MHS2016

2016 International Symposium on Micro-NanoMechatronics and Human Science
(From Micro & Nano Scale Systems to Robotics & Mechatronics Systems)
Symposium on “Hyper Bio Assembler for 3D Cellular System Innovation”
Grant-in-Aid for Scientific Research on Innovative Areas, MEXT, Japan
Symposium on “Understanding brain plasticity on body representations to promote their adaptive functions” Grant-in-Aid for Scientific Research on Innovative Areas, MEXT, Japan
Nov. 28 - 30, 2016, Nagoya, Japan

November 28 (Mon)
Location: Noyori Conference Hall

Opening Remarks

Chairperson:

09:00-9:20 Prof. Toshio Fukuda, Meijo University, Japan (Honorary Chair)
Prof. Tatsuo Arai, Osaka University, Japan (General Co-Chairs)
Prof. Fumihito Arai, Nagoya University, Japan (General Co-Chair)
Prof. Jun Ota, The University of Tokyo, Japan (General Co-Chair)

Plenary Talk

Chairperson: Fumihito Arai, Nagoya University

09:20-10:10 Plenary Talk 1
Microengineered Devices for Cells, Tissues and Organs
Prof. Nancy Allbritton, Department of Biomedical Engineering, North Carolina State University, USA

10:10-10:20 Coffee Break

Chairperson: Tatsuo Arai, Osaka University

10:20-11:10 Plenary Talk 2
Nanogel Techtonics for Biomedical Application
Prof. Kazunari Akiyoshi, Department of Polymer Chemistry, Kyoto University, Japan
Chairperson:

11:10-12:00    Plenary Talk 3
Engineering Perfusable Blood and Lymphatic Vessels for Organ-on-Chip Platforms
*Prof. Noo Li Jeon, School of Mechanical and Aerospace Engineering, Seoul National University, Korea*

12:00-13:00    Lunch
Poster session I

Chairperson: Yasushi Mae, Osaka University

13:00-14:00

MP-01 An Approach to Object Recognition for a Power Distribution Line Maintenance Robot. The Case of Identifying a Mechanical Bolt to be Tightened with a Nut
Motoki Koike, Koichi Kurabe, Kyohei Yamashita, Yukiko Kato, Koji Jinno and Kyoichi Tatsuno, Meijo University

MP-02 Remote Operation of a Robot for Maintaining Electric Power Distribution System using a Joystick and a Master Arm as a Human Robot Interface Medium
Kyohei Yamashita, Yukiko Kato, Koichi Kurabe, Motoki Koike, Koji Jinno, Kazumasa Kito, Kyoichi Tatsuno and Mohammed Tarhri Sgalli, Meijo University

Kouji Jinno, Koichi Kurabe, Kyohei Yamashita, Motoki Koike, Yukiko Kato and Kyoichi Tatsuno, Meijo University

MP-04 Directional Photo-Transportation on Micro Solid Particles in a Solution: A Novel Application of Visible Laser
S. Seo, H. Matsuura, K. Sadakane and K. Yoshikawa, Doshisha University

MP-05 Action of Newly Developed Tetrazolato-bridged Dinuclear Platinum(II) Complexes as the Candidate of Effective Antitumor Drug on the Structure of Large DNA
Shinsuke Masuoka, Yuta Shimizu, Yuko Yoshikawa, Seiji Komeda, Takahiro Kenmotsu, Koichiro Sadakane and Kenichi Yoshikawa, Doshisha University

MP-06 Investigation of Whole-body Vibration of Passenger Sitting on Wheelchair and of Passenger Sitting on Wheelchair Loaded on Lifter
Kazuto Miyawaki and Daiki Takahashi, National Institute of Technology, Akita College

