November 28 (Mon.)

Opening Remarks — *Room 1*

Chairperson: *Fumihito Arai, The University of Tokyo*

9:00-9:20 *Prof. Toshio Fukuda, Nagoya University (Honorary Chair)*
Prof. Fumihito Arai, The University of Tokyo (General Co-Chair)
Prof. Koichi Suzumori, Tokyo Institute of Technology (General Co-Chair)
Prof. Jun Ota, The University of Tokyo (General Co-Chair)

Plenary Talks — *Room 1*

Chairperson: *Koichi Suzumori, Tokyo Institute of Technology*

9:20-10:05 Plenary Talk 1
Molecular Robotics based on Soft Matter Physics of DNA ····· PL1
Masahiro Takinoue[1, 2]
[1]Department of Computer Science, Tokyo Institute of Technology
[2]Living Systems Materialogy Research Group, International Research Frontiers Initiative, Tokyo Institute of Technology

10:05-10:20 ***Break***

Session MA1-1: (Organized Session 10-1): Science of Soft Robots — *Room 1*

Chairperson: *Kohei Nakajima, The University of Tokyo*
Shingo Maeda, Tokyo Institute of Technology

10:20-10:50 Keynote Talk 10-1
Self-Modifying Bio-Soft Robots ····· MA1_1_1
Masahiro Shimizu
Graduate School of Engineering Science, Osaka University

10:50-11:20 Keynote Talk 10-2
Self-excited Actuation for soft robots ····· MA1_1_2
Hiroyuki Nabae
Tokyo Institute of Technology

11:20-11:50 Keynote Talk 10-3
Bio-inspired Flight with Soft Mechanism ····· MA1_1_3
Toshiyuki Nakata
Chiba University

11:50-12:05 Pre-training on physical dynamics enhances indirect sensing in recurrent neural networks ····· MA1_1_4
Mitsuhiro Nishida[1], Ryo Sakurai[1], Yasumichi Wakao1, and Kohei Nakajima[2]
[1]Bridgestone Corporation
[2]The University of Tokyo

12:05-12:20 Implementation of Reservoir Computing Algorithm in Stretchable Sensor for Wearable Device ····· MA1_1_5
W. Thongking[1], A. Wiranata[2,3], S. Maeda[4] and C. Premachandra[1]
[1]Department of Electronic Engineering, Shibaura Institute of Technology
[2]Department of Engineering and Science, Shibaura Institute of Technology
[3]Department of Mechanical and Industrial Engineering, University of Gadjah Mada
[4]Department of Mechanical Engineering, Tokyo Institute of Technology

Session MA2-1: (Organized Session 5)
Hyper-Adaptability ***Room 2***

Chairperson: *Toshiyuki Kondo, Tokyo University of Agriculture and Technology*

10:20-10:35 Investigation of a Method to Extend a 2-Dimensional Gait to 3-Dimensions in a Human Musculoskeletal Model with 70 Muscles ····· MA2_1_1
Hitohiro Etoh[1], Yuichiro Omura[1], Kohei, Kaminishi[2], Ryosuke Chiba[3], Kaoru Takakusaki[3] and Jun Ota[2]
[1]Department of Precision Engineering, Graduate School of Engineering, The University of Tokyo
[2]Research into Artifacts, Center for Engineering, Graduate School of Engineering, The University of Tokyo
[3]Division on Neuroscience, Department of Physiology, School of Medicine, Asahikawa Medical University

10:35-10:50 Muscle Tone in a Musculoskeletal Model to Represent the Abnormal Posture in Parkinson's Disease ····· MA2_1_2
Yuichiro Omura[1], Hiroki Togo[2], Kohei Kaminishi[3], Tetsuya Hasegawa[1], Ryosuke Chiba[4], Arito Yozu[1], Kaoru Takakusaki[4], Mitsunari Abe[5], Yuji Takahashi[5], Takashi Hanakawa[2], and Jun Ota[3]
[1]Graduate School of Engineering, The University of Tokyo
[2]Graduate School of Medicine and Faculty of Medicine Kyoto University
[3]Research into Artifacts, Center for Engineering (RACE), School of Engineering, The University of Tokyo
[4]Division on Neuroscience, Department of Physiology, Asahikawa Medical University
[5]National Center of Neurology and Psychiatry

