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Theory and experiments of slow rupture of viscous films SOFYA CHEPUSHTANOVA, IGOR KLIAKHANDLER, Michigan Technological University — Experiments on the rupture of a free plain viscous film are reported.The relatively thick film, with the typical thickness of order 0.1-0.6 mm, rests between two long parallel needles. When the film is ruptured, a hole is formed with the rim on the front. The hole grows, reaches the needles, and propagates along them with a constant velocity of order 5-50 cm/s. Expression for propagation velocity of the rim is derived and compared well with the experimental data. The derived rupture profile, visually similar to brachistochone curve is consist ent with the experimental observations.

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