MHS2012 & Micro-Nano Global COE

2012 International Symposium on Micro-NanoMechatronics and Human Science
(From Micro & Nano Scale Systems to Robotics & Mechatronics Systems)
Symposium on "COE for Education and Research of Micro-Nano Mechatronics"
The Global COE Program, Nagoya University
Symposium on "Hyper Bio Assembler for 3D Cellular System Innovation"
Grant-in-Aid for Scientific Research on Innovative Areas, MEXT, Japan
Nov. 4 - 7, 2012, Nagoya, Japan

November 4 (Sun)
Location: Noyori Conference Hall

21th International Micro Robot Maze Contest 2012

Categories:

Category 0:	Micro Robot Racer
Category 1:	Mountain Climbing Micro Robot Maze Competition
Category 2:	Autonomous Micro Robot Maze Competition
Category 3:	Legged Micro Robot Competition
Category 4:	Micro Robot Performance

Time Schedule:

09:30	Opening Ceremony
09:45	Category 0: Micro Robot Racer
11:30	Category2a: Fully Autonomous Micro Robot Maze Competition
12:00	Category3a: Biped Micro Robot Competition
12:20	Lunch Break
13:00	Category4: Micro Robot Performance
13:15	Category1: Teleoperated Micro Robot Maze Competition
14:15	Category2b: Remote-Controlled Micro Robot Maze Competition
15:25	Category3b: Multiple Legged Micro Robot Competition
16:00	Break
16:30	Award Ceremony and Closing

Optional Events

14:00-17:30 on Saturday, 3 November, 2012
Micro Robotics School for Junior and High School Students

9:00-12:30 on Sunday, 4 November, 2012
Micro Robotics School for Elementary School Children

November 5 (Mon)
Location: Noyori Conference Hall

Opening Remarks ***Conference Room 1***

Chairperson: *Goro Obinata, Nagoya University*

09:00-9:20 *President Michinari Hamaguchi, Nagoya University, Japan*
Prof. Toshio Fukuda, Nagoya University, Japan
Prof. Tatsuo Arai, Osaka University, Japan

Plenary Lecture ***Conference Room 1***

Chairperson: *Susumu Sugiyama, Ritsumeikan University*

09:20-10:10 Plenary Lecture 1
MEMS and Microsystems For Navigation, Sensing and Spectral Processing
Prof. Farrokh Ayazi, Georgia Institute of Technology, USA

10:10-10:20 ***Coffee Break***

Chairperson: *Ju Yang, Nagoya University*

10:20-11:10 Plenary Lecture 2
From High Efficient Protein Micro Chip Toward Ultra High Sensitive Single Molecule Nano Array
Prof. Fan-Gang Tseng, National Tsing-Hua University, Taiwan

Chairperson: *Tatsuo Arai, Osaka University*

11:10-12:00 Plenary Lecture 3
Design of Biointerface for High-Performance Biodevice
Prof. Yukio Nagasaki, University of Tsukuba, Japan

12:00-13:30 ***Lunch***

Chairperson: *Noritsugu Umehara, Nagoya University*

13:30-14:20 Plenary Lecture 4
Production of Carbon Nanotubes
Prof. Yoshinori Ando, Meijo University, Japan

Poster session I (GCOERA) ***Poster Area(1st floor)***

Chairperson: *Masahiro Ohka, Nagoya University*
Tomohide Niimi, Nagoya University

14:30-16:00

Micro-Nano GCOE Posters

P1-1 Simultaneous Measurement of Film Deformation and Friction Force during Shearing Nm-thick Lubricants
Yosuke Kajihara, Kenji Fukuzawa, Shintaro Itoh, Ryota Watanabe and Hedong Zhang,

P1-2 Osteoconductivity of Anodized TiO2 Films with Different Hydrophilicity Formed in Aqueous Solutions of Different Solute Ions
Dai Yamamoto, Kensuke Kuroda and Masazumi Okido

P1-3 Homogenized Elastic-viscoplastic Analysis of Pore-pressurized Anisotropic Open-porous Structures
Kazutaka Ikenoya, Nobutada Ohno, Dai Okumura and Tetsuya Matsuda

P1-4 TEM Evaluation of Carbon Nitride by S/TEM EELS
(Validation methodology of thin film sample)
Hiroshi Inoue, Takayuki Tokoroyama and Noritsugu Umehara

P1-5 Analysis of Adhesion Properties of Nanometer-Thick Perfluoropolyether Films Using Coarse-Grained Molecular Dynamics Simulation
Motoo Fukuda, Takahiro Ishiguro, Hedong Zhang, Kenji Fukuzawa, and Shintaro Itoh

P1-6 Synthesis of Graphenes and Carbon Onions Produced by Bipolar Electrical Discharges in Water
Hoonseung Lee, Maria Antoaneta Bratescu and Nagahiro Saito

P1-7 Study on the Buckling Strain of Vertically Aligned Carbon Nanotubes
Masaki Kawachi, Yusuke Kinoshita and Nobutada Ohno

P1-8 Development of a Observation Apparatus of Temperature Field in a Saturated Micro Porous Body with Evaporation
Masahito Nishiakawara and Hosei Nagano