10:50-11:05 Effects of plantar pain on gait ····· MA2_1_3
Kohta Sonoda[1], Tetsuya Hasegawa[1], Kohei Kaminishi[1], Michihiro Osumi[2], Masahiko Sumitani[3], Ryosuke Chiba[4], Jun Ota[1], and Arito Yozu[1]
[1]Department of Precision Engineering, School of Engineering, The University of Tokyo
[2]Department of Neurorehabilitation, Graduate School of Health Sciences, Kio University
[3]Department of Pain and Palliative Medicine, The University of Tokyo Hospital
[4]Division on Neuroscience, Department of Physiology, Asahikawa Medical University

11:05-11:20 Ring-shaped wearable device for logging finger usage in daily life ····· MA2_1_4
Naoya Yamamoto, Takato Matsumoto, Tamami Sudo, Megumi Miyashita, and Toshiyuki Kondo
Department of Computer and Information Sciences, Graduate Schoolo of Engineering, Tokyo University of Agriculture and Technology

11:20-11:35 Transfer of Partial Information of Motor Controller Based on Estimation of Coordinate Transformation Parameters ····· MA2_1_5
Yuichi Kobayashi and Sota Nakamura
Shizuoka University

11:35-11:50 Selective instance segmentation by using Mutual loss ····· MA2_1_6
Noritaka Hiiro and Tsuyoshi Tasaki
Graduate School of Science and Technology, Meijo University

11:50-12:05 Keynote Talk 5-1
Motor synergy generalization framework for new targets in multi-planar and multi-directional reaching task ····· MA2_1_7
Kyo Kutsuzawa and Mitsuhiro Hayashibe
Graduate School of Engineering, Tohoku University

12:05-12:20 Keynote Talk 5-2
A condition on exploration noise during De Novo motor learning that is driven by sensory prediction error ····· MA2_1_8
Jun Izawa
University of Tsukuba

12:20-13:20 ***Lunch***

Plenary Talks ***Room 1***

Chairperson: *Toshiyuki Kondo, Tokyo University of Agriculture and Technology*

13:20-14:05 Plenary Talk 2
Experimental and computational studies of bipedal locomotion in the Japanese macaque towards understanding the evolution of human bipedal locomotion ····· PL2
Naomichi Ogihara
Department of Biological Sciences, Graduate School of Science, University of Tokyo

14:05-14:20 ***Break***

Session MP1-1: (Organized Session 10-2)
Science of Soft Robots ***Room 1***

Chairperson: *Ryuma Niiyama, Meiji University*
Hiroyuki Nabae, Tokyo Institute of Technology

14:20-14:50 Keynote Talk 10-4
Do Soft Robots Dream of Florence Nightingale? ····· MP1_1_1
Shoko Miyagawa
Keio University

14:50-15:05 Water-Pre-Stretched Dielectric Elastomer Actuator Made of an Organogel ····· MP1_1_2
Yuta Tezuka, Asahi Tsujino, and Takeshi Hayakawa
Department of Precision Engineering, Chuo University

15:05-15:20 Open-Loop Control of Displacement of Water-Pre-Stretched Dielectric Elastomer Actuator ····· MP1_1_3
Asahi Tsujino and Takeshi Hayakawa
Department of Precision Engineering, Chuo University

Session MP2-1: (Organized Session 3-1)
Emerging technologies for spatiotemporal analysis of cells ***Room 2***

Chairperson: *Shinya Sakuma, Kyusyu University*
Niko Kimura, Kyusyu University

14:20-14:35 High-speed On-chip In-liquid Dispenser by Utilizing Traveling Vortex ····· MP2_1_1
Makoto Saito, Yoko Yamanishi, and Shinya Sakuma
Department of Mechanical Engineering, Kyushu University

