

Abstract Submitted
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Coating with colloids by receding contact line GUILLAUME BERTELOOT, ESPCI, LIMAT LAURENT, LEQUEUX FRANCOIS, CHI-TUONG PHAM, ADRIAN DAERR, MATHIEU RECEVEUR, CNRS, DSHE TEAM, PPMD TEAM — Many coating processes use evaporation. But such coatings are usually inhomogeneous because of the evaporation singularity at the contact line. We are thus investigating the effect of this singularity on dip-coating. In dip-coating, two flows are in competition: one inwards due to the receding contact line, the other outwards due to evaporation, and the equilibrium of these flows predicts the thickness of the deposit. There are two dip-coating regimes: one controlled by evaporation, and the known Landau-Levich regime. A minimum deposit thickness is expected between these two regimes. Using different microscopy techniques, we found out that there was a minimum in the deposit thickness, but that the actual mesoscopic order strongly varies depending on the contact line velocity. In the stick-slip regime, we can also link the spatial frequency of the stick-slip motion with the contact line velocity. Eventually, the thinnest deposits exhibit iridescence, which means that we are close to a photonic crystal structure.

Guillaume Berteloot
ESPCI

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