P1-9 Electrical Stimulations of Tactile Sensory Feedback for Dexterous Handling with Artificial Hands
Chikara Nagai and Goro Obinata

P1-10 Task-Based Design Method for Underactuated Elastic Grippers
Shoichiro Kamada, Goro Obinata and Dimitar Stefanov

P1-11 Effect of Surface Dissipation for Single Crystal Silicon Micro Resonator
Hideta Oiso, Kazuo Sato and Mitsuhiro Shikida

P1-12 Variable-resolution Velocity Roadmap Considering Traffic Safety
Jingyu Xiang, Yuichi Tazaki and Tatsuya Suzuki

P1-13 Finite Element Vibration Analysis of a Rotating Shaft System with an Open Crack by the Harmonic Excitation
Nobuhiro Nagata, Tsuyoshi Inoue and Yukio Ishida

P1-14 Therapeutic Robot for Interacting with Autistic Children through Interpersonal Touch
Jaeryoung Lee, Hiroki Takehashi, Chikara Nagai and Goro Obinata

P1-15 Efficient Planning of Whole-body Motions by Modifying Via-points
ChangHyun Sung, Takahiro Kagawa and Yoji Uno

P1-16 Improvement of the Laser Ablation Impulse Characteristics by High Repetition Pulse
Hisashi Tsuruta

P1-17 An In Vitro Blood Vessel Model made of PVA Hydrogel for Vascular Surgery Training
Seiichi Ikeda

P1-18 Spatial Structure of Cytoskeleton Associated with Nuclear Envelope
Shiho Minakata and Jiro Usukura

P1-19 Targeted Drug Delivery Using Transferrin-conjugated Submicron Particles
Takuma Tsuji, Hiroshi Yoshitomi and Jiro Usukura

P1-20 The Change of Fluid Dynamics in Cerebral Aneurysm Followed 5 Years
Masahiro Kojima, Keiko Irie, Toshio Fukuda, Fumihito Arai, and Makoto Negoro

P1-21 Novel Application of Growth Factors Derived from the Conditioned Media of Mesenchymal Stem Cells (MSC-CM) for Periodontal Regeneration
Takeharu Inukai, Wataru Katagiri, Ryoko Yoshimi, Masashi Osugi, Takamasa Kawai, Hideharu Hibi and Minoru Ueda

P1-22 Human Dental Pulp-derived Stem Cells Protect Against Hypoxic-ischemic Brain Injury in Neonatal Mice
Mari Yamagata, Akihito Yamamoto, Eisuke Kako, Naoko Kaneko, Kohki Matsubara, Kiyoshi Sakai, Kazunobu Sawamoto and Minoru Ueda

P1-23 Conditioned Media from Mesenchymal Stem Cells Enhanced Distraction Osteogenesis
Yuji Ando, Akihito Yamamoto, Hideharu Hibi and Minoru Ueda

P1-24 Conditioned Medium from Stem Cells from Human Deciduous Teeth Promotes Functional Recovery after Spinal Cord Injury
Kohki Matsubara, Akihito Yamamoto, Kiyoshi Sakai and Minoru Ueda

P1-25 The Key Factor for Success of Ambulation Function Restoration by Motoneuron Integrated Striated Muscles (MISM)
H. Ota, S. Kato, S. Kurimoto, T. Nakano, H. Ishii, T. Arai, T. Natsume, K. Iwatsuki, T. Onishi, T. Nishizuka, T. Kurahashi and H. Hirata

P1-26 A Study about the Immunogenicity of Induced Pluripotent Stem Cells
Thanasegaran Suganya

P1-27 Untethered Micro-hand for On-chip Cell Handling
Akihiko Ichikawa, Taturo Shoda, Shinya Sakuma and Fumihito Arai

P1-28 Thermoresponsive Gel Blocks using Hysteresis towards Microassembly of Cells
Masaru Takeuchi, Masahiro Nakajima, Hirotaka Tajima and Toshio Fukuda

P1-29 High-speed Production and Dispensing of Enucleated Oocyte by Microrobot on a Chip
L. Feng, Y. L. Sun, A. Ichikawa and F. Arai

P1-30 Fabrication and Evaluation of Magnetic Hydrogel Fiber Based on Micro Fluidic Device
Chengzhi Hu, Masahiro Nakajima, Tao Yue, Yajing Shen and Toshio Fukuda

16:00-16:15 ***Coffee Break***

Technical Sessions

Session MP-1 (Organized Session): Young Researchers in Biomedical Engineering
Conference Room 1

Chairperson: *Taisuke Masuda, Nagoya University*
Kazuyoshi Tsuchiya, Tokai University

16:15-16:30 Development of in vivo Gene Delivery Methods in Mice Using Tissue Suction Devices for Abdominal Endoscopic Gene Therapy
Kazunori Shimizu,, Shigeru Kawakami, Kouji Hayashi, Shingo Katano, Guangyuan Zhang, Dai Maekawa, Mitsuru Hashida and Satoshi Konishi, Kyoto University, Japan

