FREE SURFACE FLOWS AND MOVING CONTACT LINES

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2PM Thursday November 2, 2017

This study deals with the complex interfacial phenomena, in particular droplet dynamics on a planar but chemically heterogeneous substrate with a small pore. Our approach is based on a diffuse-interface model appropriately modified by incorporating a local inflow boundary condition allowing constant liquid flux in to the droplet. A finite element method is then applied to solve the diffuse-interface model numerically. It is shown that the droplet exhibits stick-slip motion that can be observed by monitoring the droplet shift. Under certain conditions the droplet can also undergo break up into satellite droplets with chaotic behaviour.

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