Adhesion instability of thin liquid films

Maud Dobler[1], José Bico[1], Étienne Reyssat[1], Laurent Duchemin[1].

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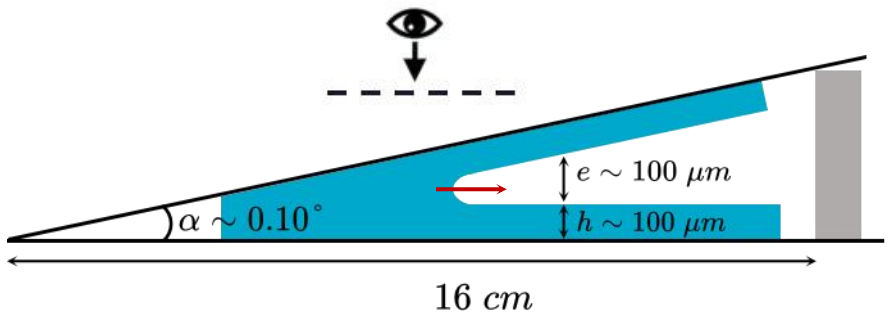
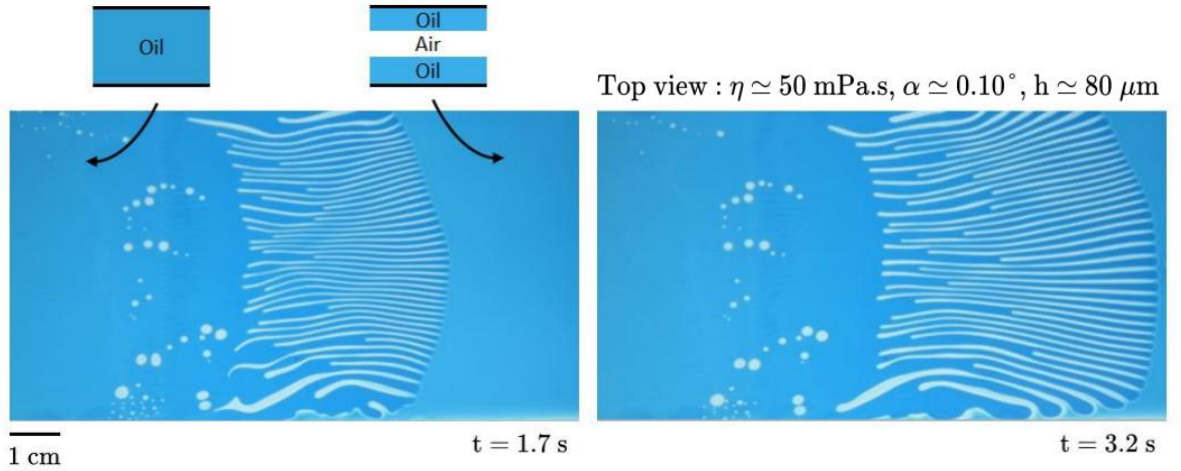
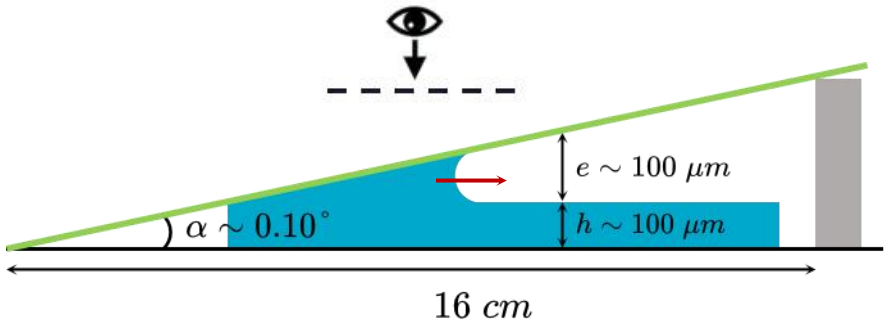
Two oil-coated plates

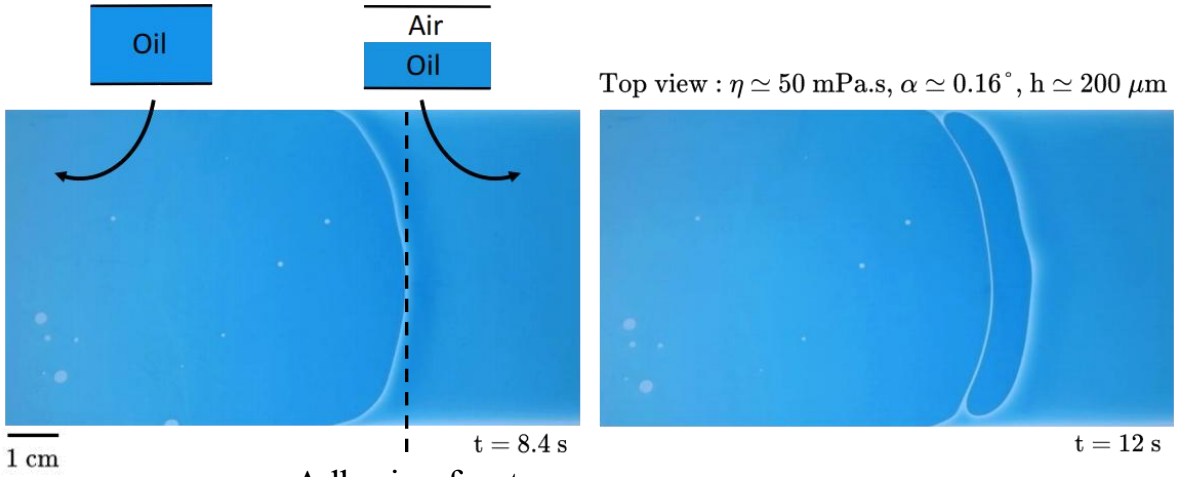




M. L'Estimé, L. Duchemin, É. Reyssat & J. Bico, Fingering instability in adhesion fronts , *Journal of Fluid Mechanics*, **949**, A46 (2022).

