

# Superhydrophobic microfluidics



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Superhydrophobic surfaces have opened a completely new field of investigation with both fundamental and practical perspectives. Research on these materials has mostly focused on their extreme non-wettability, which has large-scale implications in the context of self-cleaning and impact processes. However, the implications of superhydrophobicity for transport phenomena, which are especially important at micro- and nanoscales, remain largely unexplored. In my talk, I will discuss a current switch in focus from wetting to related areas such as the remarkable drag-reducing ability of superhydrophobic materials. In particular, I will show that superhydrophobic surfaces induce novel hydrodynamic properties such as giant effective slip, superfluidity and mixing, and dramatically affect electrokinetic phenomena. I will also discuss strategies in the fabrications of superhydrophobic materials for relevant applications, including mixing and separation in microfluidic lab-on-a-chip devices.

**Martedì 14 luglio 2015 – Ore 11.00 – Sala Videoconferenze  
Dipartimento di Ingegneria Meccanica e Aerospaziale  
Via Eudossiana 18, Roma**

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