MP-07 Task Performance Test on Grasping the Bolt by a Power Distribution Line Maintenance Experimental Robot System
Yukiko Kato, Motoki Koike, Koichi Kurabe, Koji Jinno and Kyohei Yamashita, Meijo University
MP-08 Relocation of Individual Cells to Form Patterns based on Dielectrophoresis using Microdisk Electrode with Cavity
Tomoyuki Yasukawa, Taishu Tanaka and Fumio Mizutani, University of Hyogo

MP-09 Measurement of Mechanical Characteristics for Soft Materials by using Medical Robot with Piezoelectric Tactile Sensors
Makoto Nokata and Sho Kato, Ritsumeikan University

MP-10 Indoor Monitoring System for Elderly Based on ZigBee Network
Hao Liu, Jian Huang, Changchuan Lu, Zhi Lan and Qiang Wang, Huazhong University of Science and Technology

MP-11 Study on the Effects of the Hierarchical Structures of Collagen Gels on the Morphologies of Engineered Liver Cancer Tissues
Kazuya Furusawa and Masayuki Tsuchida, Hokkaido University

MP-12 Improvement of Sensitivity of Force Sensor Probe using Quartz Crystal Resonator
Noriaki Hasegawa, Shinya Sakuma, Ayaka Sato and Fumihito Arai, Nagoya University

MP-13 Fabrication of Dura Mater Model for Medical Simulator
Takuya Uda, Masahiro Nakajima, Akiyuki Hasegawa, Akihiko Ichikawa, Akio Morita, Masaru Takeuchi and Toshio Fukuda, Meijo University

MP-14 Development of a Virtual Reality Simulator for Robotic Brain Tumor Resection
S. Heredia, M. M. Marinho, T. Ikemoto, K. Harada, M. Mitsuishi, M. Padilla and J. Marquez, National Autonomous University of Mexico

MP-15 A Micro Channel Device for Biomechanical Analysis to Apply a Mechanical Stimulus on Large Number of Cells
Masahiro Totani, Masaru Kojima, Mitsuhiro Horade, Kazuto Kamiyama, Yasushi Mae, Toshihiko Ogura, Makoto Kaneko and Tatsuo Arai, Osaka University

MP-16 Selective Channel Fabrication by Local Heating for Cell Patterning
Tomoyuki Oya, Masaru Takeuchi, Kenichi Ohara, Akihiko Ichikawa, Masahiro Nakajima and Toshio Fukuda, Meijo University

MP-17 Neck Myoelectric Signal Control-type Speaking Valve with Low Flow Resistance: Proposal of Asymmetric Type Baffle Plate
Katsutoshi Oe and Masaaki Mizoguchi, Daiichi Institute of Technology
MP-18  Multi Fluorescence Microsensors for Spatiotemporal Measurement of Culture Environment in a Microfluidic Chip
Keisuke Takagi, Hisataka Maruyama, Taisuke Masuda, Osamu Suzuki and Fumihito Arai, Nagoya University

14:00-14:15  Coffee Break
Plenary Talk

Chairperson:

14:15-15:05  Plenary Talk 4
Bionic Humanoids Propelling New Industrial Revolution -Concept and First Prototypes-
Prof. Kanako Harada, Department of Bioengineering, School of Engineering, The University of Tokyo, Japan

15:05-15:20  Coffee Break

Session MP1-1: (Organized Session 4) : Bionic Humanoid and Surgical Systems

Conference Room 1

Chairperson: Hisataka Maruyama, Nagoya University
Jun Nakanishi, Nagoya University

15:20-15:50  Keynote Talk 1
Micro Sensors and Actuators for Minimally Invasive Medical Devices and Bionic Humanoid
Tadao Matsunaga and Yoichi Haga, Tohoku University

15:50-16:05  Conceptual Design of a Versatile Robot for Minimally Invasive Transnasal Microsurgery

16:05-16:20  Training System Using Bionic-eye for Internal Limiting Membrane Peeling
Yusei Someya, Seiji Omata, Takeshi Hayakawa, Mamoru Mitsuishi, Naohiko Sugita, Kanako Harada, Yasuo Noda, Takashi Ueta, Kiyoto Totsuka, Fumiuki Araki, Hajime Aihara and Fumihito Arai, Nagoya University