14:35-14:50 A sample fixation method utilizing electroadhesion toward tensile characterization of thin and small biomembrane ····· MP2_1_2
Kosuke Narayama, Yoko Yamanishi and Shinya Sakuma
Department of Mechanical Engineering, Kyushu University

14:50-15:05 Live Cell Imaging of Humoral Factor Secretion as an Indicator of Cytotoxicity in Cancer Immunity ····· MP2_1_3
Yuto Kurisu[1], Zhuohao Yang[1], Koji Nagaoka[2], Kazuhiro Kakimi[2], Takashi Funatsu[1], and Yoshitaka Shirasaki[1]
[1]Graduate School of Pharmaceutical Sciences, The University of Tokyo
[2]Department of Immunotherapeutics, The University of Tokyo Hospital

15:05-15:35 Keynote Talk 3-1
Cellular senescence in age-related diseases ····· MP2_1_4
Akiko Takahashi
Cancer Institute

15:15-15:50 ***Break***

Session MP1-2: (Organized Session 2)
Cognitive Robotics ***Room 1***

Chairpersons: *Naoyuki Kubota, Tokyo Metropolitan University*

15:50-16:20 Keynote Talk 2
Mutual Understanding in Human-robot Interaction ····· MP1_2_1
Masayoshi Kanoh
Chukyo University

16:20-16:35 Heat Source Approaching by Cyborg Cockroach Using a New Antennae Electrode Implantation Method ····· MP1_2_2
Kazuyoshi Hirao, Mochammad Ariyanto, Yoshiki Fujita, and Keisuke Morishima
Department of Mechanical Engineering, Osaka University

16:35-16:50 Cyborg Cockroaches can be Commanded to Play Soccer····· MP1_2_3
Mochammad Ariyanto, C. M. Masum Refat, Kazuyoshi Hirao, and Keisuke Morishima
Department of Mechanical Engineering, Osaka University

16:50-17:05 Human Body Parts Estimation Using Deep Learning for 3D Point Clouds ····· MP1_2_4
Futoshi Kobayashi, Riku Sakurai, Yusuke Suga, and Hiroyuki Nakamoto
Graduate School of System Informatics, Kobe University

17:05-17:20 Feature Extraction using Topological Twin for Developing Robot Partner ····· MP1_2_5
Chenghui Liu, Ryosuke Tanno, Kodai Kaneko, and Naoyuki Kubota
Graduate School of System Design, Tokyo Metropolitan University

17:20-17:35 Cosine Similarity of Convolutional Features of Video Frames as a Method for Finding Similar Activities from Past and Present Information of Video Input ····· MP1_2_6
Franz Chuquirachi, Chyan Zheng Siow, Wei Hong Chin, and Naoyuki Kubota
Graduate School of System Design, Tokyo Metropolitan University

Session MP2-2: (Organized Session 3-2)
Emerging technologies for spatiotemporal analysis of cells ***Room 2***

Chairperson: *Shinya Sakuma, Kyusyu University*
Yoshitaka Shirasaki, The University of Tokyo

15:50-16:05 A Multi-Locational Evaluation of Viscoelasticity of Hydrogels by Using Gel Actuator ····· MP2_2_1
Hibiki Nakajima[1], Yuha Koike[1], Yoshiyuki Yokoyama[2], Masaya Hagiwara[3], and Takeshi Hayakawa[1]
[1]Chuo University
[2]Toyama Industrial Technology Research and Development Center
[3]RIKEN

16:05-16:20 Evaluation of viability of single synechocystis sp. pcc 6803 in reaction to high-speed osmotic pressure change ····· MP2_2_2
Shingo Kaneko[1], Masaru Tsujii[2], Nobuyuki Uozumi[2], and Fumihito Arai[1]
[1]Department of Mechanical Engineering, The University of Tokyo
[2]Department of Biomolecular Engineering, Tohoku University

16:20-16:35 Local Deposition of Metal Nanoparticles on Hydrogels Using Micro-plasma-bubbles ····· MP2_2_3
Haruna Takahashi, Yu Yamashita, Shinya Sakuma, and Yoko Yamanishi
Department of Mechanical Engineering, Kyushu University

16:35-16:50 Single-point ultra-sound microscopy for flow cytometric non-contact mechanical indexing of microparticles ····· MP2_2_4
Yuki Goto, Yoko Yamanishi, and Shinya Sakuma
Department of Mechanical Engineering, Kyushu University

16:50-17:20 Keynote Talk 3-2
Chemical Probe: Innovative Chemical Tools for Cell Analysis MP2_2_5
Kosuke Dodo
RIKEN Cluster for Pioneering Research

November 29 (Tue.)

