

Program at a Glance

Arrival day: July 17 (Mon)		
18:00 – 20:00 Welcome reception & Registration		
1. day: July 18 (Tue)	2. day: July 19 (Wed)	3. day: July 20 (Thu)
08:30 Opening session		
09:00 Keynote talks	09:00 Keynote talks	09:00 Keynote talks
10:40 Coffee break	10:40 Coffee break	10:40 Coffee break
11:00 Plenary talks	11:00 Parallel sessions	11:00 Plenary talks
13:00 Lunch	13:00 Lunch	13:00 Lunch
14:00 Parallel sessions	14:00 Parallel sessions	14:00 Parallel sessions
16:00 Coffee break	16:00 Coffee break	16:00 Coffee break
16:20 Plenary talks	16:20 Plenary talks	16:20 Closing/Awards
18:20 End of the 1. day	18:50 End of the 2. day	17:00 End of the 3. day
19:30 – 21:30 Steering Committee meeting & dinner <i>(by invitation only)</i>		19:00 – 23:00 MARSS banquet
On-site exhibition: July 18 – 20 (Tue – Thu)		
After-work day: July 21 (Fri)		
Information on sightseeing options will be provided at the venue		

Technical Program: 1. Day – July 18

1. Day – July 18: Plenary sessions		Room C-631
09:00 – 10:40 Keynote talks Chair: Fumihito Arai / Nagoya Univ, JP		
09:00	Wireless control of miniaturized agents Sarthak Misra / Univ of Twente, NL	
09:50	Robotic cell manipulation: Surgery, diagnostics, and drug screen Yu Sun / Univ of Toronto, CA	
11:00 – 13:00 Plenary talks Chair: Metin Sitti / Max Plank Inst for Intelligent Systems, DE		
11:00	Uncalibrated three-dimensional microrobot control in a fluid environment J. F. Cooke, J. A. Piepmeier, H. Elbidweihy, Samara L. Firebaugh United States Naval Academy, US	
11:30	BioMEMS for controlling stem cell functionalities Pasi Kallio Tampere Univ of Technology, FI	
12:00	Patterned microwell arrays for single-cell analysis and drug screening W. Yang ^{a, b} , H. Yu ^{a, *} , Y. Wang ^a , Lianqing Liu^a ^a Shenyang Inst of Automation, CAS, CN; ^b Univ of CAS, Beijing, CN	
12:30	Multi-Agent systems using diamagnetic micro manipulation: From floating swarms to mobile sensors Ron Pelrine , A. Hsu, C. Cowan, A. Wong-Foy/ SRI International, US	
16:20 – 18:20 Plenary talks Chair: Pasi Kallio Tampere Univ of Technology, FI		
16:20	Recent progress in laser assisted digital selective nanomaterial processing Seung Hwan Ko / Seoul National Univ, KR	
16:50	The smallest and the fastest SMA actuator for micro- and nanorobotics Dmitry S. Kuchin , P.V. Lega, A.P. Orlov, V.V. Koledov, A.V. Irzhak Russian Academy of Sciences, Moscow, RU	
17:20	Topology optimization of the flexure hinges for precision engineering Benliang Zhu , M. Liu, Q. Chen, H. Li, X. Zhang, Y. Fu South China Univ of Technology, CN	
17:50	First takeoff of a flying microrobot with no moving parts Daniel S. Drew , K. S. J. Pister Univ of California, Berkeley, US	