16:20-16:35  3D Blood Vessel Model with Temperature Indicator for Evaluating Thermal Damage during Surgery
Takafumi Watanabe, Hisataka Maruyama, Takeshi Hayakawa and Fumihito Arai, Nagoya University
Session MP2-1: (Organized Session 5) : Bionic Synthesizers and Ex Vivo Analysis
Conference Room 2

Chairperson: Taisuke Masuda, Nagoya University
Seiji Omata, Nagoya University

15:20-15:50 Keynote Talk 2
Tissue Engineering Approaches with/without Scaffold
Katsuko S Furukawa, The University of Tokyo

15:50-16:05 A New Engineering System for the Study of Cell Mechanobiology
Huge Jile, Tsubasa S. Matsui and Shinji Deguchi, Osaka University

16:05-16:20 Relationship between Dynamic Stress Field and ECM Production in Regenerated Cartilage Tissue
Keisuke Fukuda, Yoshifumi Shigyo, Hideaki Ariura, Seiji Omata, Takehiro Morita, Tetsuo Yamaguchi and Yoshinori Sawae, Kyushu University

16:20-16:35 Development of Organs-on-a-Chip with Metabolism Model
Tatsuto Ono, Teruo Fujii, Yasuyuki Sakai and Hiroshi Kimura, Tokai University

16:35-16:50 A Novel Electrolyte Free Solid State pH Sensor for Bio-MEMS Applications
Ganesh Kumar Mani, Yutaka Yasoda, Gaku Tsuruzoe, Fumio Eura and Kazuyoshi Tsuchiya, Tokai University

16:50-17:05 Coffee Break
Session MP1-2: (Organized Session 2) : Bio Assembler - 1

Conference Room 1

Chairperson: Masumi Yamada, Chiba University
Yoshikatsu Akiyama, Tokyo Women's Medical University

17:05-17:20 Characterization of Poly(N-isopropylacrylamide) Gel Grafted Polydimethylsiloxane as Temperature-responsive Cell Culture Substrate
Yoshikatsu Akiyama, Miki Matsuyama, Naoya Takeda, Masayuki Yamato and Teruo Okano, Tokyo Women’s Medical University

17:20-17:35 ECM-mimicking Thermoresponsive Surface for Manipulating Hepatocyte Sheets with Maintenance of Hepatic Functions
Jun Kobayashi, Yoshikatsu Akiyama, Masayuki Yamato and Teruo Okano, Tokyo Women’s Medical University

17:35-17:50 Functional and Microstructural Regulation of Three-dimensional Tissues by using Extraceullar Matrix
Fumiya Tao, Shigehisa Aoki and Nobuhiko Kojima, Yokohama City University

17:50-18:05 The Effect of Three-dimensional Culture on The Ameloblastic Differentiation of Dental Epithelial Cells
Takahisa Anada, Mayu Tadaki, Yukari Shiwaku, Takashi Nakamura, Masanori Nakamura, Masaru Kojima, Tatsuo Arai, Satoshi Fukumoto and Osamu Suzuki, Tohoku University

18:05-18:20 Microfluidics-based Wet Spinning of Protein Microfibers as Solid Scaffolds for 3D Cell Cultivation
Hisataka Hiramatsu, Ayaka Hori, Yuya Yajima, Masumi Yamada and Minoru Seki, Chiba University

18:20-18:35 Development of Electrical Impedance Tomography System for Cell Sedimentation Detection in Electrode-multilayered Microchannel
Xiayi Liu, Yahui Cui, Jiafeng Yao, Hiromichi Obara, Tong Zhao and Masahiro Takei, Chiba University
Session MP2-2 (Organized Session 10): Intelligent Robot and Assistive Technology
Conference Room 2

Chairperson: Yasuhisa Hasegawa, Nagoya University
Ohara Kenichi, Meijo University