16:30-16:45 Simple and Rapid Connection of Chicken Embryonic Cardiovascular System
Hirofumi Owaki, Taisuke Masuda, Tomohiro Kawahara, Kota Miyasaka, Toshihiko Ogura and Fumihito Arai, Nagoya University, Japan

16:45-17:00 Virus Chromatography; On-chip Diagnosis of Virus Infection from Human Body Fluid
Miyako Niimi, Taisuke Masuda, Kunihiro Kaihatsu, Nobuo Kato and Fumihito Arai, Nagoya University, Japan

17:00-17:15 Comprehensive electrochemical imaging with local redox cycling-based electrochemical chip device for evaluation of three-dimensional culture cells
Kosuke Ino, Mustafa Şen, Taku Nishijo, Yusuke Kanno, Hitoshi Shiku and Tomokazu Matsue, Tohoku University, Japan

17:15-17:30 Influence of Carbon Nanotubes (CNTs) to Human Cell
Sachiko Iimori, Kagemasa Kajiwara, Minoru Kimura and Kazuyoshi Tsuchiya, Tokai University, Japna

17:30-17:45 Fluctuation of salivary α-Amylase affected by the time change of injection
Mohd Yusri, Kazuyoshi Tsuchiya, Kagemasa Kajiwara and Minoru Kimura, Tokai University, Japan

Session MP-2 (Organized Session): Micro-nano Fluidics and Biomedical Applications
Conference Room 2

Chairperson: *Yoko Yamanishi, Nagoya University*
Akira Yamada, Hiroshima Institute of Technology

16:15-16:30 A system for measuring the photosynthetic activity of water plants based on carbon dioxide absorption
Shinsuke Nakaoka and Akira Yamada, Hiroshima Institute of Technology, Japan

16:30-16:45 Numerical Model For DNA Size Separation Using Nanostructured Matrix
Shintaro Itoh, Yoichi Tagaya, Nobuaki Isahaya, Kenji Fukuzawa and Hedong Zhang, Nagoya University, Japan

16:45-17:00 Electrode fabrication using conductive nano-ink and microfluidic technology for bio-applications
Koji Matsuura, Ikuyo Sugimoto, Mieko Kodama and Masayuki Kanehara, Okayama University, Japan

17:00-17:15 Impingement Type Micro Fluidic Device using Electro-Conjugate Fluid
Kei Nakagawa, Kento Mori, Kenjiro Takemura, Shinichi Yokota and Kazuya Edamura, Keio University, Japan

17:15-17:30 Electrically Induced Bubble Knife
Hiroki Kuriki, Yoko Yamanishi, Shinya Sakuma, Satoshi Akagi and Fumihito Arai, Nagoya University, Japan

17:30-17:45 Virtual surgery of y-configurated dual intracranial stent-assisted coil embolization for the treatment of wide-necked basilar tip aneurysm
Masahiro Kojima, Keiko Irie, Seiichi Ikeda, Toshio Fukuda, Fumihito Arai and Makoto Negoro, Nagoya University, Japan

17:45-19:00 ***Beer Party***

November 6 (Tue)
Location: Noyori Conference Hall

Technical Sessions

Session TA1-1 (Organized Session): Innovative Micro/Nano Mechatronics for Bio-medical Application ***Conference Room 1***

Chairperson: *Masahiro Nakajima, Nagoya University*
Futoshi Iwata, Shizuoka University

09:00-09:15 Electrical Detection of Single-Cell Trapping for Manipulation in an Array-based Format
Moeto Nagai, Keita Kato, Kiyotaka Oohara, Tatsuro Torimoto, Takahiro Kawashima and Takayuki Shibata, Toyohashi University of Technology, Japan

09:15-09:30 Differentiation of Circulating Endothelial Progenitor Cells Induced by Shear Stress
Syotaro Obi, Kimiko Yamamoto, Joji Ando, Haruchika Masuda and Takayuki Asahara, Tokai University, Japan

09:30-09:45 Local Injection Probe of Functional Micro-Nano Gel Tools into Caenorhabditis elegans
Masahiro Nakajima, Naoya Nakanishi, Naoki Hisamoto, Hirotaka Tajima, Michio Homma and Toshio Fukuda, Nagoya University, Japan

09:45-10:00 Single Cell Scraper Based on an Atomic Force Microscope
Makoto Adachi, Yuya Mizuguchi and Futoshi Iwata, Shizuoka University, Japan,

Session TA1-2 (Organized Session): Micro-Nano Fluidics and Systems for Bio Applications ***Conference Room 2***

Chairperson: *Akihiko Ichikawa, Nagoya University*
Moeto Nagai, Toyohashi University of Technology

09:00-09:15 Measurement Simulation of Dielectrophoresis in Two Phase Flow
Hyoung-June Kim, Achyut Sapkota, Masahiro Takei and Deog-Hee Doh, Chiba University, Japan

09:15-09:30 On-chip Cell Loading Using Untethred Nano-pipette Robot
Akihiko Ichikawa, Shinya Sakuma and Fumihito Arai, Nagoya University, Japan

09:30-09:45 Active Micromixer Based on Cilia of Microoraganisms
Moeto Nagai, Yo Hayasaka, Takahiro Kawashima and Takayuki Shibata, Toyohashi University of Technology, Japan