1. Day – July 18: Parallel technical sessions		14:00 – 16:00
1-SpS1 Room L-2708	Multistimuli responsive untethered microsystems: Towards biomedical applications (Special session) Organized & chaired by Arianna Menciassi, Leonardo Ricotti, and Veronica Iacovacci / Scuola Superiore Sant'Anna, Pisa, IT	
14:00	Cell-based microrobots / Sukho Park ; DGIST, KR	
14:20	Multifunctional microswimmers toward biomedical applications Metin Sitti / Max Plank Inst for Intelligent Systems, DE	
14:40	Manipulation and injection of a fluorescence microsensor with multiple wavelength light / Hisataka Maruyama , H. Hashim, H. Takeuchi, T. Masuda, F. Arai; Nagoya Univ, JP	
15:00	Miniaturized magnetic robots for targeted therapy Veronica Iacovacci / Scuola Superiore Sant'Anna, Pisa, IT	
15:20	Magnetotactic bacteria as micro-carriers of thermal ablation agents Maryam S. Tabatabaei^a, H�el�ene Girouard^b, Sylvain Martel^a ^a Polytechnique Montr�eal, CA; ^b Univ of Montr�eal, CA	
15:40	Magnetolectric small-scale robots / Salvador Pan� i Vidal ; ETH, CH	
1-SpS2 Room M-2004	Imaging-guided micromanipulation (Special session) Organized & chaired by Ashis G. Banerjee / Univ of Washington, US	
14:00	Millimeter scale global visual field construction for atomic force microscopy based on automatic image stitching Yinan Wu , Y. Fang, X. Liu, X. Ren, J. Guo, X. Yuan / Nankai Univ, CN	
14:20	Automated 2D micro-assembly using diamagnetically levitated milli-robots Allen Hsu^a, C. Cowan^a, W. Chu^a, B. McCoy^a, A. Wong-Foy^a, R. Pelrine^a, C. Velez^b, D. Arnold^b, J. Lake^c, J. Ballard^c, J. Randall^c ^a SRI International, US; ^b Univ of Florida, US; ^c Zyvex Labs, Richardson, TX, US	
14:40	Imaging-guided collision-free transport of multiple optically trapped beads K. Rajasekaran ^a , E. Umesh Samani ^b , J. Stewart ^a , Ashis Banerjee^a ^a Univ of Washington, US; ^b Indian Inst of Technology Gandhinagar, IN	
15:00	Vision based event classification in robotic micromanipulation Zoran Cenev , J. Ven�l�inen, Q. Zhou / Aalto Univ, FI	
15:20	Vision-based micro-force sensing mobile microrobots for intelligent micromanipulation Maria Guix , Z. An, J. Wang, B. V. Johnson, D. J. Cappelleri /Purdue Univ, US	
15:40	Development of direct patterning and visualization system for fabrication of hydrogel microstructure Hao Li , S. S. Lee, E. Choi, S. Cho, J.-O. Park / Chonnam National Univ, KR	

1. Day – July 18: Parallel technical sessions		14:00 – 16:00
1-SpS3	Micro/Nano fused devices	(Special session)
Room M-2203	Organized & chaired by Tie Li / SIMIT, Chinese Acad of Sci, CN	
14:00	Micro supercomputers for energy storage based on nanomaterials Xiaohong Wang / Tsinghua Univ, CN	
14:20	High sensitive cantilever sensors with branched DNA probes for multi-DNA detection Jinling Yang / Inst of Semiconductors, Chinese Acad of Sci, CN	
14:40	Fabrication of silicon nanowires on SOI wafers using top down techniques Zheyao Wang / Tsinghua Univ, CN	
15:00	Development of micromachined molecular seismometer Junbo Wang / Inst of Electrics, Chinese Acad of Sci, CN	
15:20	Reduce the quantum noise of Graphene resonator Huiquan Wang / Zhejiang Univ, CN	
15:40	Si nano-wire based sensor for explosive detection Shixing Chen / SIMIT, Chinese Acad of Sci, CN	
1-ReS1	Design and Fabrication (I)	
Room M-2002	Chair: Daniel S. Drew / Univ of California, Berkeley, US	
14:00	Design and dynamics analysis of a compact tattooing mechanism for a capsule endoscope / S. Joe ^a , D. Lee ^a , Byungkyu Kim ^a , B. Kang ^b , J.-O. Park ^b ^a Korea Aerospace Univ, KR; ^b Chonnam National Univ, KR	
14:20	Seeking optimal magnetic core shapes for strong gradient generation in dipole field navigation Maxime Latulippe , S. Martel / Polytechnique Montréal, CA	
14:40	Design and fabrication of a new micro-injector driven by piezoelectric actuator / Zehao Wu , L. S. Jeong, Q. Xu; Univ of Macau, SAR, CN	
15:00	Design and optimization of a compact, large amplification XY flexure-mechanism Joshua Pinski , B. Shirinzadeh, L. Clark / Monash Univ, AU	
15:20	MEMS aerodynamic control surfaces for millimeter-scale rockets Brian G. Kilberg , D. S. Contreras, J. Greenspun, K. S. J. Pister Univ of California, Berkeley, US	
15:40	An electrostatic MEMS filament micromanipulator for microrobots Craig Schindler , D. S. Contreras, J. Greenspun, K. S. J. Pister Univ of California, Berkeley, US	

