

Abstract Submitted
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Contact line motions of drying solutions FRANCOIS LEQUEUX, CECILE MONTEUX, ASTRID TAY, PPMD/ESPCI, EMMANUELLE RIO, LPS/ORSAI, LAURENT LIMAT, GUILLAUME BERTELOOT, ADRIEN DAERR, MSC/PARIS, PPMD/ESPCI/PARIS TEAM, LPS/ORSAI/FRANCE TEAM, MSC/PARIS/FRANCE TEAM — If most the studies on wetting deal with pure liquids in the absence of evaporation, in practical situations, the liquid is often a solution with an evaporating solvent. This is encountered both in coating and in surface cleaning. In that case, the contact line of a solution is the location of many divergent phenomena. The hydrodynamics dissipation diverges at the contact line: 1) the drying rate diverges at the contact line 2) the concentration diverges at the contact line. The coupling of these phenomena leads to complex effect for the contact line motion. We have observed that an advancing contact line of a colloidal suspension exhibit a stick-slip motion. Moreover, for similar reasons in the case, an advancing contact line of a polymer solution, the contact angle exhibit a minimum as a function of velocity – at which the polymer accumulates on a length of typically 5 nm in the vicinity of the contact line. All these phenomena can explained quantitatively using simple scaling arguments that we will present.

Francois Lequeux
PPMD/ESPCI

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