09:45-10:00 Biofabrication Techniques for Biologically Relevant Tissue Models and Drug Delivery Devices
Hirokazu Kaji, Tohoku University, Japan

10:00-10:15 ***Coffee Break***

Session TA2-1: Bio-manipulation and Biomedical Issues ***ConferenceRoom 1***

Chairperson: *Akihiro Torii, Aichi Institute of Technology*
Keisuke Morishima, Osaka University

10:15-10:30 Thermo-induced Dynamics of Membranes and Liquid Crystals Containing Cholesterol Derivatives
Tsuyoshi Yoda, Phan Thi Thanh Huong, Mun'delanji C. Vestergaard, Tsutomu Hamada and Masahiro Takagi, Japan Advanced Institute of Science and Technology, Japan,

10:30-10:45 Delta-type Miniature Robot Using Levitation Mechanisms
Mitsuhiro Nishio, Akihiro Torii, Kae Doki and Akiteru Ueda, Aichi Institute of Technology, Japan

10:45-11:00 Fabrication of Thermoresponsive Gel Blocks using Hysteresis for Cell Assembly
Masaru Takeuchi, Masahiro Nakajima, Hirotaka Tajima and Toshio Fukuda, Nagoya University, Japan

11:00-11:15 Ejection of a Single Cell in a Single Droplet using Piezoelectric Inkjet Head
Shuichi Yamaguchi, Ryanto The, Akira Ueno, Yoshitake Akiyama and Keisuke Morishima, Osaka University, Japan

11:15-11:30 Structure-Dependent Membrane Interaction and bioactivity of Flavonoids with Lipid Bilayers
Bindu Chahal, Mun'delanji C. Vestergaard, Tsuyoshi Yoda, Masamune Morita and Masahiro Takagi, Japan Advanced Institute of Science and Technology, Japan

11:30-11:45 High-speed Production and Dispensing of Enucleated Oocyte by Microrobot on a Chip
L. Feng, M. Hagiwara, A. Ichikawa, Y. L. Sun and F. Arai, Nagoya University, Japan

11:45-12:00 Possibility to use iPS-technology in age-related diseases
Zhao Cheng, Sachiko Ito, Naomi Nishio, Thanasegaran Suganya and Ken-ichi Isobe, Nagoya University, Japan

Session TA2-2 (Organized Session): Cognitive Robotics ***Conference Room 2***

Chairperson: *Naoyuki Kubota, Tokyo Metropolitan University*
Janos Botzheim, Tokyo Metropolitan University

10:15-10:30 Connection experiment of the mutual complement network by wireless and wired
Syunya Fujiwara, Shota Oda and Kunihiro Yamada, Tokai University, Japan

10:30-10:45 Method of setting the address to apply the mutually complementary network in the school
Shunsuke Ozawa, Kyohei Toyoda, Phalla So and Kunihiro Yamada, Tokai University, Japan

10:45-11:00 Topological Gaussian ARAM for Simultaneous Localization and Mapping (SLAM)
Wei Hong Chin and Chu Kiong Loo, University of Malaya, Malaysia

11:00-11:15 Reduction of state space on reinforcement learning by sensor selection
Yasutaka Kishima and Kentarou Kurashige, Muroran Institute of Technology, Japan

11:15-11:30 Facilitation of Cognitive Robotics by Web based Computational Intelligent Models
Boris Tudjarov, Janos Botzheim and Naoyuki Kubota, Tokyo Metropolitan University, Japan

11:30-11:45 Growing Neural Gas for Information Extraction in Gesture Recognition and Reproduction of Robot Partners
Janos Botzheim and Naoyuki Kubota, , Tokyo Metropolitan University, Japan

11:45-12:00 Stabilization and Moving Efficiency Improvement by Adjustment of Moving Speed in Single Locomotion
Taisuke Kobayashi, Tadayoshi Aoyama, Kosuke Sekiymama and Toshio Fukuda, Nagoya University, Japan

12:00-13:00 ***Lunch***

Plenary Lecture ***Conference Room 1***

Chairperson: *Toshio Fukuda, Nagoya University*

13:00-13:50 Plenary Lecture 5
Whole-Body Robot Sensing and Human-Robot Interaction
Prof. Vladimir Lumelsky, University of Wisconsin-Madison, USA

13:50-14:00 ***Coffee Break***

Poster Session II (MHS) ***Poster Area (1st floor)***

Chairperson: *Masahiro Ohka, Nagoya University*
Fumihito Arai, Nagoya University

14:00-15:30

P2-1 3D-aggregated Dermal Stem Cells with Partial-pluripotency
Masaki Kondo, Hideki Kamiya, Tetsuji Okawa, Sachiko Ito, Naomi Nishio, Tatsuhito Himeno, Yutaka Oiso, Jiro Nakamura and Ken-ichi Isobe, Nagoya Universit, Japan

P2-2 Establishment of neutrophil-lineage stem cells from C57BL/6 mice.
Naomi Nishio, Sachiko Ito, Yuriko Tanaka and Ken-ichi Isobe, Nagoya University, Japan

