



ICMNM Program

International Conference on Micro/Nanomachines

August 25-28, 2017

InterContinental Wuhan Convention Center

8:00 AM–8:25 AM

Opening Ceremony

Session One | Chair: Peer Fischer

8:25 AM–8:55 AM

[O-01] Collective Interactions of Nano/micromotors Propelled by Ultrasound and Chemical Gradients

Thomas E. Mallouk | Pennsylvania State University, United States

8:55 AM–9:25 AM

[O-02] Nanomachines that Write, Image, Repair, Sense, Isolate, Deliver and Destroy

Joseph Wang | University of California San Diego, United States

9:25 AM–10:00 AM

————— **Coffee Break & Photo** —————

Session Two | Chair: Jianguo Guan

10:00 AM–10:25 AM

[O-03] Mechanical Manipulation of Molecular Machines by Macroscopic Motions Catch and Release a Molecule by Our Hands!

Katsuhiko Ariga | WPI-MANA National Institute for Materials Science (NIMS), Japan

10:25 AM–10:50 AM

[O-04] Photodeformable Liquid Crystal Polymers and Soft Actuators

Yanlei Yu | State Key Laboratory of Molecular Engineering of Polymers; Fudan University, China

10:50 AM–11:15 AM

[O-05] Adaptive Supramolecular Nanomotors for Biomedical Applications

Daniela A. Wilson | Radboud University Nijmegen; Institute for Molecules and Materials Nijmegen, The Netherlands

11:15 AM–11:30 AM

[O-06] Self-propelled Colloid Motors Based on Layer-by-layer Assembly

Qiang He | Micro/nanotechnology Research Center, Harbin Institute of Technology, China

11:30 AM–11:45 AM

[O-07] 3D Self-folding Static and Dynamic Materials and Devices

David H. Gracias | Johns Hopkins University, United States

11:45 AM–12:00 PM

[O-08] Tubular Micro/nanoengines Towards the Smallest Man-made Rockets

Yongfeng Mei | Fudan University, China

12:00 PM–1:30 PM

----- Lunch -----

Session Three | Chair: Martin Pumera

1:30 PM–1:55 PM

[O-09] Wireless Electrochemical Actuation of Conducting Polymers

Alexander Kuhn | University of Bordeaux, France

1:55 PM–2:20 PM

[O-10] Molecular Assembly of Motor Proteins

Junbai Li | Chinese Academy of Sciences, China

2:20 PM–2:45 PM

[O-11] Innovative Design and Mechanisms for Assembling and Manipulation of Nanomotors with Ultrahigh Performances – for biochemical delivery, tunable release, removal, and microfluidic manipulation

Donglei (Emma) Fan | University of Texas at Austin, United States

2:45 PM–3:00 PM

[O-12] Magnetically Actuated Micromotors Based on One-dimensional Photonic Crystals

Ming You | Wuhan University of Technology, China

3:00 PM–3:15 PM

[O-13] Helical Nanomachines as Local Mechanical Probes

Ambarish Ghosh | Centre for Nano Science and Engineering, Indian Institute of Science, India

3:15 PM–3:30 PM

[O-14] Smart Polymer Based Micromachine

Bin Dong | Soochow University, China

3:30 PM–4:00 PM

----- Poster Session & Coffee Break -----

Session Four | Chair: Samuel Sánchez

4:00 PM–4:25 PM

[O-15] Micromotors: Opportunities and Challenges

Oliver G. Schmidt | Institute for Integrative Nanosciences; Leibniz IFW Dresden, Germany

4:25 PM–4:50 PM

[O-16] Self-powered Liquid Metal Droplet Machines

Jing Liu | Tsinghua University; Chinese Academy of Sciences, China

4:50 PM–5:05 PM

[O-17] Simple and Complex Micromachines

Alexander A. Solovev | Fudan University; Harvard University, United States

5:05 PM–5:20 PM

[O-18] Mesoporous Silica as Micro/nano-carrier: From Passive to Active Cargo Delivery

Xing Ma | Harbin Institute of Technology (Shenzhen), China

5:20 PM–5:35 PM

[O-19] External Field Induced Propulsion of Colloidal Particles with Broken Symmetries

Ning Wu | Colorado School of Mines, United States

6:00 PM–7:30 PM

----- Dinner Buffet -----

Session Five | Chair: Joseph Wang

8:00 AM–8:30 AM

[O-20] Micro and Nano-robotic Manipulation

Toshio Fukuda | Nagoya University, Japan

8:30 AM–8:55 AM

[O-21] Light-controlled Micro/nanomotors: Design, Assembly, and Collective Behaviors