A single plate coated with oil





Adhesion front

Adhesion instability of thin liquid films

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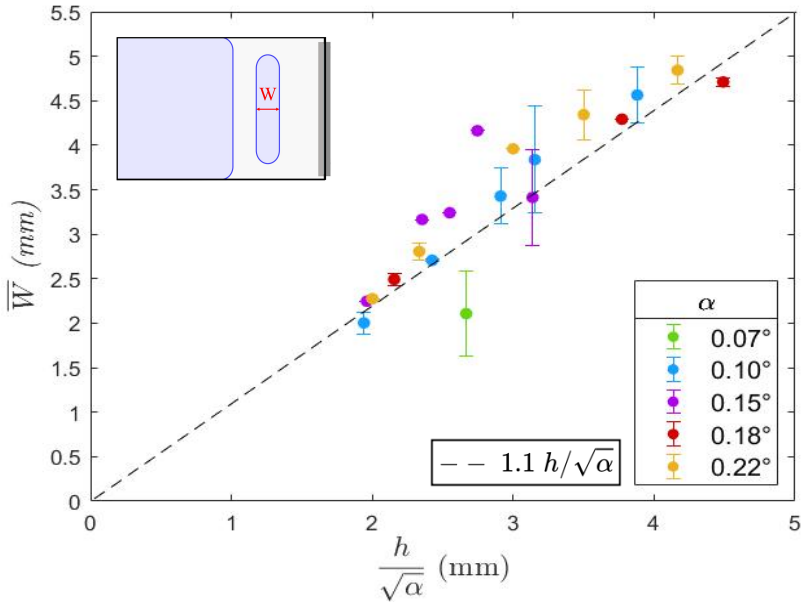
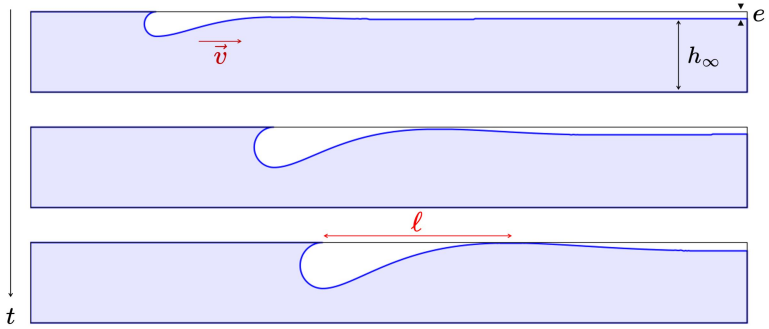
Experimental results

Geometrical characteristics

Global dynamics of the interface



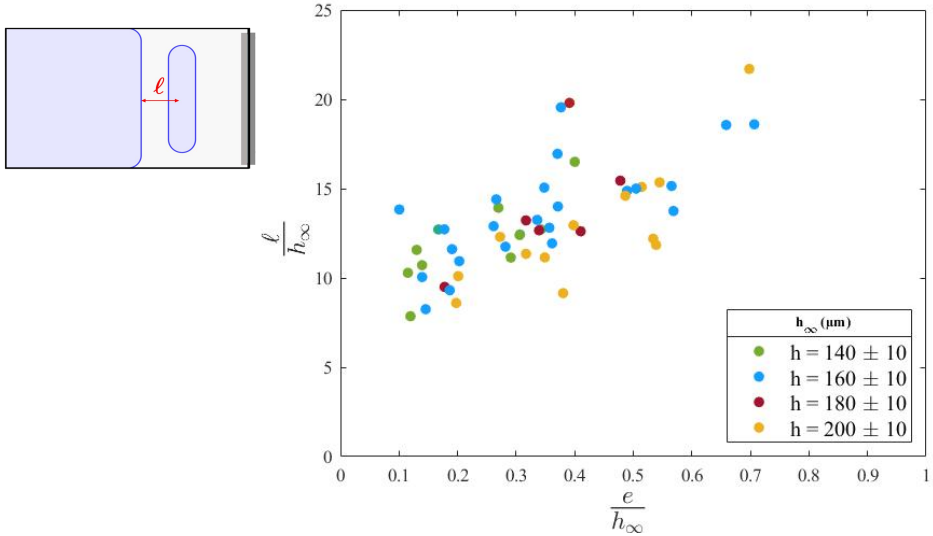
Finger nucleation



Lubrication equation

$$\frac{\partial h}{\partial t} = -\frac{\gamma}{3\eta}\frac{\partial}{\partial x}\left[h^3\frac{\partial^3 h}{\partial x^3}\right]$$

Side view of a numerical simulation realized by Laurent Duchemin



Experimental data to be compared with the numerical simulation