P2-3 Signal Passway Analysis with differentiation markers in osteoblasts stimulated by synthetic analog to bone mineral
Ryuhei Nishikawa, Takahisa Anada and Osamu Suzuki, Tohoku University, Japan

P2-4 Fabrication and Self-Assembly Of Movable Microstructures Embedding Cells with Concentration Control inside Microfluidic Devices
Tao Yue, Masahiro Nakajima, Yajing Shen, Hirotaka Tajima and Toshio Fukuda, Nagoya University, Japan

P2-5 Removing Mesenchymal Cells from Gland Tissue on Micro-patterned Tissue Culture Dish
Takuya Matsumoto and Seiji Aoyagi Okayama University, Japan

P2-6 Production System of Platelet from iPS cells by Two-way Flow Bioreactor
Yosuke Nakagawa, Seiichi Ikeda, Toshio Fukuda, Fumihito Arai, Sou Nakamura and Koji Eto, Nagoya University, Japan

P2-7 Locomotion Mechanism and Control Method for a Microrobot Using the Difference in the Vibration Characteristics of the Legs (Development of Controller for Experiments on Frequency Characteristics of Running Microrobot)
Masahiro Isogai, Aichi University of Technology, Japan

P2-8 Multi functional device which combined a shape memory alloy and a piezo-electric material
Hiroshi Sato, National Institute of Advanced Industrial Science and Technology (AIST), Japan

P2-9 Thermal-Magnetic Inkjet Mechanism for the Application of Micro Pattern Fabrication on the Highly Unlevel Microarea
Hirofumi Han, K. Kikuchi and S. Tsuchitani, Wakayama University, Japan

P2-10 Characteristics of Electrokinetic Flow through Nano Pipette for Cellular Delivery
Moeto Nagai, Tatsuro Torimoto, Tokuma Miyamoto, Takahiro Kawashima, Takayuki Shibata, Toyohashi University of Technology, Japan

P2-11 Design of Ring Type Trench PZT for Tube Type Micropump by Using FEM Analysis
Eiichi Aizawa, Kazuyoshi Tsuchiya and Yasutomo Uetsuji, Tokai University, Japan

P2-12 Research on the Surface in Au-Pt Buffer Layer for the High Piezoelectric PZT
Rikiya Takita, Kazuyoshi Tsuchiya and Yasutomo Uetsuji, Tokai University, Japan

P2-13 The Load Characteristic of a Movable Stewart Platform Using Piezoelectric Element
Ryosuke Kamiya, Akihiro Torii, Kae Doki and Akikiteru Ueda, Aichi Institute of Technology, Japan

P2-14 Free Accessible Microchannel Formed by Wide Range Wettability Control Using Nano-Geometric Surface
Masakuni Sugita, Shinya Sakuma and Fumihito Arai, Nagoya University , Japan

P2-15 Evaluation of Thermal Conductivity of Single Carbon Nanotube in Liquid Using Fluorescent Micropillars
Ryo Kariya, Hisataka Maruyama and Fumihito Arai, Nagoya University, Japan

P2-16 3D Capillary Vessel and Arteriole Simulator Fabricated by Using Femtosecond Laser and Mask Hybrid Exposure
Kyohei Tomita and Fumihito Arai, Nagoya University, Japan

P2-17 Evaluation and Modeling of Temperature Effects for Catalytic Nano-mobile Robot
Jingjing Bao, Masahiro Nakajima, Zhan Yang, Yajing Shen, Hirotaka Tajima and Toshio Fukuda, Nagoya University, Japan

P2-18 Single-joint Driving System of Bionic Finger based on Shape Memory Alloy
Baiqing Sun, Jiaye Zhang, Xuetang Wu and Wang Liao, Shenyang University of Technology, China

P2-19 Intravascular Modeling and Navigation for Stent Graft installation Based on Data Fusion between Intravascular Ultrasound and Electromagnetic Tracking Sensor
Chaoyang Shi, Masahiro Kojima, Carlos Tercero, Hirokatsu Kodama, Masahiro Nakajima, Seiichi Ikeda, Toshio Fukuda, Kimihiro Komori and Kiyohito Yamamoto, Nagoya University, Japan

P2-20 Catheter Motion Capture with Optical Encoder at the Insertion Port to Find the Reference Area of Catheter Insertion
Hirokatsu Kodama, Chaoyang Shi , Seiichi Ikeda, Toshio Fukuda Fumihito Arai, Makoto Negoro and Ikuo Takahashi, Nagoya University, Japan

P2-21 Controllable Artificial Larynx using Neck Myoelectric Signal
Katsutoshi Ooe, Reina Kishimoto, Masahiro Nakajima, Kosuke Sekiyama and Toshio Fukuda, Daiichi Institute of Technology, Japan

P2-22 Fabrication of 3D Photo-resistive Structure for Artificial Capillary Blood Vessel
Azrena Abu Bakar, Chengzhi Hu, Masahiro Nakajima, Hirotaka Tajima and Toshio Fukuda, Nagoya University, Japan

P2-23 3D Cell Assembly based on Electro Deposition of Calcium Alginate
Yajing Shen, Masahiro Nakajima, Chengzhi Hu, Tao Yue, Hirotaka Tajima and Toshio Fukuda, Nagoya University, Japan