Fangzhi Mou | Wuhan University of Technology, China

8:55 AM–9:20 AM

[O-22] Chemically and Biologically Powered Micro-machines

Samuel Sánchez | Max Planck for Intelligent Systems; Institute for Bioengineering of Catalonia; Institut Català de Recerca i Estudis Avancats, Spain

9:20 AM–9:35 AM

[O-23] Mobile Paramagnetic Nanoparticle-based Vortex for Targeted Cargo Delivery in Fluid

Li Zhang | The Chinese University of Hong Kong, China

9:35 AM–9:50 AM

[O-24] Active Particles Offer a Vast Playground to Explore the Emergent Properties in Dissipative Systems

Jérémie Palacci | University of California San Diego, United States

9:50 AM–10:05 AM

[O-25] Ultrasound Control and Propel Micro/nanomachines

Tailin Xu | University of Science and Technology Beijing, China

10:05 AM–10:35 AM

————— **Poster Session & Coffee Break** —————

Session Six | Chair: Donglei (Emma) Fan

10:35 AM–11:00 AM

[O-26] Microscopic Description of the Collective Dynamics of Chemically-propelled Janus Motors

Raymond Kapral | University of Toronto, Canada

11:00 AM–11:25 AM

[O-27] Chemically Active Particles Near Interfaces

Mihail N. Popescu | Max Planck Institute for Intelligent Systems; University of Stuttgart, Germany

11:25 AM–11:40 AM

[O-28] Tubular Micro-/Nanomotors Based on Layer-by-layer Assembly

Xiankun Lin | Micro/Nanotechnology Research Center, Harbin Institute of Technology, China

11:40 AM–11:55 AM

[O-29] Re-examining Ionic Self-diffusiophoresis: Dynamics of Light Driven Janus Micromotors

Wei Wang | Harbin Institute of Technology (Shenzhen), China

11:55 AM–12:10 PM

[O-30] Ingestible Micromotors

Wei Gao | University of California, Berkeley, United States

12:10 PM–1:30 PM

----- Lunch -----

Session Seven | Chair: Oliver G. Schmidt

1:30 PM–1:55 PM

[O-31] Forces, Stresses and the (Thermo?)dynamics of Active Matter

John F. Brady | California Institute of Technology, United States

1:55 PM–2:20 PM

[O-32] Active Diffusion of Au Nanoparticles on the Upper Surface of Swarming Bacteria

Yan He | Tsinghua University, China

2:20 PM–2:45 PM

[O-33] Liquid Crystalline and Semicrystalline Polymer Actuators for Light- and Thermally Activated Motion and Complex Shape-morphing

Yue Zhao | University of Sherbrooke, Canada

2:45 PM–3:00 PM

[O-34] Bimetallic Microswimmers Speed Up in Confining Channels

Hepeng Zhang | Shanghai Jiao Tong University, China

3:00 PM–3:15 PM

[O-35] Dynamics of Magnetically Driven Micro-/nanopropellers

Alexander Leshansky | Technion-Israel Institute of Technology, Israel

3:15 PM–3:30 PM

[O-36] Thermally and Chemically Powered Microscale Turbines

Mingcheng Yang | Chinese Academy of Sciences, China

3:30 PM–3:50 PM

----- Coffee Break -----

Session Eight | Chair: John F. Brady

3:50 PM–4:15 PM

[O-37] Chemical and Magnetic Micro- and Nanomotors

Peer Fischer | Max Planck Institute for Intelligent Systems; University of Stuttgart, Germany

4:15 PM–4:40 PM

[O-38] Dynamic Heterogeneity and Non-Gaussian Statistics for Acetylcholine Receptors on Live Cell Membrane

Penger Tong | Hong Kong University of Science and Technology, China

4:40 PM–4:55 PM

[O-39] Towards High Speed and Precise Control of Micro/nano Motors

Longqiu Li | Harbin Institute of Technology, China

4:55 PM–5:10 PM

[O-40] Micro/nanomachines Self-propelled by Chemical Gradients: From Electrokinetics to Diffusion Control

Maria J. Esplandiu | Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and The Barcelona Institute of Science and Technology, Campus UAB, Spain

5:10 PM–5:25 PM

[O-41] Exploring Light Propelled Nano/microswimmer

Jinyao Tang | University of Hong Kong, China

6:15 PM–8:00 PM

----- **Dinner Banquet** -----

Session Nine | Chair: Thomas E. Mallouk

8:00 AM–8:30 AM

[O-42] The Rise and Promise of Artificial Molecular Machines

Sir J. Fraser Stoddart | Northwestern University, United States

8:30 AM–8:55 AM

[O-43] Self-powered Microrobots for Environmental Remediation

Martin Pumera | Nanyang Technological University, Singapore

8:55 AM–9:20 AM

[O-44] Microparticles Sorting and Transporting Using Artificial Acoustic Field

Jiangyu Li | University of Washington, United States

9:20 AM–9:45 AM

[O-45] Microscale Engineering of Remotely-powered Motile Microbots and Microcircuits

