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Desiccation of a Sessile Drop of Blood: Cracks Formation and Delamination BENJAMIN SOBAC, IUSTI lab, Aix-Marseille Université, DAVID BRUTIN, IUSTI Lab, Aix-Marseille Univesité — The evaporation of drops of biological fluids has been studied since few years du to several applications in medical fields such as medical tests, drug screening, biostabilization... The evaporation of a drop of whole blood leads to the formation of final typical pattern of cracks. Flow motion, adhesion, gelation and fracturation all occur during the evaporation of this complex matter. During the drying, a sol-gel transition develops [1]. The drying kinetics is explained by a simple model of evaporation taking account of the evolution of the gelation front. The system solidifies and when stresses are too important, cracks nucleate. The cracks formation and the structure of the crack pattern are investigated. The initial crack spacing is found in good agreement with the implementation in open geometry of the model of cracks formation induced by evaporation proposed by Allain and Limat [2]. Finally, the drop is still drying after the end of the formation of cracks which leads, like in the situation of colloid suspensions [3], to the observation of a delamination phenomenon.
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