Plenary Talks ***Room 1***

Chairperson: *Hisataka Maruyama, Nagoya University*

9:00-9:45 Plenary Talk 3
Soft Sensors, Electronics and Robots ····· PL3
Xinyu Liu
Department of Mechanical and Industrial Engineering, University of Toronto

9:45-10:00 ***Break***

Session TA1-1: (Organized Session 9)
New materials and processing for micro/nano devices ***Room 1***

Chairperson: *Yuki Toku, Nagoya University*

10:00-10:30 Keynote Talk 9
Development of MEMS Loop Heat Pipe for Wearable Interfaces ····· TA1_1_1
Ai Ueno
Nagoya University

10:30-10:45 Size effect of raw CuO nanoparticles on femtosecond laser reductive sintering in ambient atmosphere ····· TA1_1_2
Kyohei Yoshidomi and Mizue Mizoshiri
Nagaoka University of Technology

10:45-11:00 The effect of alloy composition on beta-relaxation of Ni-Nb-Zr thin film amorphous alloys ····· TA1_1_3
Jinglan Xie, Fuyuki Haga, Chiemi Oka, Seiichi Hata, and Junpei Sakurai
Department of Micro-Nano Systems Engineering, Graduate School of Engineering, Nagoya University

11:00-11:15 Time-resolved observation of phenomenon of cobalt precipitation from glyoxylic acid cobalt complex ink using femtosecond laser pulse-induced reduction ····· TA1_1_4
Kazuki Yamamoto[1], Tomoji Ohishi[2], and Mizue Mizoshiri[1]
Department of Mechanical Engineering, Nagaoka University of Technology
Department of Applied Chemistry, Shibaura Institute of Technology

Session TA2-1: (Organized Session 8-1)
Micro/Nano Functional Devices for in vivo/vitro applications ***Room 2***

Chairpersons: *Masaru Takeuchi, Nagoya University*
Tadayoshi Aoyama, Nagoya University

11:00-11:15 Control Method of Fabric Actuator Suit for Gaze Guidance in Immersive Spaces ····· TA2_1_5
Kenta Yokoe[1], Tadayoshi Aoyama[1], Yuki Funabora[2], Koki Nakagawa[2], Yusuke Sakai[2], Masaru Takeuchi[1] and Yasuhisa Hasegawa[1]
[1]Department of Micro-Nano Mechanical Science and Engineering, Nagoya University
[2]Department of Information and Communication Engineering, Nagoya University

11:30-13:00 ***Lunch***

Session TP1-1: (Organized Session 4)
Functional Interfaces and Hydro-Electrochemical Mechatronics ***Room 1***

Chairperson: *Yoko Yamanishi, Kyushu University*
Shingo Maeda, Tokyo Institute of Technology

13:00-13:30 Keynote Talk 4
Vibration / acoustic tests with a laser technology or a soft actuator ····· TP1_1_1
Naoki Hosoya
Shibaura Institute of Technology

13:30-13:45 Modeling and Analysis of Plasma-induced bubble for On-demand Metal deposition ····· TP1_1_2
Yu Yamashita, Shinya Sakuma, and Yoko Yamanishi
Department of Mechanical Engineering, Kyushu University

13:45-14:00 Fabrication of a stretchable electroadhesive pad ····· TP1-1-3
Ayato Minaminosono[1], Ryoma Toyoda[1], Naoki Hosoya[1], and Shingo Maeda[2]
[1]Mechanical Dynamics Laboratory, Shibaura Institute of Technology
[2]Smart Materials and Robotics Laboratory, Tokyo Institute of Technology

