

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

Conference Room 1

Chairperson: *Fumihito Arai, Nagoya University*

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

Conference Room 1

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 Tectonics for Biomedical Application
*Prof. Kazunari Akiyoshi, Department of Polymer Chemistry, Kyoto
University, Japan*

Chairperson: *Seiichi Hata, Nagoya University*

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**Poster Area(1st floor)**

Chairperson: *Yasushi Mae, Osaka University*
Seiichi Hata, Nagoya University
Yasuhisa Hasegawa, Nagoya 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 Sqalli, Meijo University
- MP-03 A SLAM Approach to Generation a 3D Map for a Robot that Performs Electrical Power Distribution Maintenance Work using a Laser Scanner.
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**Conference Room 1**

Chairperson: *Fumihito Arai, Nagoya University*

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 MPI-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
M. M. Marinho, A. Nakazawa, J. Nakanishi, T. Ueyama, Y. Hasegawa, J. Arata, M. Mitsuishi and K. Harada, The University of Tokyo

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, Fumiyuki 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 MPI-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 Extracellular 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

Conference Room 1

- 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
Hiroataka 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 Nanomanipulator 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

Conference Room 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 II) : Macro-system to Micro-fluidic Chip Interfacing Technologies

Conference Room 2

- 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*
 Seiichi Hata, Nagoya 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
Hiroataka 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
Sukarnur Che Abdullah, M. Azzeim 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 Hirama 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, Tadahiro Taniguchi, Tetsunari 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 Unibersity
- 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***

Plenary Talk

Conference Room 1

Chairperson: *Jun Ota, The University of Tokyo*

14:15-15:05 Plenary Talk 5
Robotic Induction of Neuromodulation in Human Motor System
Prof. Jun Ueda, Georgia Institute of Technology, USA

Chairperson: *Osamu Suzuki, Tohoku University*

15:05-15:55 Plenary Talk 6
Engineered Tissues on Biomimicking LabChip
*Prof. Cheng-Hsien Liu, Department of Power Mechanical Engineering,
National Tsing Hua University, Taiwan*

15:55-16:10 ***Coffee Break***

Session Session TPI-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

Conference Room 2

- 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**

November 30 (Wed)
Location: Noyori Conference Hall

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**

