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**Active depinning of bacterial droplets: the collective surfing of Bacillus subtilis**[1] MARC HENNES, JULIEN TAILLEUR, ADRIAN DAERR, Laboratoire MSC, University Paris Diderot (Paris 7) — How systems are endowed with migration capacity is a fascinating question with implications ranging from the design of novel active systems to the control of microbial populations. Bacteria, which can be found in a variety of environments, have developed among the richest set of locomotion mechanisms both at the microscopic and collective levels. Here, we uncover experimentally a new mode of collective bacterial motility in humid environment through the depinning of bacterial droplets. While capillary forces are notoriously enormous at the bacterial scale, even capable of pinning water droplets of millimetric size on inclined surfaces, we show that bacteria are able to harness a variety of mechanisms to unpin contact lines, hence inducing a collective sliding of the colony. Contrary to flagella-dependent migration modes like swarming we show that this much faster colony surfing still occurs in mutant strains of *Bacillus subtilis* lacking flagella. The diversity of mechanisms involved in the active unpinning seen in our experiments suggests that collective surfing should be a generic mode of migration of microorganisms in humid environments.

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