14:00-14:15 Effect of dimethylsiloxane-co-ethylene oxide block copolymer addition into polydimethylsiloxane on the harvesting of collagen micropattern by microcasting ····· TP1_1_4
Aifang Han, Nobuyuki Tanaka, Koki Yamamoto, and Yo Tanaka
RIKEN Center for Biosystems Dynamics Research

14:15-14:30 Stiffness investigation depending on wavenumber of Self-folded Corrugated Structure by analytical solution ····· TP1_1_5
Yuki Fukatsu and Hiroki Shigemune
Department of Electrical Engineering, Shibaura Institute of Technology

Session TP2-1: (Organized Session 8-2)
Micro/Nano Functional Devices for in vivo/vitro applications ***Room 2***

Chairperson: *Masaru Takeuchi, Nagoya University*
Tadayoshi Aoyama, Nagoya University

13:00-13:15 Fabrication of 3D Printed Pipette Tip Integrated with Capacitive Microsensor for Cell Manipulation ····· TP2_1_1
Satoshi Amaya, Hirotaka Sugiura, Bilal Turan, Shingo Kaneko, and Fumihito Arai
Department of Mechanical Engineering, The University of Tokyo

13:15-13:30 Micro-Scale Phase-separation Liposome Detection system of flavor concentrations in Sake, a traditional alcoholic drink in Japan ····· TP2_1_2
Tsuyoshi Yoda[1, 2]
[1]Aomori Prefectural Industrial Technology Research Center, Hachinohe Industrial Research Institute
[2]The United Graduate School of Agricultural Sciences, Iwate University

13:30-13:45 Evaluation of Chemotaxis with Microfluidic Devices for Cancer Detection Using C. elegans ····· TP2_1_3
Hiromasa Shiga[1], Toshio Fukuda[2], Masaru Takeuchi[3], Eunhye Kim[3], Yasuhisa Hasegawa[2, 3], Kenichi Ohara[1], Takuya Ishikawa[4], and Naoki Hisamoto[5]
[1]Department of Mechatronics Engineering, Meijo University
[2]Institutes of Innovation for Future Society, Nagoya University
[3]Department of Micro-Nano Mechanical Science and Engineering, Nagoya University
[4]Department of Medical Science, Nagoya University
[5]Division of Biological Science Cell Regulation, Nagoya University

13:45-14:00 Effect of magnetic extension on bio-actuator along with consistent culture ····· TP2_1_4
Zhaoyu Wang, Taisuke Masuda, and Fumihito Arai
Department of Mechanical Engineering, The University of Tokyo

14:00-14:15 *A Hybrid Tendon Structure Using Cell Density Gradient in Cultured Muscle* ····· TP2_1_5
Takuto Nomura[1], Masaru Takeuchi[1], Eunhye Kim[1], Toshio Fukuda[2], and Yasuhisa Hasegawa[1, 2]
[1]Department of Micro-Nano Mechanical Science and Engineering, Nagoya University
[2]Institutes of Innovation for Future Society, Nagoya University

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

Session TP1-2: (Organized Session 7)
Machine-fluid interactions in microscale ***Room 1***

Chairperson: *Takeshi Hayakawa, Chuo University*

14:45-15:15 Keynote Talk 7
Macro biological transports induced by micro-scale gas generation by fermenting yeast cells ····· TP1_2_1
Kenji Kikuchi
Department of Finemechanics, Graduate School of Engineering, Tohoku University

15:15-15:30 Generation of Various Cell Patterns with Millimeter Scale by Applying Horizontal Vibrations ····· TP1_2_2
Kohei Morita and Takeshi Hayakawa
Department of Precision Engineering, Chuo University

15:30-15:45 Acoustofluidic manipulation system with an open microfluidic chip ····· TP1_2_3
Natsumi Hirata and Takeshi Hayakawa
Department of Precision Engineering & Chuo University

