21e RNL 2018

Formation de motifs spiralés à la surface libre d'une couche mince de liquide

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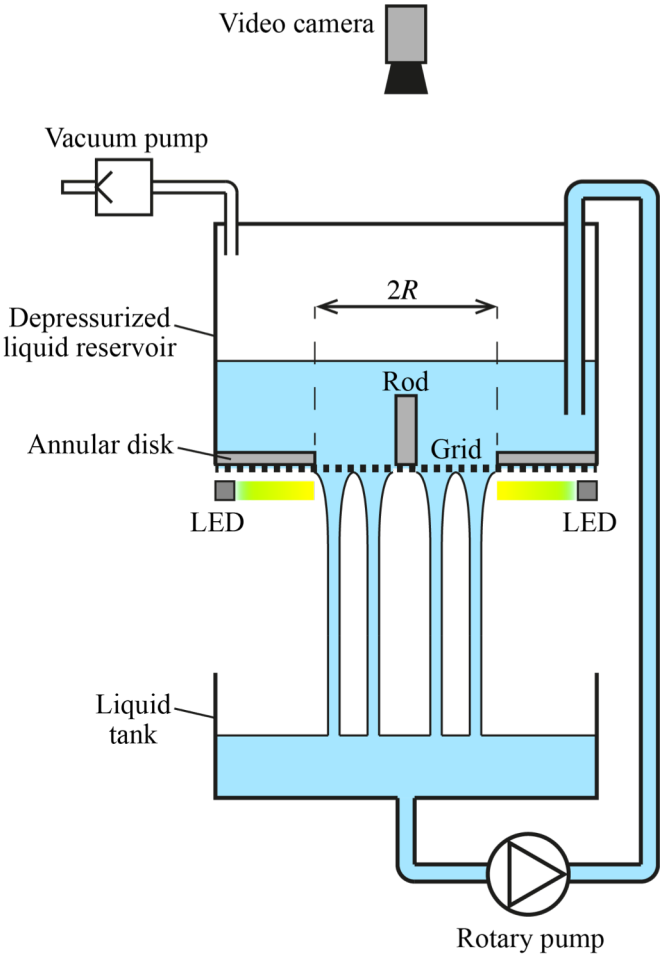
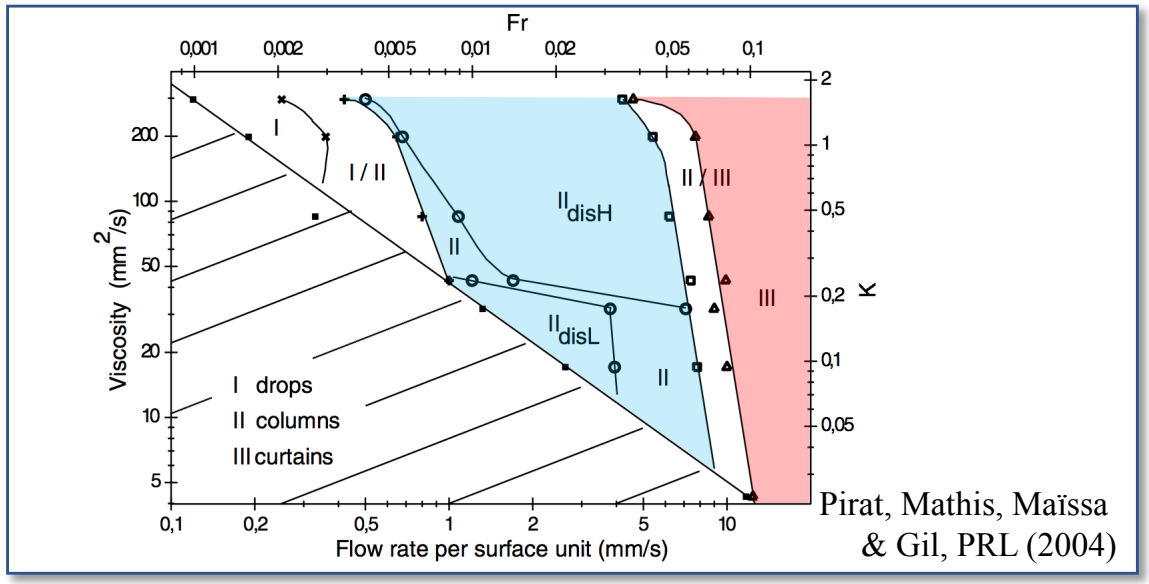
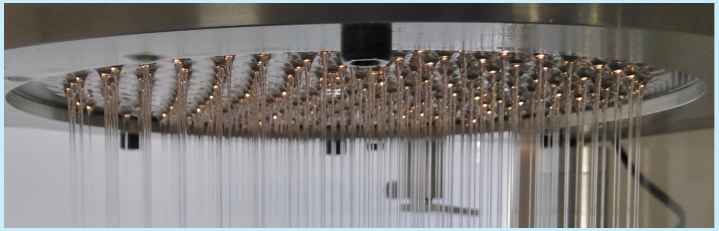


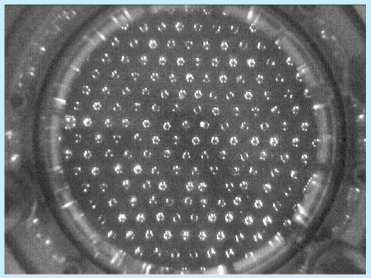
Système Rayleigh-Taylor à une alimentation continue de liquid.



