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Evaporation of a sessile droplet: Inside the coffee stain ANNA HOANG, GUILLAUME BERTELOOT, UCLA, ADRIAN DAERR, MSC, Paris 7, PIROUZ KAVEHPOUR, UCLA, FRANCOIS LEQUEUX, ESPCI, Paristech, LAURENT LIMAT, MSC, Paris 7 — The deposition of uniform layers of colloids on a solid surface is a major challenge for several industrial processes such as glass surface treatment and creating optical filters. A possible strategy involves the deposition of the colloids behind a contact line that recedes due to hydrodynamic reasons and evaporation (drying). We have investigated a drop of colloidal suspension evaporating on a flat surface where the contact line remains strongly pinned on the surface. We have observed that the deposit grows from the contact line following a $t^{\frac{2}{3}}$ law and then accelerates with surprising spatial and temporal modulations. The power law can be recovered by a ballistic model, in which the particles are driven to contact line by the evaporation field that diverges near the contact line.

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