

Abstract Submitted
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Drying of complex fluids at a moving contact line¹ CHING HSUEH, FREDERIC DOUMENC, BEATRICE GUERRIER — We study the pattern formation induced by drying colloidal suspensions in a vertical Hele-Shaw cell immersed in a reservoir [1]. The contact line velocity can be well controlled by pumping out the solution from the reservoir. At low capillary number, we observe stick-slip motion and periodic strip deposition [2]. We measured the pinning force variation and the wavelength. We systematically vary the following parameters: receding velocity, evaporation rate, concentration, particle size, and pH of the suspension. Results allow determining the power law governing the pinning force variation. The pH, which has no effect on the pinning force variation, changes the deposition morphology significantly. Finally, we present a detailed comparison between colloidal suspensions and polymer solutions.

[1] H. Bodiguel, F. Doumenc, B. Guerrier EPJ-ST 166, 29-32 (2009)

[2] H. Bodiguel, F. Doumenc, B. Guerrier Langmuir, 13, 10758-10763 (2010)

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