17:05-17:20 A Facial Wearable Robot with Eyelid Gating Mechanism for Supporting Eye Blink
Yuta Kozaki and Kenji Suzuki, University of Tsukuba

17:20-17:35 User Intention Estimation by Grip Sensor for Cane-type Walking Support Robot
Kento Yamada, Kenichi Ohara, Akihiko Ichikawa and Toshio Fukuda, Meijo University

17:35-17:50 Coordinated Movement Algorithm for Accompanying Cane Robot
Shunki Itadera, Takahiro Watanabe, Yasuhisa Hasegawa, Toshio Fukuda
Masanori Tanimoto and Izumi Kondo, Nagoya University

17:50-18:05 Human-Robot Coordination Stability for Fall Detection and Prevention Using Cane Robot
Qingyang Yan, Jian Huang and Zhiwei Luo, Huazhong University of Science and Technology

18:05-18:20 Modeling of the High-speed Running Humanoid Robot
Tomoro Ota, Kenichi Ohara, Akihiko Ichikawa, Taisuke Kobayashi,
Yasuhisa Hasegawa and Toshio Fukuda, Meijo University

18:20-18:35 Change Detection of Environmental Conditions based on Strength of Wireless LAN Signals using Micro Controllers
Tomohiro Umetani, Takuya Nakagawa and Yuichi Tamura, Konan University

18:45-19:45 Beer Party
November 29 (Tue)
Location: Noyori Conference Hall

Session TA1-1: (Organized Session 2) : Bio Assembler - 2

Chairperson: Masaru Kojima, Osaka University
Chia-Hung Tsai, Osaka University

09:00-09:15 Mechanical Characterization of Spheroids by Force Sensor Probe using Quartz Crystal Resonator
Ayaka Sato, Shinya Sakuma, Nobuhiko Kojima, Fumiya Tao and Fumihito Arai, Nagoya University

09:15-09:30 Elasticity Evaluation of Single Cell with Uniaxial Deformation in Microfluidic Chip
Hirotaka Sugiura, Shinya Sakuma, Makoto Kaneko and Fumihito Arai, Nagoya University

09:30-09:45 Buckling of RBC Under Positive and Negative Driving Pressure in a Microchannel
Chia-Hung Dylan Tsai, Manh Hao Phan and Makoto Kaneko, Osaka University

09:45-10:00 Assembly of Hepatic Lobule-like Microtissue with Repetitive Single-Step Contact Manipulation
Zeyang Liu, Masaru Takeuchi, Masahiro Nakajima, Toshio Fukuda, Yasuhisa Hasegawa and Qiang Huang, Nagoya University

10:00-10:15 Generation of Swirl Flow for Non-Contact Rotation of Micro Objects by Vibrating Glass Needle
Xiaoming Liu, Masaru Kojima, Qing Shi, Yasushi Mae, Qiang Huang, Tatsuo Arai and Toshio Fukuda, Beijing Institute of Technology

10:15-10:30 Automatic Manipulation of Microspheres with Two-fingered Microhand
Eunhye Kim, Masaru Kojima, Yasushi Mae and Tatsuo Arai, Osaka University
Session TA2-1: (Organized Session 3) : Bio-manipulation and Its Applications
Conference Room 2

Chairperson: Akira Yamada, Aichi Institute of Technology
Masahiro Nakajima, Nagoya University

09:00-09:15 A Miniaturized Microfluidic pH Measurement Device using ISFET Sensors
Yuta Sasaki, Masashi Nobukuni and Akira Yamada, Aichi Institute of Technology

09:15-09:30 Nanomaneulator based on a High-speed Atomic Force Microscope Capable of Controlling a Cantilever Loading Force using a Magnetic Solenoid
Kohei Iwasaki, Yuki Takeda and Futoshi Iwata, Shizuoka University

