



# Micro Robots and Droplets

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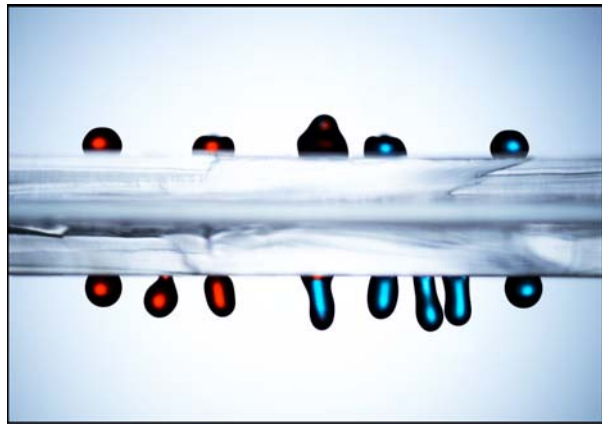
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## Abstract

Droplets of aqueous liquids move on anisotropic superhydrophobic surfaces in a desired direction simply by applying vibration in a re-engineered lotus effect. When multiple droplets are moving simultaneously then their coordinated movements can be understood as motion planning problem with multiple robots. Biomimetic centipede-like microrobots will also be discussed.

## Biography

Karl F. Böhringer received his Dipl.-Inform. degree from the University of Karlsruhe, Germany in 1990 and his M.S. / Ph.D. degrees in computer science from Cornell University, Ithaca, NY in 1993 / 1997. He was a Visiting Scholar at Stanford University in 1994-5 and a Postdoctoral Researcher at the University of California, Berkeley from 1996 to 1998. He joined the University of Washington in Seattle, WA in 1998, where he is Professor of Electrical Engineering and Bioengineering and currently holds the John M. Fluke Distinguished Chair of Engineering. He is Director of the Washington Nanofabrication Facility and of the National Nanotechnology Infrastructure Network site at the University of Washington. He held visiting faculty positions at the Universities of Tohoku, Tokyo, Kyoto (Japan), and São Paulo (Brazil). His research interests include microelectromechanical systems (MEMS), manipulation and assembly from macro to nano scales, microfluidic systems for the life sciences, and microrobotics. He has created, among others, multi-batch self-assembling systems, massively parallel microactuator arrays, and a walking microrobot.



**Figure: Four droplets moving simultaneously on a vibrating substrate with anisotropic microtexture.**

## References

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