ESPCI, 10 rue Vauquelin, 75231 Paris Cedex 05

Séminaire PMMH

Salle réunion PMMH, 1er étage bâtiment Cassan, campus Jussieu, 7 quai Saint Bernard, 75005 Paris

Vendredi 1 juin 2018, 11h00-12h00

John M. Kolinski

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Wetting and contact line propagation on solid surfaces

The propagation of a contact line at the interface between liquid and a dry solid is of great fundamental and practical importance. We experimentally probe the dynamics of wetting that occur when an impacting drop first contacts a dry surface. We show that the liquid-solid contact line propagates outward from nanoscale liquid bridges. As the liquid bridge expands, the liquid-air interface deforms and lifts away from the surface immediately ahead of the liquid-solid contact line. The wetting front advances at a velocity well below the liquid capillary velocity ; we explain this anomalously low velocity using a simple model for the interaction between the liquid and the air motivated by the observed liquid-air interface kinematics. As we increase the liquid viscosity, the contact line velocity decreases. A simple boundary layer argument can explain the scaling of contact line velocity as $v^{-1/3}$. These results suggest interesting avenues for further study of dynamic wetting on a variety of substrates.

Prochain séminaire : vendredi 8 juin

Programme des séminaires : www.pmmh.espci.fr, onglet *Séminaires PMMH*

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