ESPCI
Laboratoire PMMH
10 rue Vauquelin, 75231 Paris Cedex 05

Séminaire PMMH

Vendredi 5 février 2021, 11h00-12h00

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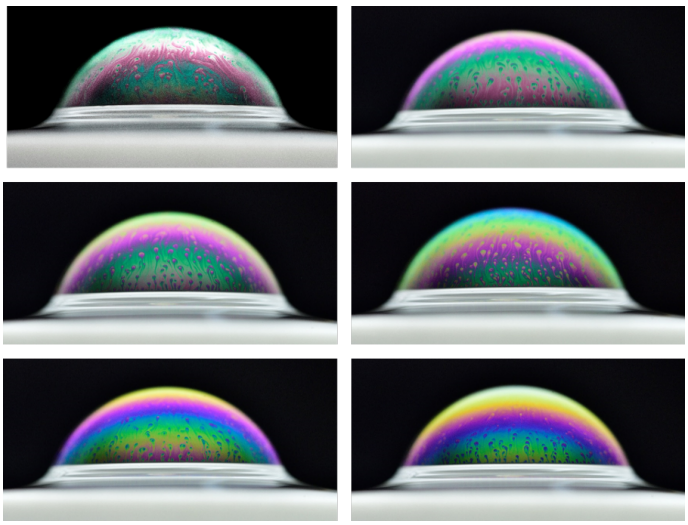
Rupture of Foam Films and Surface Bubbles

Surface bubbles are of crucial interest since they favours the transport of material from the bulk to the overlying atmosphere through the production of aerosols. This is important for example in climate models, air pollution studies or in the carbonated beverage industry since the produced aerosols contain most of the flavour.
The current understanding is that thin films stabilized by surfactants are all the more fragile as they are thin. This enlighten the lack of quantitative description of their thinning dynamics, which necessitates a better understanding of the liquid flow or drainage but also of evaporation. The latter has indeed been ignored in many theoretical or experimental studies leading to misinterpretations.
In this seminar, I will show that an automatic stability measurement under controlled atmospheric humidity allows to collect a large quantity of data and to demonstrate that the film lifetime is indeed fixed by the thinning through drainage and evaporation. A quantitative description allows to describe various soapy objects ranging from surface bubbles to giant soap films. Nevertheless, it necessitates to take into account convective evaporation and the impact of marginal regeneration (rising patches, which can be seen in the figure).



Prochain séminaire : vendredi 12 février 2021, Matilda Backholm (Aalto Univ., Helsinki, Finland)
Programme des séminaires : www.pmmh.espci.fr, onglet *Séminaires PMMH*
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