



Recent Progress on Micromachines and Microrobotics

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Abstract

Micromachines and microrobotics have become more and more attractive in research due to their great potential in biomedical applications. Recently, many representative works have promoted the research progress in this field.

These interdisciplinary science and technology are contributed by materials scientists, chemists and roboticists, etc. Research topics cover the design and development of micromachines driven by chemical fuels or multiform external fields, microrobotic sensing and control and the biomedical applications of micromachines. In order to provide an opportunity for researchers of this field to communicate together, this workshop will provide an interactive and open-discussion platform gathering researchers of this field in terms of recent progress of micromachines and microrobotics, also postulating the key technologies and advances in the future. Speakers will present underlying theory, examples, experimental results, technological challenges, the problems that researchers face and the applications. Interactive and detailed discussions should have attractiveness to attendance of AIM2019, and promote communications and cooperation among different communities of robotics and relevant fields.

Invited Speakers

- Prof. Dong Sun, City University of Hong Kong, Hong Kong SAR, China
Title: Micromanipulation and Microrobotics for Precise Cell Surgery

- Prof. Oliver G. Schmidt, IFW Dresden, Germany
Title: Tackling key challenges in microrobotics: System integration, deep tissue imaging and biomedical Applications

- Prof. Hongsoo Choi, Daegu Gyeongbuk Institute of Science and Technology, South Korea
Title: TBD

- Prof. Jianguo Guan, Wu Han University of Technology, China
Title: Intelligent phototactic flocks of micromotors

- Prof. Qiang He, Harbin Institute of Technology, China
Title: Self-Propelled Nanomotors for Thermomechanically Percolating Cell Membranes

- Prof. Qingsong Xu, University of Macau, Macau SAR, China
Title: Development of microforce sensing robotic cell manipulation tools

- Prof. U Kei Cheang, Southern University of Science and Technology, China



Title: Fabrication and Control of Micro/nanorobots.

- Prof. Xin Ma, Harbin Institute of Technology - Shenzhen, China

Title: Micro/nano-motors for Biomedical Applications

- Prof. Wei Wang, Harbin Institute of Technology - Shenzhen, China

Title: Using chemistry to power microrobots: fundamentals, success and limitations

- Prof. Chengzhi Hu, Southern University of Science and Technology, China

Title: TBD

- Prof. Tiantian Xu, SIAT, Chinese Academy of Science, China

Title: Navigation and path following of helical microswimmers

- Prof. Li Zhang (The Chinese University of Hong Kong)

Title: Recent development of magnetic microswarm