

Abstract Submitted  
for the DFD06 Meeting of  
The American Physical Society

**Slow rupture of viscous film: theory and experiment** IGOR KLI-  
AKHANDLER, SOFYA CHEPUSHTANOVA, Michigan Technological University  
— A rupture of viscous levitating horizontal film between parallel needles is consid-  
ered. The system reaches remarkable steady-state propagation mode. Profile of the  
rupture is similar to U-shape. Visually, the system resembles many classical prob-  
lems such as rising long bubble in the tube, or Hele-Shaw tongue. The system has a  
clear separation of scales: the rim on the rupture front is substantially thicker than  
the film itself, but much smaller than distance between the needles. This allows to  
develop a simple theory of the rupture propagation. The theory agrees well with the  
experiments.

Igor Kliakhandler  
Michigan Technological University

Date submitted: 28 Jul 2006

Electronic form version 1.4