Technical Program: 2. Day – July 19

2. Day – July 19: Plenary sessions		Room C-631
09:00 – 10:40 Keynote talks		Chair: Samara L. Firebaugh United States Naval Academy, US
09:00	Novel probes and probing systems in Atomic Force Microscopy: Applications in nanometrology and manipulation G. R. Jayanth Indian Inst of Science Bangalore, IN	
09:50	Force microscopy based nanorobotic system for multiscale manipulation and multiparametric characterization Zhendong Dai Nanjing Univ of Aeronautics and Astronautics, CN	
16:20 – 18:50 Plenary talks		Chair: Antoine Ferreira Univ d'Orléans, FR
16:20	Direct writing based on Weissenberg effect X. Mei, L. Deng, Daoheng Sun , Z. Zhou, L. Wang, Y. Zhao, D. Wu Xiamen Univ, CN	
16:50	In-plane positioning of flexible silicon-dioxide photonic waveguides K. Wu, Marcel Tichem Delft Univ of Technology, NL	
17:20	Control of multiple microrobots with multiscale magnetic field superposition Edward Steager , D. Wong, J. Wang, S. Arora, V. Kumar Univ of Pennsylvania, US	
17:50	Cell-based Microrobot Jong-Oh Park Chonnam National Univ, KR	
18:20	Modelling and characterization of a compliant tethered microgripper for microsurgical applications Maura Power , C. A. Seneci, A. J. Thompson, G.-Z. Yang Imperial College London, UK	

2. Day – July 19: Parallel technical sessions		11:00 – 13:00
2-SpS1 Room L-1710	Single cell isolation, manipulation, and analysis (I) Organized & chaired by Wenhui Wang / Tsinghua Univ, CN; David Juncker / McGill Univ, CA; and Peng Liu / Tsinghua Univ, CN	(Special session)
11:00	Ultrahigh through-put liquid biopsy Wei Wang / Peking Univ, CN	
11:24	Isolation and manipulation of cells and bacteria with microfluidics David Juncker / McGill Univ, CA	
11:48	Study of robotic system for automated oocyte manipulation J. Zhu ^a , L. Gao ^b , Peng Pan^b , Y. Wang ^a , R. Chen ^c , C. Ru ^b / ^a Shanghai Univ, CN; ^b Soochow Univ, CN; ^c The First Affiliated Hospital of Soochow Univ, CN	
12:12	Synthetic nanopore and tunneling junction for DNA sequencing application Jingwei Bai / Tsinghua Univ, CN	
12:36	Acoustic flow cytometry for high-throughput qualification of cancer cell malignancy / Han Wang ; Tsinghua Univ, CN	
2-SpS2 Room M-1420	Multi-agent microrobot systems Organized & chaired by Eric Diller / Univ of Toronto, CA; and David Cappelleri / Purdue Univ, US	(Special session)
11:00	Motion control analysis of two magnetic microrobots using the combination of magnetic gradient and oscillatory magnetic field Lyès Mellal^a , D. Folio ^b , K. Belharet ^c , A. Ferreira ^b ^a INSA de Rennes, IETR, UMR CNRS 6164; ^b Univ d'Orléans, FR; ^c Hautes Études d'Ingénieur, Châteauroux, FR	
11:20	Simultaneous control of spherical microrobots using catalytic and magnetic actuation Sambeeta Das , E.B. Steager, K.J. Stebe, V. Kumar Univ of Pennsylvania, US	
11:40	Designing local magnetic fields and path planning for independent actuation of multiple mobile microrobots David Cappelleri / Purdue Univ, US	
12:00	Design and simulation of a superconducting magnetic system for microrobotics applications Julien Leclerc ; Univ of Houston, US	
12:20	Control of multiple micro-agents by light Stefano Palagi / Max Plank Inst for Intelligent Systems, DE	
12:40	Multi-agent bacterial micro-robot systems Mahmood Mohammadi / Polytechnique Montreal, CA	

