vertical measuring channel equipped with horizontally placed light channels of certain spacing for the process recording. Experiments have been performed for density ratios of liquids  $n = 1.5, 2.0, 3.0$ . The results are compared with values of the Rayleigh-Taylor turbulent mixing zone width obtained for miscible liquids with a density jump at the contact boundary.