09:30-09:45 Fabrication Method of Artificial Integrated Muscle Fiber toward Bio-actuator
Yuta Iwamoto, Kenichi Ohara, Masaru Takeuchi, Akihiko Ichikawa and Toshio Fukuda, Meijo University

09:45-10:00 A Study on Design of a Small Diameter Compliant Gripper with Long Elastic Fingers for Flexible Endoscopy
Hiroki Ando, Saitama Institute of Technology

10:00-10:15 Cell Sheets Fabrication with Mimicking Morphology of Liver Lobule Tissue by Electrodeposition
Minmin Lu, Zeyang Liu, Masahiro Nakajima, Masaru Takeuchi, Yasuhisa Hasegawa, Toshio Fukuda and Qiang Huang, Nagoya University

10:15-10:30 Design of Wave-shaped-micro-channel for Active Transportation of C. elegans
Y. Baba, M. Nakajima, A. Ichikawa and T. Fukuda, Meijo University

10:30-10:45 Coffee Break
Session TA1-2: (Organized Session 9) : Human Interface and Multimodal Interaction

ConferenceRoom 1

Chairperson: Jaeryoung Lee, Chubu University

10:45-11:15 Keynote Talk 3
Machine Learning for Affective Computing and its Applications to Automated Measurement of Human Facial Affect
Ognjen (Oggi) Rudovic, MIT Media Lab

11:15-11:30 Effectiveness of Robot Exhibition through Visitors Experience: A Case Study of Nagoya Science Hiroba Exhibition in Japan
Min-Gyu Kim, Jaeryoung Lee, Yuusuke Aichi, Hiroki Morishita and Munehiro Makino, Korea Institute of Robot and Convergence

11:30-11:45 Towards Developing an Algorithm in Discriminating Thin Material using Tri-axial Tactile Data from Human Tactile Sensation
Mohammad Azzeim Mat Jusoh, Kenji Sugiman, Masahiro Ohka, Tetsu Miyaoka and Anitawati Mohd Lokman, Universiti Teknologi MARA

11:45-12:00 Robot-play Therapy for Improving Prosocial Behaviours in Children with Autism Spectrum Disorders
Ryo Suzuki and Jaeryoung Lee, Chubu University

12:00-12:15 Experimental Study on Optimal Fusion of Translation Motion and Attitude Control for Multi-legged Robot with Redundant Joint
Kaho Kuroiwa, Hayato Mizumura, Tatsuya Hatori, Yusuke Hirama, Woong Choi, Yoichi Shigematsu, Nobuto Hirakoso, Hironoshin Kawabata and Tadao Arai, National Institute of Technology, Gunma College
Session TA2-2: (Organized Session 11) : Macro-system to Micro-fluidic Chip Interfacing Technologies

Chairperson:  
Shinya Sakuma, Nagoya University  
Yo Tanaka, RIKEN

10:45-11:15  
Keynote Talk 4  
Bridging World-to-Nanofluidics Interfaces through Nano-in-Nano Integration Technology  
Yan Xu, Osaka Prefecture University

11:15-11:30  
On-chip Cell Mechanical Characterization using Non-Tube Measurement System  
Kou Nakahara, Shinya Sakuma and Fumihito Arai, Nagoya University

11:30-11:45  
Mechanical Characterization System using On-chip Probe with Wide Range Actuation  
Keitaro Ito, Shinya Sakuma, Masaki Kimura, Takanori Takebe, Makoto Kaneko and Fumihito Arai, Nagoya University

11:45-12:00  
Agarose Micro-cast for the Patterned Differentiation of Mesenchymal Stem Cells  
Nobuyuki Tanaka, Tadahiro Yamashita, Viola Vogel and Yo Tanaka, RIKEN

12:00-12:15  
Real-time Observation and Stimulation of a Single Motile Cell Using High-speed Microrobotic Platform  
Belal Ahmad, Tomohiro Kawahara, Takashi Yasuda and Fumihito Arai, Kyushu Institute of Technology

12:15-13:00  
Lunch
Poster session II

Poster Area (1st floor)