2. Day – July 19: Parallel technical sessions		11:00 – 13:00
2-ReS1	Manipulation and Control (I)	
Room M-1410	Chair: Igor Paprotny / Univ of Illinois at Chicago, US	
11:00	Magnetic field controlled locomotion of colloidal magnetic particle Sijie Ran , A. Guez, G. Friedman / Drexel Univ, US	
11:20	Laser-induced thermocapillary flow manipulation of microparticles with obstacle avoidance in a non-patterned fluidic environment Elvin M. Muñoz^a , J. E. Quispe ^a , S. Régnier ^b , E. Vela ^{a,c} / ^a Univ de Ingenieria y Tecnologia, PE; ^b Pierre et Marie Curie Univ, FR; ^c Univ of New Mexico, US	
11:40	Combining oscillating flow and clinical MRI gradients for targeted therapy Ning Li , C. Tremblay, S. Martel / Polytechnique Montréal, CA	
12:00	An RSS-based triangulation method for robot tracking in robotic swarms Sami Khorbotly , G.El-Howayek, A.Morrison, A.Roggow/Valparaiso Univ,US	
12:20	Finite State Machine (FMS) addressable MEMS microrobots: A new paradigm for controlling large numbers of MEMS microrobots Igor Paprotny , M. Žefran / Univ of Illinois at Chicago, US	
12:40	Dynamics of electrostatic inchworm motors for silicon microrobots Daniel Contreras , K. S. J. Pister / Univ of California, Berkeley, US	
2-ReS2	Design and Fabrication (II)	
Room L-1720	Chair: Seok Kim / Univ of Illinois at Urbana-Champaign, US	
11:00	3D SU-8 structures assembled via micro-Lego H. Keum, Seok Kim / Univ of Illinois at Urbana-Champaign, US	
11:20	Zero insertion force MEMS socket for microrobotics assembly Hani C. Gomez , D. S. Contreras, J. T. Greenspun, K. S. J. Pister Univ of California, Berkeley, US	
11:40	Integrated PZT-polymer microstructures for micro-robotic applications J. Choi, Jinhong Qu , M. Birla, K. R. Oldham / Univ of Michigan, US	
12:00	To the principal limitations of shape memory nanotools for manipulation and manufacturing / Peter V. Lega^a , D. S. Kuchin ^a , V. V. Koledov ^a , A. P. Orlov ^a , A. V. Irzhak ^b , N. Y. Tabachkova ^b , N. N. Kasyanov ^b ^a Russian Acad of Sci, Moscow, RU; ^b National Univ of Sci & Technol MISiS, RU	
12:20	Microfabrication of magnetically attached end effectors for micro/milli robots / Camilo Velez , D. P. Arnold; Univ of Florida, US	
12:40	Design of a rotary dielectric elastomer actuator using topology optimization method / N. Wang, H. Guo, B. Chen, X. Zhang (presented by Benliang Zhu) / South China Univ of Technology, CN	