Orlin D. Velev | North Carolina State University, United States

9:45 AM–10:00 AM

[O-46] Propulsion of Helical Micropropellers in Porous Biological Fluids

Zhiguang Wu | Max Planck Institute for Intelligence System, Germany

10:00 AM–10:20 AM

----- Coffee Break -----

Session Ten | Chair: Jing Liu

10:20 AM–10:45 AM

[O-47] Supernova Explosion of a Dense Bacterial Droplet

Igor S. Aronson | Pennsylvania State University, United States

10:45 AM–11:10 AM

[O-48] Nanodevice Biointerfacing via Cell Membrane Cloaking

Liangfang Zhang | University of California San Diego, United States

11:10 AM–11:35 AM

[O-49] Magnetic Nanomotors to Improve Stroke Treatment

Yiping Zhao | University of Georgia, United States

11:35 AM–11:50 AM

[O-50] Manipulation of Oocytes by Magnetically Driven Microrobot on a Chip

Lin Feng | Beihang University, China

11:50 AM–12:05 PM

[O-51] Enzyme Powered Nano- and Micro-motors: From Fundamental Understanding Towards Biological Applications

Tania Patiño | Institut de Bioenginyeria de Catalunya (IBEC); Max Planck Institute for Intelligent Systems Institution, Spain

12:05 AM–12:20 PM

[O-52] Nanorobotic Lithography and Imaging

Jinxing Li | University of California San Diego, United States

12:20 PM–12:30 PM

Awards and Closing Ceremony

12:30 PM–2:00 PM

----- Lunch -----

End of Conference

Poster

Number	Abstract Title	Name & Affiliation
P-01	Acoustic Rotary Micromotors Activated by Ultrasound	Xiaolong Lu University Of California San Diego; Nanjing University Of Aeronautics And Astronautics, China
P-02	Vapour-mediated Movement of Droplet's Micromotors in the Air	Wenjuan Liu Nanjing Tech. University, China
P-03	Bubble Propelled Micromotors for Contaminated Water Remediation	Jemish Parmar Max-Planck Institute for Intelligent Systems, Institute for Bioengineering of Catalonia (IBEC), Spain
P-04	Sperm-hybrid Motor for Targeted Drug Delivery	Haifeng Xu Leibniz Insitute for Solid State and Materials Research Dresden (IFW Dresden), Germany
P-05	Remote Actuation of Magnetic Liquid Marble for Targeted Transportation and Controlled Drug Release	Ben Wang The Chinese University of Hong Kong, China
P-06	Stability Transitions in Swimming Direction of Flexible Superparamagnetic Microswimmers under Oscillating Magnetic Field	Dongdong Jin The Chinese University of Hong Kong, China
P-07	Characterizing Swimming Behavior of Three-particle Magnetic Microswimmer Using Rotating Magnetic Field	Qianqian Wang The Chinese University of Hong Kong, China
P-08	Magnetic Nanomotors; Optimization and Modeling	Yoni Mirzae Technion-Israel Institue of Technology, Israel
P-09	Micro-dumbbell Motor under Bubble-pair Propulsion	Tieyan Si Micro/Nanotechnology Research Center, Harbin Insitute of Technology, China
P-10	Light-triggered Active Colloid Ribbons	Zhihua Lin Micro/Nanotechnology Research Center, Harbin Insitute of Technology, China
P-11	Acoustic-powered Liquid Metal Nanoswimmers	Daolin Wang Micro/Nanotechnology Research Center, Harbin Institute of Technology, China

Poster

Number	Abstract Title	Name & Affiliation
P-12	Ultrasound Driving Erythrocyte Membrane-camouflaged Gold-CaCO ₃ Micromotor for Photothermal Treatment of Cancer Cells	Hongyue Zhang Micro/Nanotechnology Research Center, Harbin Institute of Technology, China
P-13	Bio-inspired Flexible Artificial Swimmers Propelled by Acoustic Field	Wei Wang Micro/Nanotechnology Research Center, Harbin Institute of Technology, China
P-14	Rolled-up Microactuators Array for Hydrogen Detection	Borui Xu Fudan University, China
P-15	Overcoming the Short-lived Marangoni Motion of Soap Boat Using Supramolecular Strategy	Mengjiao Cheng Beijing University of Chemical Technology, China
P-16	Mesoporous Silica Nano-rockets for Stimuli-responsive Drug Delivery	Yong Wang Harbin Institute of Technology (Shenzhen), China
P-17	Graphene Oxide Coated Mesoporous Silica Microcapsule Motor for Biopharmaceutical Macromolecular Delivery	Xiaojia Liu Harbin Institute of Technology (Shenzhen), China
P-18	New Insights into Self-electrophoretic Micromotors	Chao Zhou Harbin Institute of Technology (Shenzhen), China
P-19	Microsnorklers: Propulsion and Hovering of Hollow Micromotors by Bubble-Cavitation Catapulting Beneath Air-liquid Interface	Leilei Wang Xi'an University of Architecture and Technology, China
P-20	Magnetic Propelled Micro-/nanorobot	Tianlong Li Harbin Institute of Technology, China
P-21	Passive Diffusion of Au Nanoparticles in Swarming Bacteria	Jingjing Feng Tsinghua University, China
P-22	Orientation Dynamics Based Active Core-shell Nanoprobes of Catalytic Reactions	Qi Pan Tsinghua University, China
P-23	Effective Thermal Transport Properties in Multiphase Biological Systems Containing Carbon Nanomaterials	Feng Gong University of Electronic Science and Technology of China, China
P-24	Microgripper for 3D-micromanipulation	Felix S. Chandra Beihang University, China