15:45-16:00 Detection and Quantification of Nanoparticles Using the Vibration-Induced Flow ····· TP1_2_4
Kanji Kaneko[1], Mamiko Tsugane[1], Taku Sato[1], Yosuke Hasegawa[2], Takeshi Hayakawa[1], and Hiroaki Suzuki[1]
[1]Chuo University
[2]Institute of Industrial Science, The University of Tokyo

16:00-16:15 Development of a Microchamber Device for Local Evaluation of Epithelial Cell Barrier Function and Cellular Imaging ····· TP1_2_5
Ryuya Kida, Mamiko Tsugane, and Hiroaki Suzuki
Graduate school of Science and Engineering, Chuo University

16:00-16:15 Performance evaluation of Multi-Parameter Measuring System for Liver Organoids ····· TP1_2_6
Taisuke Masuda[1], Juntaro Nomaru[2], Satoshi Amaya[1], Shiro Watanabe[1], Hirotaka Sugiura[1], and Fumihito Arai[1]
[1]Graduate School of Engineering, The University of Tokyo,
[2]Faculty of Engineering, The University of Tokyo

Session TP2-2: (Organized Session 6-1)
Intelligent Robot Systems ***Room 2***

Chairperson: *Kenichi Ohara, Meijo University*

14:45-15:00 Display and Disposal Work Using an Electromagnet Hand and Magnetic Markers ····· TP2_2_1
Riko Sugiyama[1], Tomohito Takubo[2], and Atsushi Ueno[2]
[1]Osaka City University
[2]Osaka Metropolitan University

15:00-15:15 Rearrangement planning with multi-functional shelf considering the cost of regrasping products and changing posture of products ····· TP2_2_2
Takeshi Nakamura[1], Tomohito Takubo[2], and Atsushi Ueno[2]
[1]Osaka City University
[2]Osaka Metropolitan University

15:15-15:30 Improving the Success Rate of Pose Estimation of Objects by Image Translation for Product Display ····· TP2_2_3
Kohei Fujita and Tsuyoshi Tasaki
Graduate School of Science and Technology, Meijo University

15:30-15:45 Modularized panel-type IoT device for user intuitive service on desktop environment ····· TP2_2_4
Kairi Kanada[1], Kazuki Moriya[2], Masato Iijima[2], Koji Hayashi[2], and Kenichi Ohara[1]
[1]Department of Mechatronics Engineering, Faculty of Science and Technology, Meijo University
[2]Misawa Home Institute of Research and Development Co., Ltd.

15:45-16:00 Welding seam detection between cylinder and plane using point cloud data ····· TP2_2_5
Ryosuke Kusumoto, Tomohito Takubo, and Tetsuo Tsujioka
Osaka Metropolitan University

16:00-16:15 Intension Reading based Task Outcome Prediction for Operability Improvement of Time-Delayed Teleoperation System ····· TP2_2_6
Keisuke Fusano, Yaonan Zhu, Jacinto Enrique Colan Zaita, Tadayoshi Aoyama, and Yasuhisa Hasegawa
Department of Micro-Nano Mechanical Science and Engineering, Nagoya University

November 30 (Wed)

Session WA1-1: (Organized Session 1-1)
Advanced Micro-Nano Systems for Biomedical Applications ***Room 1***

Chairpersons: *Hisataka Maruyama, Nagoya University*

9:00-9:30 Keynote Talk 1-1
Cryoprotectant Agent-free Cell Cryopreservation by Superflash Freezing Using Inkjet Cell Printing····· WA1_1_1
Yoshitake Akiyama
Faculty of Textile Science and Technology, Shinshu University

9:30-9:45 Contact Non-Contact Droplets Printing in Fluorocarbon (FC-40) with Automated 3D Single Cell Printer ····· WA1_1_2
Muhammad Awais Maqbool[1], Shunya Okamoto[1], Takayuki Shibata[1], and Moeto Nagai[1, 2]
[1]Department of Mechanical Engineering, Toyohashi University of Technology
[2]Electronics-Inspired Interdisciplinary Research Institute (EIIRIS), Toyohashi University of Technology