P2-24 Construction Method of cellular structure using cell-sheet with biocompatible rigging
Hirotaka Tajima, Masahiro Nakajima and Toshio Fukuda, Nagoya University, Japan

P2-25 Nano-Gyroscope Device using Field Emission of Isolated Carbon Nanotube
Zhan Yang, Masahiro Nakajima, Yajing Shen, and Toshio Fukuda, Nagoya University, Japan

P2-26 Micro Fluidic Device to Analyze the Effect of Cadmium on Caenorhabditis elegans
Jaehoon Jung, Masahiro Nakajima, Hirotaka Tajima and Toshio Fukuda, Nagoya University, Japan

P2-27 Modified Particle Swarm for Multimodal Functions in Dynamic Environment Using Iteration Proportional Change for Inertia Weight and Weight of Social Components
D. Widiyanto, A. Wibowo, M. F. Rachmadi and W. Jatmiko Universitas, Indonesia, Indonesia

P2-28 Optimal Regulator Dredges Underlying Modularity in Input-outputs
Yusuke Ikemoto and Kosuke Sekiyama, University of Toyama, Japan

P2-29 Visualization and Measurement of Crack Extensions in Metal Brittle Fractures
Masanobu Mizoguchi, Daido University, Japan

P2-30 Task Performance Tests on Inserting the Bolts by an experimental system for power distribution line maintenance - Grope action under compliance control –
Yusuke Yamamoto, Naoki Maekawa, Minoru Hida, Xianjing Yang, Kazuki Aoyama, Takahiro Kataoka, Yingxin He and Kyoichi Tatsuno, Meijo University, Japan

P2-31 Basic Properties of Anthropomorphic Hand with Passive Warped Fingertip
Hidenori Ishihara, Kazuo Morita and Tohru Miyake, Kagawa University, Japan

P2-32 A Task Performance Test on Extracting the Insulator by a Power Distribution Line Maintenance Robot System -Alignment of the gripper to the insulator in the image of cameras-
Naoki Maekawa, Yusuke Yamamoto, Kazuki Aoyama, Takahiro Kataoka, Minoru Hida, Xianjing Yang, Yingxin He and Kyoichi Tatsuno, Meijo University, Japan

P2-33 Multipoint Haptic Device for Robot Hand Teleoperation
Futoshi Kobayashi, George Ikai, Wataru Fukui, Hiroyuki Nakamoto and Fumio Kojima, Kobe University, Japan

P2-34 Biochemical Analysis of the Foot Arch Function Using a Forward Dynamic Walking Simulation
Noriyuki Nishizawa, Kazunori Hase and Hisashi Naito, Tokyo Metropolitan University, Japan

P2-35 Development of a walking assist device focusing on twist motion of the trunk and adopting the simple mechanism
Kentaro Iwamoto and Kazunori Hase, Tokyo Metropolitan University, Japan

P2-36 Visual attitude control using a virtual barycenter of a quadrangle that constructed from feature points for outdoor autonomous mobile robots
Hidefumi Kawamura, Shohei Iwata, Shota Sahashi and Tadahiro Hasegawa, Shibaura Institute of Technology, Japan

P2-37 Effect of Kendo strike movement within the body
Kazuto Miyawaki, Masahiko Yaegashi, Takehiro Iwami and Goro Obinata, Akita National College of Technology, Japan

P2-38 *Dynamic Model of Three Wheeled Narrow Tilting Vehicle and Optimal Tilt Controller Design*
Hiroki Furuichi, Jian Huang, Takayuki Matsuno and Toshio Fukuda, Nagoya University, Japan

P2-39 Joint Angle Measurements Based on Omni-directional Lower Limb Rehabilitation Platform
Baiqing Sun, Xiaogang Liu, Jinhu Shen and Qiuhao Zhang, Shenyang University of Technology, China

P2-40 Deflection Sensing via High Speed Vision System for Robotic Motion Control
Tadayoshi Aoyama, Takumi Miura, Yuji Harada, Takeshi Takaki and Idaku Ishii, Hiroshima University, Japan

P2-41 Real Time Posture Control for Stability Improvement of Intelligent Cane Robot
Pei Di, Kosuke Sekiyama, Jian Huang, Shotaro Nakagawa, Fei Chen and Toshio Fukuda, Nagoya University, Japan

P2-42 Optimal Load Allocation Control in Ladder Environment with Contact Stiffness Considered
Zhiguo Lu, Kosuke Sekiyama, Yasuhisa Hasegawa and Toshio Fukuda
Northeastern University, China

P2-43 Development of A Width-Changeable Intelligent Walking-Aid Robot
Jianyu Ye, Jian Huang, Jiping He, Chunjing Tao and Xitai Wang, Huazhong University of Science and Technology, China

P2-44 Nonlinear SVM Based Anomaly Detection for Manipulator Assembly Task
Takayuki Matsuno, Jian Huang and Toshio Fukuda,
Okayama University, Japan

P2-45 The establishment and development of the innovation-promoting company
Kana Hayase and Nobutaka Odake, Nagoya Institute of Technology, Japan