2. Day – July 19: Parallel technical sessions		14:00 – 16:00
2-SpS3	Emerging micro- and nanorobotic technology: (Special session)	
Room L-1710	From nanomaterials to devices	
	Organized & chaired by Li Zhang / Chinese Univ of HK, SAR, HK	
14:00	Modelling and control of catalytic micro robots Antoine Ferreira / Univ d'Orlèans, FR	
14:20	Biodegradable polymer-based microrobot for drug delivery Hongsoo Choi / Daegu Gyeongbuk Inst of Sci & Technol (DGIST), KR	
14:40	Dumbbell-like magnetic micromachines for fluidic trapping and micromanipulation / Li Zhang ; Chinese Univ of Hong Kong, SAR, HK	
15:00	Micro-LEGO for multi small volume rapid fabrication Seok Kim / Univ of Illinois Urbana-Champaign, US	
15:20	Carbon nanomaterials in aqueous environment: characterization and applications / Tristan Petit ; Helmholtz Zent Berlin für Mater & Energie, DE	
15:40	Micro- & nanorobotic manipulation system for in-situ SEM characterization Yajing Shen / City University of Hong Kong, SAR, HK	
2-ReS3	Manipulation and Control (II)	
Room M-1420	Chair: Jong-Oh Park / Chonnam National Univ, KR	
14:00	Encapsulation and manipulation of multiple cells using self-foldable micro-rolls / Tetsuhiko Teshima , H. Nakashima, Y. Ueno, S. Sasaki, C. S. Henderson, S. Tsukada / NTT Corp, Kanagawa, JP	
14:20	Calibration of atomic force microscope probes using a pneumatic micromanipulation system H. Zhang, D. Hussain, X. Meng, J. Song, Hui Xie / Harbin Inst of Technol, CN	
14:40	Optimization-based formation control of underactuated magnetic microrobots via inter-agent forces Mohammad Salehizadeh , E. Diller / Univ of Toronto, CA	
15:00	Preliminary investigation of particle mobility enhancement in electrophoretic deposition with modulated electric fields David Pritchett , K. Ehmann, J. Huang / Northwestern Univ, US	
15:20	Modeling and validation of a magnetic actuator based rectangular permanent magnets / Walid Amokrane ^a , K. Belharet ^a , M. Souissi ^a , A. Ferreira ^b / ^a HEI Châteauroux, FR; ^b Univ d'Orlèans, FR	
15:40	Manipulation of tumor targeting cell-based microrobots carrying NIR light sensitive therapeutics using EMA system and chemotaxis / Van Du Nguyen , S. Zheng, V. H. Le, J. Han, J.-O. Park; Chonnam National Univ, KR	

2. Day – July 19: Parallel technical sessions		14:00 – 16:00
2-ReS4	Automation (I)	
Room M-1410	Chair: Quan Zhou / Aalto Univ, FI	
14:00	Hybrid microassembly combining laser die transfer and capillary self-alignment / B. Chang ^{a,b} , M. Koverola ^b , Z. Ge ^a , Quan Zhou ^b ^a Shaanxi Univ of Sci and Technol, CN; ^b Aalto Univ, FI	
14:24	Combining scanning microscopy and robotics: Automated analysis and manipulation on the small scale M. Bartenwerfer ^a , T. Tiemerding ^b , Olaf C. Haenssler ^{a,c} , S. Fatikow ^{a,b} ^a Univ of Oldenburg, DE; ^b OFFIS, DE; ^c Univ of Lille, FR	
14:48	Machine learning approach for breast cancer localization Kihan Park , J. P. Desai / Georgia Inst of Technology, US	
15:12	Stereo-image rectification for dense 3D reconstruction in SEM Andrey V. Kudryavtsev , S. Dembélé, N. Piat / FEMTO-ST, Besançon, FR	
15:36	Trajectory planning for vascular navigation from 3D angiography images and vessel centerline data Arash Azizi , C. Tremblay, S. Martel / Polytechnique Montréal, CA	
2-ReS5	Measurement & Characterization	
Room L-1720	Chair: Lianqing Liu / Shenyang Inst of Automation, CAS, CN	
14:00	Experimental investigation of the impact of SEM chamber conditions on the contact resistance of in-situ nanoprobings/ Juntian Qu , X.Liu; McGill Univ,CA	
14:20	A magnetometer for estimating the moment of magnetic micro-particle in three dimensions / P. Punyabrahma , G. R. Jayanth; IIS, Bangalore, IN	
14:40	Pneumatically actuated elastomeric device for simultaneous mechanobiological studies and live-cell fluorescent microscopy Joose Kreutzer ^a , M. Viehrig ^a , A.-J. Mäki ^a , P. Kallio ^a , R. Rahikainen ^b , V. Hytönen ^b / ^a Tampere Univ of Technology, FI; ^b Univ of Tampere, FI	
15:00	Characterizations of magnetotactic bacteria conjugated versus unconjugated with carboxylate-functionalized superparamagnetic iron oxide nanoparticles for tumor targeting purposes / Yasamin Majedi , D. Loghin, M. Mohammadi, S. Martel; Polytechnique Montreal, CA	
15:20	A micro-mechanical compliant device for individual cell-stretching, compression, and in-situ force measurement Somanna Kollimada , S. Khan, S. Balakrishnan, S. R. Raju, M. S. Suma, G. K. Ananthasuresh / Indian Inst of Science, Bangalore, IN	
15:40	Hardness determination at nanoscale by ultrasonic vibration-assisted AFM J. Shi ^{a,b} , Lianqing Liu ^a , P. Yu ^a , Y. Cong ^a / ^a SIA, CAS, CN; ^b Univ of CAS, CN	