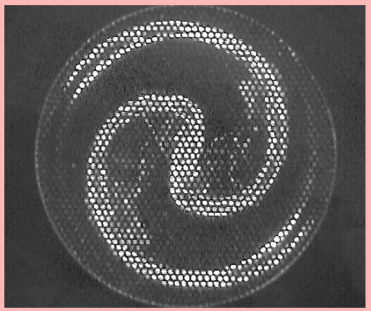
Pirat, Mathis, Maïssa & Gil, PRL (2004)

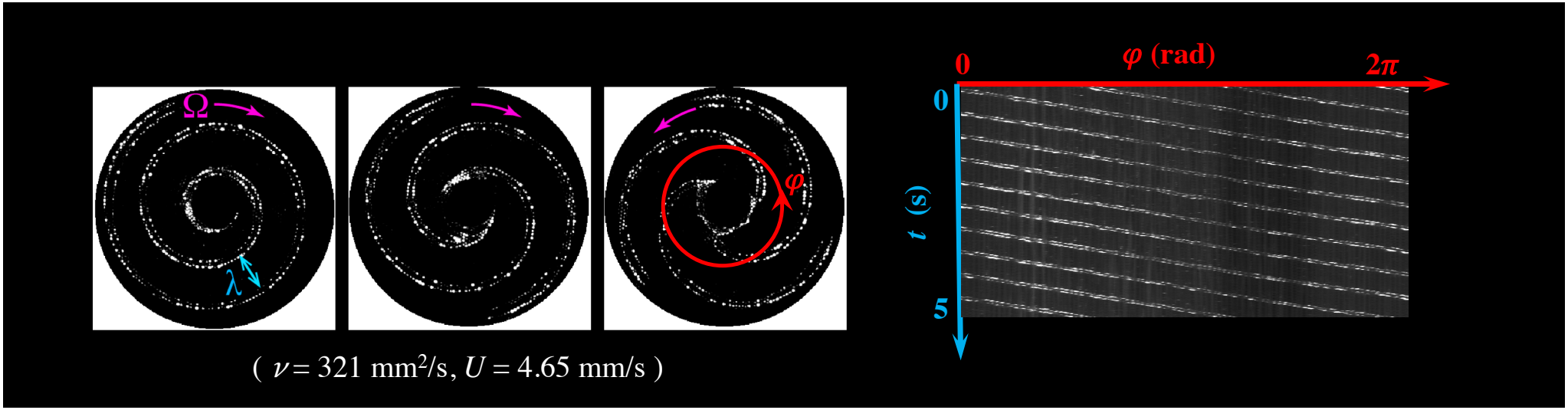
- **Colones**





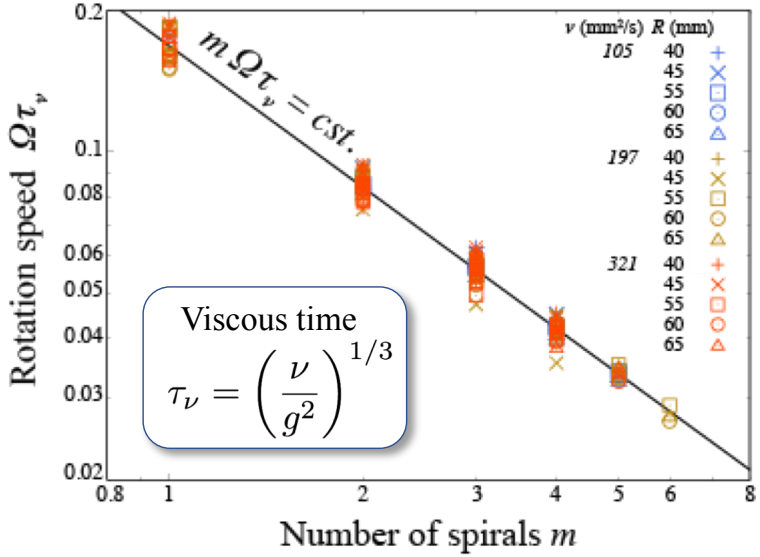
- **Rideaux spiralés**





($\nu = 321$ mm²/s, $U = 4.65$ mm/s)

- **Vitesse de rotation**



- **Longueur d'onde**

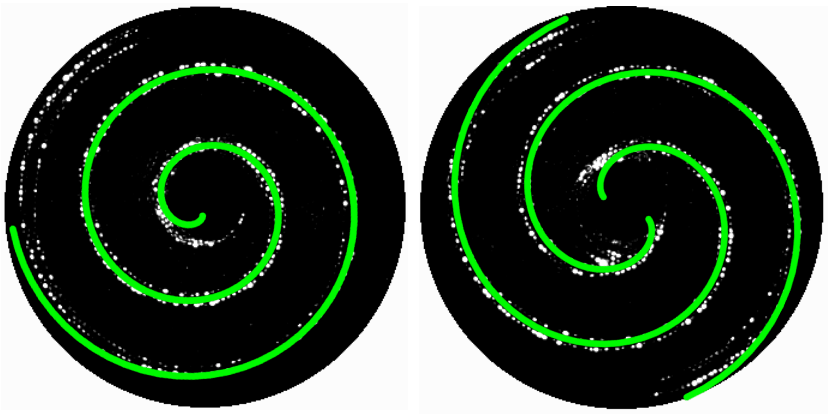
$$\frac{\lambda_{avg}}{2\pi l_c} \propto \left(\frac{U}{\sqrt{g l_c}}\right)^{0.5}$$

Modélisation

Hypothèse

(Débit par unité de longueur) = cst.

$$\sqrt{\left(\frac{r}{r_0}\right)^2 - 1} - \tan^{-1}\sqrt{\left(\frac{r}{r_0}\right)^2 - 1} = \varphi$$



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