15:30-15:45 ***Coffee Break***

Technical Sessions

Session TP1-1 (Organized Session): Bio Assembler I ***Conference Room 1***

Chairperson: *Kenichi Ohara, Osaka University*
Masaru Kojima, Osaka University

15:45-16:00 OCIAN; On-Chip Impedance Analyzer for Measurement of Cellular Mechanical Parameters
Shinya Sakuma, Makoto Kaneko and Fumihito Arai, Nagoya University, Japan

16:00-16:15 Rapid pattern switching of cellular arrays with dielectrophoresis to discriminate surface antigen
Tomoyuki Yasukawa, Hironobu Hatanaka and Fumio Mizutani,
Hyogo University, Japan

16:15-16:30 Biomechanical Properties of Red Blood Cell through the Motion inside a Micro-channel
Chia-Hung Dylan Tsai, Makoto Kaneko, Shinya Sakuma and Fumihito Arai,
Osaka University, Japan

16:30-16:45 Fabrication and Evaluation of Magnetic Hydrogel Fiber Based on Micro Fluidic Device
Chengzhi Hu, Masahiro Nakajima, Tao Yue, Yajing Shen and Toshio Fukuda, Nagoya University, Japan

16:45-17:00 Development of End Effector for Cell Manipulation with Two-fingered Micro-hand
Masaru Kojima, Ebubekir Avci, Kenichi Ohara, Yasushi Mae and Tatsuo Arai, Osaka University, Japan

17:00-17:15 Fabrication of Vascular Tissue Models by Assembling Multiple Cell Types inside Hydrogel Microchannels
Masaki Iwase, Masumi Yamada and Minoru Seki, Chiba University, Japan

Session TP1-2(Organized Session): Mechatronics ***Conference Room 2***

Chairperson: *Yasuhisa Hasegawa, University of Tsukuba*
Shingo Shimoda, RIKEN

15:45-16:00 Adaptation? Learning? Features of biological learning
Shingo Shimoda, RIKEN, Japan

16:00-16:15 Pseudo-proprioceptive Motion Feedback by Electric Stimulation
Yasuhisa Hasegawa, Motoki Sasaki and Atsushi Tsukahara, University of Tsukuba, Japan

16:15-16:30 Design of Brain Machine Interface using Portable Near-InfraRed Spectroscopy
Tomotaka Ito, Tokihisa Hirano, Yoshihiro Mitsui, Hideki Akiyama, Shohei Ohgi and Chihiro Mizuike, Shizuoka University, Japan

16:30-16:45 Toward EEG Control of Upper Limb Power-Assist Exoskeletons: A Preliminary Study of Decoding Elbow Joint Velocities Using EEG Signals
Thilina Dulantha Lalitharatne, Akihiro Yoshino, Yoshikai Hayashi, Kenbu Teramoto and Kazuo Kiguchi, Saga University, Japan

16:45-17:00 Study on Recognition of Upper Limb Motion Pattern Using surface EMG signals for Bilateral Rehabilitation
Zhibin Song, Shuxiang Guo, Muye Pang and Songyuan Zhang, Kagawa University, Japan

17:00-17:15 Research and Development of a Joystick Car Drive System for Handicapped Persons
Masayoshi Wada, Fujio Kameda and Yukimichi Saito Tokyo University of Agriculture and Technology, Japan

17:15-17:30 Quick Stair-Climbing using Snap-Through Buckling of Closed Elastica
Takashi Tsuda, Hiromi Mochiyama and Hideo Fujimoto, University of Tsukuba, Japan

17:30-17:45 ***Coffee Break***

Session TP2-1 (Organized Session): Bio Assembler II ***Conference Room 1***

Chairperson: *Kenichi Ohara, Osaka University*
Masaru Kojima, Osaka University

17:45-18:00 Manipulation of Cells and Cell Spheroids Using Collagen Hydrogel Microbeads Prepared by Microfluidic Devices
Sari Sugaya, Masumi Yamada and Minoru Seki, Chiba University, Japan

18:00-18:15 Automated 3D lattice structure construction using hydrogel microfiber
Kenichi Ohara, Masaru Kojima, Shun Onozaki, Yasushi Mae and Tatsuo Arai Osaka University, Japan

18:15-18:30 Thermoresponsive affinity interaction between cells and immobilized antibodies on poly(*N*-isopropylacrylamide)-grafted surfaces
Masanori Nishi, Jun Kobayashi, Yoshikatsu Akiyama, Masayuki Yamato, Hirofumi Yajima and Teruo Okano, Tokyo Women's Medical University (TWIns), Japan

18:30-18:45 Characterization of poly(*N*-isopropylacryldmide) grafted polydimethylsiloxane surface as a new temperature-responsive cell culture substrate
Yoshikatsu Akiyama, Masayuki Yamato and Teruo Okano, Tokyo Women's Medical University, Japan

Session TP2-2 (Organized Session):Between Cognition and Interaction

Conference Room 2

Chairperson: *Kosuke Sekiyama, Nagoya University*
Yusuke Ikemoto, Toyama University

