

LadHyX Seminar – March 16, 10:45 – LadHyX Library

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Flexible magnetic pillar arrays: a way to control fluid displacement

In this presentation, I will show our ongoing work on flexible magnetic pillar arrays in interaction with fluids. We have investigated the impact of magnetic actuation of pillars when a droplet settles at their apex, that is in the Cassie state. We have also looked at the imbibition of a viscous oil in the pillar arrays (Wenzel to hemiwicking), which allows these pillar networks to acquire slippery behavior. Last, we are now transferring these pillar arrays into an organ-on-chip model to mimic the metachronal activation of cilia in the lungs, responsible for the transfer of mucus from the alveoli to the trachea. The overall objective is to control, with an external trigger, the movement of fluids in contact with hairy activable surfaces.