Chairperson  
Yasushi Mae, Osaka University

13:00-14:00

TP-01 How Anticipation for the Sense of Agency Affects Readiness Potential  
Rin Minohara, Wen Wen, Shunsuke Hamasaki, Takaki Maeda, Qi An, Yusuke Tamura, Hiroshi Yamakawa, Atsushi Yamashita and Hajime Asama, The University of Tokyo

TP-02 Development of a System for Quantitative Evaluation of Motor Function using Kinect v2 Sensor  
Hirotaka Yoshida, Takeru Honda, Jongho Lee, Shiro Yano, Shinji Kakei and Toshiyuki Kondo, Tokyo University of Agriculture and Technology

TP-03 Improvement of a Tele-Presence Robot Autonomous Navigation using SLAM Algorithm  
Mohammed Tahri Sqalli, Kyoichi Tatsuno, Koichi Kurabe, Hiroto Ando, Hideharu Obitsu, Ryoma Itakura, Takatoshi Aoto and Katsumi Yoshino, Meijo University

TP-04 Research on and Education for Navigation Control of an Exploration Rover with Microwave Doppler Sensors (Fabrication of the Signal Processing Electrical Circuit)  
Masahiro Isogai and Yuya Takada, Aichi University of Technology

TP-05 Robot Arm Simulation using 3D Software Application with 3D Modeling, Programming and Simulation Support  
Sukarmur Che Abdullah, M. Azeem M. Jusoh, Nazri M. Nawi and M. Dzulhelmy Amari, Universiti Teknologi MARA

TP-06 Fluctuation of Standing Body: Large Difference on the Time-development between Left/right and Front/rear Fluctuations  
Hikari Baba, Satoshi Takatori, Koichiro Sadakane, Takahiro Kenmotsu and Kenichi Yoshikawa, Doshisha University

TP-07 An Object Grasp Comparison of Multi Degrees of Freedom Robot Fingers  
Yoichi Shigematsu, Osamu Azami, Mizuki Andou, Yusuke Hiram and Nobuto Hirakoso, National Institute of Technology, Gunma College
TP-08 Fabrication of Combinatorial Evaluation Substrates for Chlorine Evolution Electrode Catalyst
S. Takagi, M. Miyamoto, M. Mizoshiri, S. Hata and J. Sakurai, Nagoya University

TP-09 Analysis of Slow Dynamics of Kinematic Structure Estimation after Physical Disorder: Constructive Approach toward Phantom Limb Pain
Tomohiro Mimura, Yoshinobu Hagiwara, Tadahito Taniguchi, Tetunari Inamura and Shiro Yano, Ritsumeikan University

TP-10 Particle/Cell Manipulation and Sorting with Surface Acoustic Waves in a Microfluidic Device
Hoilun Tsoi, Akihiro Isozaki and Keisuke Goda, The University of Tokyo

TP-11 Development of the pH Measurement Sensor to be Mounted on the Oral Measurement Device
Gaku Tsuruzoe and Kazuyoshi Tsuchiya, Tokai University

TP-12 Electric Stimulation Feedback System for Lower Limb Exoskeleton - Evaluation of Reaction Time to Abnormal Situation of Lower-limb
Xufeng Wang, Mengze Li and Yasuhisa Hasegawa, Nagoya University

TP-13 E-SEM CT Observation of Collagen Scaffold Cultured Osteoblast Cells
Masahiro Nakajima, Kei Nagao, Masaru Takeuchi, Saki Yahata, Kazuya Furusawa and Toshio Fukuda, Nagoya University

TP-14 Vision-based Localization for Atomated UAV Automated Multicopter Control
Junpei Kishikawa, Kenichi Ohara, Takahiro Ikeda, Akihiko Ichikawa and Toshio Fukuda, Meijo University

TP-15 Hand Space Change After Use of Extra Robotic Thumb
Hiroshi Shikida and Yasuhisa Hasegawa, Nagoya University