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Number	Abstract Title	Name & Affiliation
P-25	Microrobot for 3D-Manipulating Cells on a Chip	Xiacong Wu Beihang University, China
P-26	The Design of High Precision Rotating Magnetic Field for the Orderly Arrangement of Flaky Particles	Yuguo Dai Beihang University, China
P-27	A Cationic Diode Based on Asymmetric Nafion Film Deposits	Daping He University of Bath; Wuhan University of Technology, China
P-28	Bubble-propelled Micromotors Based on Polyaspartic Acid/platinum Microtubes for Efficient Removal of Metal Ions	Xiaolei Wang Shandong Normal University, China
P-29	Research on Femtosecond Laser Ablation System and its Application	Fu-bin Wang Beijing Institute of Technology, China
P-30	MEMS Wet Etching Influence on the Structure of MEMS High-g Piezoresistive Accelerometers	Hua Zhang Beijing Institute of Technology, China
P-31	Dynamic Frequency Control for High-efficiency Power and Propulsion Force Transfer on a Wireless Power Transfer Based Micro-robot	Dongwook Kim Korea Advanced Institute of Science and Technology, Republic of Korea
P-32	Symmetric Shear Banding in Bacterial "Superfluids"	Shuo Guo University of Minnesota, United States
P-33	High-speed Tubular Catalytic Graphene Micromotors	Biran Zhang Beijing University of Chemical and Technology, China
P-34	Pressure-responsive Locomotion and its Potential Application in Powering Cardiac Pacemaker	Lina Zhang Beijing University of Chemical and Technology, China
P-35	Rolled-up Vanadium Dioxide Nanomembranes with Tunable MIT Temperature	Ziao Tian Fudan University, China
P-36	A New Technique for Self-Propelled Microtube by Thermal Degradation Method	Fei Ma Fudan University, China
P-37	Photocatalyst-medal Janus Micromotors with Light-induced Self-electrophoresis Propulsion	Renfeng Dong South China Normal University, China

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Number	Abstract Title	Name & Affiliation
P-38	Investigation on Two-Dimensional Channel Coding Algorithm for Data Transmission Through High Density Interconnects in 3D SiP	Zhensong Li Beijing University of Posts and Telecommunications, Beijing Information Science and Technology University, China
P-39	Dynamic Actuation of Programmed Composite Hydrogels	Xuemin Du Shenzhen Institutes of Advanced Technology, Chinese Academy of Science
P-40	The Development of Bioinspired Dry Adhesive Patch for Wearable Sensors	Hui Zhou Institute of Biomedical and Health Engineering, Shenzhen Institutes of Advanced Technology, Chinese Academy of Science, China
P-41	Diffusion of Active Dimers in a Couette Flow	Yunyun Li Tongji University, China
P-42	Chemotactic Dynamics of Catalytic Dimer Nanomotors	Jiangxing Chen Hangzhou Dianzi University, China
P-43	Micro- and Nanomotors at Work in Active Delivery: Challenge and Perspectives	Ming Luo Wuhan University of Technology, China
P-44	Swimming Oil Droplets Driven by a Repulsive Van der Waals Force from the Approach of Crystals	Leilei Xu Wuhan University of Technology, China
P-45	Mg-based Micromotors: Towards Functionalized Biocompatible and Degradable Micromachines	Chuanrui Chen Wuhan University of Technology; University of California San Diego, China
P-46	Dynamic Colloidal Molecules Maneuvered by Light-controlled Janus Micromotors	Yirong Gao Wuhan University of Technology, China
P-47	Light-controlled Double-phased Spherical Micromotors	Jianhua Zhang Wuhan University of Technology, China
P-48	Guidance of Microengines by Magnetically Responsive Topological Pathway	Fan Yang Wuhan University of Technology, China