

Abstract Submitted  
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**Influence of Bénard-Marangoni instability on the morphology of drying colloidal films**<sup>1</sup> BENJAMIN SOBAC, PIERRE COLINET, TIPs Lab - Université libre de Bruxelles, LUDOVIC PAUCHARD, FAST Lab - CNRS — Film formation by drying of colloidal solutions is a widely used process in many industrial applications. The drying of such a system is a very complex process leading to a sol-gel transition induced by solvent evaporation. The resulting film can even crack and delaminate. In this study, we investigate the drying process of a colloidal suspension with a highly volatile solvent and we show that the resulting pattern of delaminated plates drastically differs from what is usually observed for aqueous colloidal suspensions. Visualization using an IR camera reveals that hexagonal convection cells can develop during the drying of solutions with highly volatile solvent. The convective cells may persist all along the film consolidation. Thus, we highlight the importance of the hydrodynamics during the first phase of strong solvent evaporation and the consequences on the following drying steps. A criterion predicting whether or not Bénard-Marangoni instability effectively occurs will be discussed

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