TP-16 Manipulation and Injection of a Specific Magnetic Nanosensor using Optical Zeta Potential Control and Local Laser Heating
Hairulazwan Hashim, Hisataka Maruyama, Taisuke Masuda and Fumihito Arai, Nagoya University

TP-17 Sub-micrometer-scale Wire-based Intracellular Metal Microelectrode
Naoto Ito, Naoto Konno and Takashi K. Saito, Akita Prefectural University

TP-18 Fabrication of Brain Tumor for Medical Simulator
Akiyuki Hasegawa, Akihiko Ichikawa, Masahiro Nakajima, Akio Morita, Masaru Takeuchi and Toshio Fukuda, Meijo University

TP-19  Patterning Magnetic Particles Based on Localized Magnetic Field Gradients in Microchannels for Realization of Multi-Biosensors
Toshiki Minemura, Satoshi Soga, Moeto Nagai and Takayuki Shibata
Toyohashi University of Technology

14:00-14:15  Coffee Break
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<th><strong>Conference Room 1</strong></th>
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<td><em>Jun Ota, The University of Tokyo</em></td>
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<td>14:15-15:05</td>
<td><strong>Plenary Talk 5</strong></td>
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<td>Robotic Induction of Neuromodulation in Human Motor System</td>
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<td><em>Prof. Jun Ueda, Georgia Institute of Technology, USA</em></td>
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<td><strong>Chairperson:</strong></td>
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<td>15:05-15:55</td>
<td><strong>Plenary Talk 6</strong></td>
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<td>Engineered Tissues on Biomimicking LabChip</td>
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<td><em>Prof. Cheng-Hsien Liu, Department of Power Mechanical Engineering, National Tsing Hua University, Taiwan</em></td>
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<td>15:55-16:10</td>
<td><strong>Coffee Break</strong></td>
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Session TP1-1: (Organized Session 7) : Embodied-brain Systems Science

Conference Room 1

Chairperson: 
Toshiyuki Kondo, Tokyo University of Agriculture and Technology
Jun Ota, The University of Tokyo

16:10-16:40 Keynote Talk 5
Auditory Biofeedback during Walking Reduces Foot Contact Pressure in A Patient with Congenital Insensitivity to Pain
Arito Yozu, Dai Owaki, Tetsuro Funato and Nobuhiko Haga, The University of Tokyo Hospital

16:40-16:55 A New Approach to Direct Rehabilitation Based on Functional Electrical Stimulation and EMG Classification
Keisuke Shima and Koji Shimatani, Yokohama National University

16:55-17:10 Learning Process and Sense of Agency: Bayesian Learning or Not
Shiro Yano, Hiroshi Imamizu, Toshiyuki Kondo and Takaki Maeda, Tokyo University of Agriculture and Technology

17:10-17:25 Source Separation and Localization of Individual Superficial Forearm Extensor Muscles using High-Density Surface Electromyography
Becky Su, Shouhei Shirafuji, Tomomichi Oya, Yousuke Ogata, Tetsuro Funato, Natsue Yoshimura, Luca Pion-Tonachini, Scott Makeig, Kazuhiko Seki and Jun Ota, The University of Tokyo

17:25-17:40 Muscular-Skeletal Humanoid Robot for Body Image Construction
Koh Hosoda, Hajime Saito and Shuhei Ikemoto, Osaka University
Session TP2-1: (Organized Session 8): High-Speed Micro/Nano Technology

Chairperson: Takeshi Hayakawa, Nagoya University
Takanori Iino, Nara Institute of Science and Technology

16:10-16:40 Keynote Talk 6
Fast Force Loading on Biological Cell Driven by Femtosecond Laser and its Applications
Yoichiroh Hosokawa, Nara Institute of Science and Technology

16:40-16:55 High-speed On-chip Local Flow Control by Synchronized Actuation of Piezo-driven Dual Membrane Pumps
Yusuke Kasai, Shinya Sakuma, Takeshi Hayakawa and Fumihito Arai, Nagoya University