17:45-18:00 Mobile phones as traffic sensors with map matching and privacy considerations
B. Hardjono, A. Wibowo, M. F. Rachmadi and W. Jatmiko, Universitas Indonesia, Indonesia

18:00-18:15 Cooperative Rhythm Production between Three People through Auditory Signals
Taiki Ogata, Takahiro Katayama, Yoshihiro Miyake and Jun Ota, the University of Tokyo, Japan

18:15-18:30 Interpersonal Synchrony-based Dynamic Stabilization of the Gait Rhythm between Human and Virtual Robot - Clinical Application to Festinating Gait of Parkinson's Disease Patient -
H. Uchitomi, K. Suzuki, T. Nishi, M. J. Hove, Y. Wada, S. Orimo and Y. Miyake, Tokyo Institute of Technology, Japan

18:30-18:45 Toward a subjective synchronous communication in multimodal human-machine interaction: Intention of movement alternates simultaneous perception in auditory-tactile temporal order judgment
Atsuhiro Nishi, Masanori Yokoyama, Taiki Ogata, Takayuki Nozawa and Yoshihiro Miyake, Tokyo Institute of Technology,

18:45-19:00 Ubiquitous Sensor-based Pedestrian Dead-reckoning for LBS Applications
Yuki Wakuda, Satoshi Asano, Noboru Koshizuka and Ken Sakamura, The University of Tokyo, Japan

19:00-20:45 ***Reception Party*** ***Universal Club***

November 7 (Wed)
Location: Noyori Conference Hall

Technical Sessions

Session WA-1 (Organized Session): Advanced Technologies of Manipulation and Sensing in Micro-Nano Scale ***Conference Room 1***

Chairperson: *Hisataka Maruyama, Nagoya University*
Yuta Nakashima, Yamaguchi University

09:30-09:45 Control of a particle flow in a microchannel using ultrasound
Teruyuki Kozuka, Kyuichi Yasui, Shin-ichi Hatanaka, Kakumasa Eguchi, and Kazuyuki Kamijo, National Institute of Advanced Industrial Science and Technology(AIST), Japan

09:45-10:00 Combined Pressure and Temperature Sensor Using Pressure- and Temperature-Sensitive Paints
Tomohiro Kameya, Yu Matsuda, Yasuhiro Egami, Hiroki Yamaguchi and Tomohide Niimi, Nagoya University, Japan

10:00-10:15 Measurement of Photosynthesis Activity Using Single Synecocystis SP. PCC 6803 on Microchambers Having Gas Barrier Wall and Fluorescence Oxygen Sensor
Hisataka Maruyama, Yu Matsuda, Tomohide Niimi, Nobuyuki Unozumi, Kei Nanatani and F. Arai, Nagoya University, Japan

10:15-10:30 3D Fabrication and Manipulation of Hybrid Nanorobots by Laser for Single Cell Analysis
Shota Fukada, Hisataka Maruyama, Taisuke Masuda and Fumihito Arai, Nagoya University, Japan

10:30-10:45 Development of a Dynamic Conversion Technique of Cell Culture Surface Using Alginate Thin Film
Yuta Nakashima, Kouichi Tsusu and Kazuyuki Minami, Yamaguchi University, Japan

Session WA-2: Advanced Measurement and Human Systems ***Conference Room 2***

Chairperson: *Masahiro Ohka, Nagoya University*
Shintaro Itoh, Nagoya University

09:30-09:45 High Thermal Conductive Nano Pillars for Temperature Distribution Measurement of a Single Cell
Takeshi Hayakawa, Hisataka Maruyama and Fumihito Arai, Nagoya University, Japan

09:45-10:00 Development of 3D measurement system using Digital Holography
Qiyue Yu, Ryo Taguchi, Taizo Umezaki, Masahiro Hoguro and Hideyoshi Horimai, Nagoya Insitute of Technology, Japan

10:00-10:15 Developping Confocal Laser Microscope and Fitting Adjacent Layer Images
Hiroaki Ozaki, Toshiyuki Hirano, Takaya Yamada, Tsukasa Kato, Ryo Taguchi, Masahiro Hoguro and Taizo Umezaki, Nagoya Institute of Technology, Japan

10:15-10:30 Development of Penetrate and Reflection Type Finger Vein Certification
Tsukasa Kato, Masashi Kondo, Koosuke Hattori, Ryo Taguchi, Masahiro Hoguro and Taizo Umezaki, Nagoya Institute of Technology, Japan

10:30-10:45 A Genetic Algorithm for Subtask Allocation within Human and Robot Coordinated Assembly
Fei Chen, Kosuke Sekiyama and Toshio Fukuda, Nagoya University, Japan

10:45-11:00 ***Coffee Break***

Invited Talk ***Conference Room 1***

Chairperson: *Kenji Fukuzawa, Nagoya University*

11:00-11:40 Invited Talk
Integration of Combinatorial Evaluation and MEMS Technology for Material Search
Prof. Seiichi Hata, Nagoya University, Japan

11:40-12:10 ***Award Ceremony*** ***Conference Room 1***

12:10-13:30 ***Lunch***

13:30-15:00 ***Laboratory Tour*** ***Nagoya University***