9:45-10:00 Evaluation of pressure dispersion and limited photosensitization of cell membrane perforators with hollow geometry ····· WA1_1_3
Kohei Kobayashi[1], Rie Akamatsu[2], Yuka Okinaka[2], Kenji Imamura[1], Kiriro Suzuki[1], Koki Takemasa[1], Stephanie Nix[3], and Akihiko Taguchi[2]
Takashi Kei Saito1
[1]Akita Prefectural University
[2]Foundation for Biomedical Research and Innovation at Kobe
[3]Iwate Prefectural University

10:00-10:15 High-speed liquid exchange using a 3D printed probe with dual pumps ····· WA1_1_4
Xu Du[1], Shingo Kaneko[2], Hisataka Maruyama[1], Hirotaka Sugiura[2] and Fumihito Arai[1,2]
[1]Department of Micro-Nano Mechanical Science and Engineering, Nagoya University
[2]Department of Mechanical Engineering, The University of Tokyo

Session WA2-1: (Organized Session 6-2)
Intelligent Robot Systems ***Room 2***

Chairperson: *Takahiro Ikeda, Gifu University*

9:15-9:30 Three-Dimensional-Motion Sensations Using a Small Plane-Confined Motion Platform ····· WA2_1_1
Takanari Imai, Junya Okada, and Junichi Meguro
Meijo University

9:30-9:45 Knee joint angle estimation by sequential correction of gyroscope bias ····· WA2_1_2
Ayuko Saito[1], Shinichiro Morichi[2], and Satoru Kizawa[3]
[1]Kogakuin University
[2]Tokyo Medical University
[3]National Institute of Technology, Akita College

9:45-10:00 Sensorless grip force estimation of a cable-driven robotic surgical tool based on Gaussian Process Regression ····· WA2_1_3
Jacinto Colan and Yasuhisa Hasegawa
Department of Micro-Nano Mechanical Science and Engineering, Nagoya University

10:00-10:15 Tactile Sensor Based Visual Force Estimation for Force Feedback in Teleoperation ····· WA2_1_4
Yaonan Zhu, Shukrullo Nazirjonov, Bingheng Jiang, Jacinto Colan, Tadayoshi Aoyama Yasuhisa Hasegawa
Department of Micro-Nano Mechanical Science and Engineering, Nagoya University

10:15-10:30 ***Break***

Session WA1-2: (Organized Session 1-2)
Advanced Micro-Nano Systems for Biomedical Applications ***Room 1***

Chairpersons: *Hisataka Maruyama, Nagoya University*

10:30-11:00 Keynote Talk 1-2
Measurement of cellular stimulus response based on micro-manipulation techniques using a micro-hand system ····· WA1_2_1
Masaru Kojima
Department of Materials Engineering Science, Osaka University

Session WA2-2: (Organized Session 6-3)
Intelligent Robot Systems ***Room 2***

Chairperson: *Junichi Meguro, Meijo University*

Session WP1-1: (Organized Session 1-3)
Advanced Micro-Nano Systems for Biomedical Applications ***Room 1***

Chairpersons: *Hisataka Maruyama, Nagoya University*

Session WP2-1: (Organized Session 6-4)
Intelligent Robot Systems ***Room 2***

Chairperson: *Takahiro Ikeda, Gifu University*

[4]Faculty of Medical, Dentistry, and Pharmaceutical Sciences, Okayama University

13:45-14:00 Temporal Convolutional Network-based Gait Event Detection using IMU sensors ····· WP2_1_4
Yan Guo, Yonatan Hutabarat, Dai Owaki, and Mitsuhiro Hayashibe
Department of Robotics, Graduate School of Engineering, Tohoku University

14:15-14:30 ***Break***

Plenary Talks ***Room 1***

Chairperson: *Seiichi Hata, Nagoya University*

14:30-15:00 Plenary Talk 4
Large Diameter SiC Crystal Growth assisted by AI technology ·····PL4
Toru Ujihara
Nagoya University

15:00- ***Award Ceremony and Closing***