16:55-17:10 High-throughput Generation of Coalescence-free Droplets by Introducing Additional Oil with High Concentration of Surfactant
Naoki Tanaka, Akihiro Isozaki and Keisuke Goda, The University of Tokyo

17:10-17:25 Single cell Isolation from Micro-fluid Utilizing Femtosecond Laser-induced Impulsive Force
Takanori Iino, Hiroki Hagihara and Yoichiroh Hosokawa, Nara Institute of Science and Technology

17:25-17:40 In Situ Dynamic Control of Neurite Growth by Femtosecond Laser Ablation of Substrate Patterns
Kazunori Okano, Lin-Li Liu, Yoichiroh Hosokawa and Hiroshi Masuhara, Nara Institute of Science and Technology

18:00-20:00 Reception Party
Session WA1-1: (Organized Session 1) : Advanced Micro-Nano Systems for Biomedical Application

Conference Room 1

Chairperson: Hisataka Maruyama, Nagoya University
Akihiko Ichikawa, Meijo University

09:00-09:30  Keynote Talk 6
Can Optical Tweezers Go beyond Boundaries?
Tadao Sugiura, Sojo University

09:30-09:45  Label-free Electromagnetic Spheroid Manipulation Based on the Magneto-Archimedes Effect
Yoshitake Akiyama and Akio Watanabe, Shinshu University

09:45-10:00  3D Manipulation of Single Cells Using Dielectrophoretic Probe Array
Ryosaku Sakamoto, Takuro Saeki, Moeto Nagai and Takayuki Shibata,
Toyohashi University of Technology

10:00-10:15  The Study of Valved Hybrid Fractal Stent for the Next Generation Medical Care- The Blood Flow Simulation in Cerebral Aneurysm by CFD.
Kohei Shimogaito, Kenichi Ohara, Akihiko Ichikawa, Takashi Kubo and Toshio Fukuda, Meijo University
Session WA2-1: (Organized Session 6) : Cognitive Robotics  

Conference Room 2

Chairperson: Naoyuki Kubota, Tokyo Metropolitan University  
             Hiroyuki Masuta, Toyama Prefectural University

09:00-09:30  Keynote Talk 8  
The Concept of Direct Perception for Cognitive Robotics  
Hiroyuki Masuta, Tatsuo, Motoyoshi, Ken'ichi Koyanagi and Toru Oshima,  
Toyama Prefectural University

09:30-09:45  A Fundamental Study on the Effect of Vibration Stimulation on Triceps  
Brachii during Elbow Flexion motion for Perception-Assist  
Koki Honda and Kazuo Kiguchi, Kyushu University

09:45-10:00  Enhanced Robot Learning using Fuzzy Q-Learning & Context-Aware  
Middleware  
Charles C. Phiri, Zhaojie Ju, Naoyuki Kubota and Honghai Liu, The  
University of Portsmouth

10:00-10:15  Remote Multi-robot Cooperation for Human-robot Communication in  
Community-centric Systems  
Nan Shuo, Takenori Obo and Naoyuki Kubota, Tokyo Metropolitan University

10:15-10:30  Coffee Break
Plenary Talk

Chairperson:

10:30-11:00 Plenary Talk 7
Image-based Rapid and Non-invasive Cell Quality Evaluation using Morphological Informatics
Prof. Ryuji Kato, Department of Basic Medicinal Sciences, Graduate School of Pharmaceutical Sciences, Nagoya University, Japan

11:00-11:30 Plenary Talk 8
Supramolecular Nanofibers for Manipulating Nano- and Micro-materials
Prof. Masato Ikeda, Department of Biomolecular Science, Faculty of Engineering, Gifu University, Japan

11:30-11:40 Coffee Break

11:40-12:00 Award Ceremony

12:00-13:30 Lunch

13:30-15:00 Laboratory Tour

Conference Room 1

Nagoya University