Technical Program: 3. Day – July 20

3. Day – July 20: Plenary sessions		Room C-631
09:00 – 10:40 Keynote talks Chair: Kornel Ehmann /Northwestern Univ, US		
09:00	The robotic dexterity at microscale: Toward a robotic nanohand Michaël Gauthier FEMTO-ST, Besançon, FR	
09:50	The mechanical and tribological properties of nanostructures Han Huang Univ of Queensland, AU	
11:00 – 13:00 Plenary talks Chair: Sarthak Misra / Univ of Twente, NL		
11:00	Locomotion of light-driven soft microrobots through a hydrogel via local melting Stefano Palagi^{a,b} , A. G. Mark ^a , K. Melde ^a , T. Qiu ^a , H. Zeng ^c , C. Parmeggiani ^{d,e} , D. Martella ^d , D. S. Wiersma ^d , P. Fischer ^{a,f} ^a Max Planck Inst for Intelligent Systems, DE / ^b Max Planck ETH Center for Learning Systems, DE / ^c Tampere Univ of Technol, FI / Univ Florence, IT / ^e CNR-INO, IT / ^f Univ Stuttgart, DE	
11:30	Platform technology for metrology, manipulation and automation at the nanoscale N. Sarkar, D. Strathearn, G. Lee, M. Olfat, Raafat R. Mansour ICSPI Corp; Univ of Waterloo, CA	
12:00	Multi-particle acoustic manipulation on a Chladni plate K. Latifi, H. Wijaya, Quan Zhou Aalto Univ, FI	
12:30	Sooner than expected, cancer treatments may rely on medical nanorobotics Sylvain Martel Polytechnique Montreal, CA	
16:20 – 17:00 Award ceremony Closing session		
19:00 – 23:00 Banquet on a boat cruise on the St-Laurence River		

3. Day – July 20: Parallel technical sessions		14:00 – 16:00
3-SpS1 Room L-2708	Single cell isolation, manipulation, and analysis (II) Organized & chaired by Wenhui Wang / Tsinghua Univ, CN; David Juncker/ McGill Univ, CA; and Peng Liu / Tsinghua Univ, CN	(Special session)
14:00	High-throughput superhydrophobic microwell array for phenotypic and genotypic cell assays Peng Liu / Tsinghua Univ, CN	
14:24	Integrating nanopore sensors within microfluidic devices for biomolecular analysis Michel Godin / Univ of Ottawa, CA	
14:48	Microfluidic-based Raman activated single cell sorting and down stream analysis Bo Ma / Qingdao Inst of Bioenergy and Bioprocess Technology, CAS, CN	
15:12	Live single cell labelling via photobleaching Santiago Costantino / Université de Montréal, CA	
15:36	Optofluidics-based label-free and real-time monitoring of single-cell attachment on nanostructured plasmonic surface Wenhui Wang / Tsinghua Univ, CN	
3-SpS2 Room L-2710	Microwave Imaging, Probing & Nanorobotics Organized & chaired by Olaf C. Haenssler Univ of Oldenburg, DE	(Special session)
14:00	Microwave near-field imaging of emerging electronic materials Pavel Kabos / National Inst of Standards & Technology, Boulder, CO, US	
14:24	Developments of Microwave Microscopy for application to biological samples M. Farina ^a , Daive Mencarelli ^a , A. Morini ^a , L. Pierantoni ^a , X. Jin ^b , J. Hwang ^b ^a Univ Politecnica delle Marche, IT; ^b Lehigh Univ, US	
14:48	Memristor device characterization by Scanning Microwave Microscopy G. Sassine ^a , N. Najjari ^a , N. Defrance ^a , O. C. Haenssler ^{a,b} , D. Theron ^a , F. Alibart ^a , Kamel Haddadi ^a / ^a Univ of Lille, FR; ^b Univ of Oldenburg, DE	
15:12	Quantitative evaluation of permittivity at the nanoscale based on the force-distance-curve measurement of Microwave AFM Yang Ju / Nagoya Univ, JP	
15:36	Test standard for Light, Electron and Microwave Microscopy to enable robotic processes Olaf C. Haenssler ^{a,b} , A. Kostopoulos ^c , G. Doundoulakis ^d , E. Aperathitis ^c , S. Fatikow ^a , G. Kiriakidis ^{c,d} / ^a Univ of Oldenburg, DE; ^b Univ of Lille, FR; ^c Foundation for Research & Technol, Heraklion, GR; ^d University of Crete, GR	

3. Day – July 20: Parallel technical sessions		14:00 – 16:00
3-SpS3	Advanced microsystems for aerospace	(Special session)
Room M-2004	Organized & chaired by Huiquan Wang Zhejiang Univ, CN	
14:00	Design for motion control system of micro quadrotor based on MEMS sensors Linxi Dong / Hangzhou Dianzi Univ, CN	
14:24	SiNW based bionic gas sensor Tie Li / SIMIT, Chinese Acad of Sci, CN	
14:48	New miniaturized integrated optical gyroscopes for aerospace applications Huilian Ma / Zhejiang Univ, CN	
15:12	High performance and reliability Integrated Electronics System for pico-satellites Huiquan Wang / Zhejiang Univ, CN	
15:36	Demonstration and verification of satellite formation flying based on micro thrust system Xiang Zhang / Nanjing Univ of Sci and Technol, CN	
3-ReS1	Micro/Nano Robots	
Room M-2203	Chair: Hongsoo Choi Daegu Gyeongbuk Inst of Sci & Technol (DGIST), KR	
14:00	Sub-millimeter electropermanent magnets for microgrippers Camilo Velez^a , D. P. Arnold ^a , Z. I. Gonzalez ^b , J. F. Osma ^b ^a Univ of Florida, US; ^b Univ de los Andes, Bogotá, CO	
14:24	Fabrication and characterization of the capsule microrobot for targeted drug delivery Seungmin Lee , So. Kim, Sa. Kim, J.-Y. Kim, C. Moon, H. Choi, B. J. Nelson ^a Daegu Gyeongbuk Inst of Sci & Technol (DGIST), KR; ^a ETH Zurich, CH	
14:48	Development of hyaluronic acid microcargo for therapeutic bacteriobots Shaohui Zheng , S. Cho, V. D. Nguyen, E. Choi, J. Han, J.-O. Park Chonnam National Univ, KR	
15:12	Mechanisms for jumping microrobots Joseph Greenspun , K. S. J. Pister Univ of California, Berkeley, US	
15:36	Characterization of the biomedical semi-microdriller for 3D manipulation Sunkey Lee , J.-Y. Kim, S. Lee, S. Kim, H. Choi Daegu Gyeongbuk Inst of Sci & Technol (DGIST), KR	

3. Day – July 20: Parallel technical sessions		14:00 – 16:00
3-ReS2	Automation (II)	
Room	Chair: Julien Leclerc / Univ of Houston, US	
M-2002		
14:00	Design and simulation of a superconducting magnetic system for milli/microrobotics applications Julien Leclerc^a , A. Becker ^a , N. Tsekos ^a , K. Berger ^b , J. Lévêque ^b ^a Univ of Houston, US; ^b Univ of Lorraine, FR	
14:24	Portable control systems for multiple micro-robots by using a pulse-width modulation E. Pengwang, Noppawat Cha-on King Mongkut's Univ of Technology Thonburi, TH	
14:48	Single grid image based calibration of an optical microscope Hai Li , X. Zhang, B. Zhu / South China Univ of Technology, CN	
15:12	Indirect MPI-based detection of superparamagnetic nanoparticles transported by computer-controlled magneto-aerotactic bacteria Kévin Gagné , C. Tremblay, Y. Majedi, M. Mohammadi, S. Martel Polytechnique Montréal, CA	
15:36	Manipulation and control of microrobots using a novel permanent magnet stage S. Sheckman ^a , L. W. Rogowski ^a , H. Kim ^a , Julien Leclerc^b , S. Manzoor ^b , L. Huang ^b , X. Zhang ^a , A. T. Becker ^b , M. J. Kim ^a ^a Southern Methodist Univ, US; Univ. of Houston, US	