2025/10/12

DTDA2025 Program at a Glance

	Day1 Oct. 20th					Day2 Oct. 21st					Day3 Oct. 22nd				
Room Name	Hall 5A	Hall 5B	Hall 5C	Hall 6A	Hall 6B	Hall 5A	Hall 5B	Hall 5C	Hall 6A	Hall 6B	Hall 5A	Hall 5B	Hall 5C	Hall 6A	Hall 6B
8:30-9:00						Opening /EDS Awards Ceremony /Plenary /Keynote									
9:00-9:30	Setup										Appl. Session Area5: Environmental Impact Mitigation, Energy Reduction and Water Risk Management	Appl. Session Area6: Smart Agriculture on the Ground and in Space	EdgeCortix Edge AI Accelerator Workshop: Hands-On with SAKURA-II and MERA	Free Space for Networking	Pitch & Demo Expo-Demo
9:30-10:00															
10:00-10:30															
10:30-11:00															
11:00-11:30															
11:30-12:00						Lunch									
12:00-12:30		Luncheon Seminar for IEEE WTS									Lunch	Luncheon Seminar by NY CREATES	Lunch		
12:30-13:00						Appl. Session Area1: Unleashing Power of MEMS	Appl. Session Area2: Biosensors, Bioelectronics, Biomedical Devices	Workshop: Meet your Edge-AI at DtDA	Free Space for Networking	Ignition contest/ Let's co-create! Lightning Shower Pitch for Co-creation Expo-Demo					
13:00-13:30	FET100 Short Course	IEEE World Technology Summit (WTS) – Sendai 2025	Space x Semiconductor – The Frontiers of Space Development and Semiconductor Electronics	Free Space for Networking	Let's co-create! Lightning Shower for Co-creation Expo-Demo								Forum: Driving Innovation through Collaboration between Devices and Applications		
13:30-14:00											Appl. Poster Session				
14:00-14:30															
14:30-15:00															
15:00-15:30															
15:30-16:00						Appl. Session Area3: Robotics for Smart Society										
16:00-16:30											Closing				
16:30-17:00															
17:00-17:30					Pitch Presentation					Pitch Presentation					
17:30-18:00			WiED/YP Event			Appl. Session Area4: Automobile									
18:00-18:30															
18:30-19:00															
19:00-19:30				Welcome Reception		Banquet Venue: Sendai Ryokusaikan Pitch Contest Final									
19:30-20:00															
20:00-20:30															
20:30-21:00															

DTDA2025 Full Program

October 20th (Monday), 2025

13:00 – 19:00

FET100 Short Course – FET Technology and Its Diverse Applications

Chair: Akiyo Nomura (IBM Research - Tokyo), Akiko Ueda (AIST)

Venue: Hall 5A

13:00 - 14:00	**Future of MedTech Opened Up by CMOS: Wearable and Implantable Biomedical Devices** Tetsu Tanaka, Tohoku University
14:00 - 15:00	**Steep Slope "PN-Body Tied SOI-FET" for RF-Energy Harvesting and Neuromorphic Applications** Jiro Ida, Kanazawa Institute of Technology
15:00-16:00	**Emerging Semiconductors Meet New Applications: Security and Neuromorphics** Hocheon Yoo, Hanyang University
16:00 - 17:00	**Hafnia-based Ferroelectric Transistors: Insight into Device Physics and Emerging Applications** Kasidit Toprasertpong, The University of Tokyo
17:00 - 18:00	**Solid-state Electrochemical Thermal Transistors with Enhanced Switching Performance using Earth-abundant Cerium Oxide** Ahrong Jeong and Hiromichi Ohta, Hokkaido University
18:00 - 19:00	**Vibronics: Concept, Topics, and Prospect** Masahiro Nomura, The University of Tokyo

12:00 – 13:00

Luncheon Seminar for IEEE World Technology Summit (WTS)

Chair: Yoshihiro Ohba (EmotionX Inc.)

Venue: Hall 5B

12:00 – 13:00	**Performance Engineering for AI Devices** Naoki Yoshifuji, Fixstars Corporation **Enhancing Data Center Efficiency for Generative AI Workloads with Fujitsu's Advanced Liquid Cooling Technology** Nina Arataki, Fujitsu Limited

13:00 – 19:00

IEEE World Technology Summit – Sendai 2025 “Physical AI Infrastructure”

Chair: Yoshihiro Ohba (EmotionX Inc.), Bernard Lim (Appscard Group AS)

Venue: Hall 5B

13:00 - 14:00	**PLENARY SESSION** **Opening Remarks** Takako Hashimoto, Chiba University of Commerce, IEEE R10 Director **Powering AI: Infrastructure and Technologies for the Growing Energy Demand of AI computations** Yutaka Sata, Toshiba Corporation **Accelerating Intelligence: Rapidus’ Vision for AI-Centric Semiconductors** Kazunari Ishimaru, Rapidus Corporation
14:00 - 15:30	**SESSION 1 - Silicon for AI** **MN-Core L1000: AI Accelerator for the Generative AI Inference Era** Kazuki Matoya, Preferred Networks, Inc. **Semiconductor Storage for Generative AI** Jun Deguchi, Kioxia Corporation **AI for Sensing and Silicon Design** Eisaku Ohbuchi, Sony Semiconductor Solutions **Efficient Execution of AI and Machine Learning** Takashi Takenaka, NEC
15:30 - 16:00	Coffee Break
16:00 - 17:30	**SESSION 2 - AI Data Center Technologies** **AI-Native Infrastructure Design: Enabling the Future of AI Data Centers and Physical AI** Ryuji Wakikawa, SoftBank Corp.
17:30 - 19:00	**SESSION 3 - AI Applications in Automotive** **Building an Autonomous Future with AI at The Edge** Eu Poh Leng, Senior Director, NXP Semiconductors **AFEELA creates new user experience with AI** Takuya Nishibayashi, Sony Honda Mobility Inc.

13:00 – 16:00

Space x Semiconductor – The Frontiers of Space Development and Semiconductor Electronics

Chair: Yoshihito Yoshimizu (KIOXIA), Mariko Ozawa (TEL)

Venue: Hall 5C

13:00 – 13:10	**Introductory talk** Yasuhito Yoshimizu, EmotionX Inc.
13:10 – 13:35	**Unlocking Semiconductor Innovation in Microgravity: The Role of Commercial Space Station** Kazuma Murakami, Mitsubishi Corporation
13:35 – 14:00	**ElevationSpace Pioneering the Use of Low Earth Orbit** Kazunari Miyamaru, ElevationSpace Inc.
14:00 – 14:25	**Distributed Computing and Satellite Computing Opportunities** Masamichi Nakamura, Morgenrot Inc.
14:25 – 15:00	**Coffee break**
15:00 – 16:00	**Panel Discussion** **"What is the role of semiconductors in the space industry?"** **Panelist:** Kazuma Murakami, Mitsubishi Corporation, Kazunari Miyamaru, ElevationSpace Inc., Masamichi Nakamura, Morgenrot Inc., TBA **Modulator:** Yasuhito Yoshimizu, EmotionX Inc., M. Ozawa, Tokyo Electron

17:30 – 19:00

WiED/YP Event

Women and Young Scientists of Today: Challenges and Opportunities

Chair: Pei-Wen Li (National Yang Ming Chiao Tung University)

Venue: Hall 5C

17:30 – 17:40	**Welcoming Remark** Bin Zhao, IEEE EDS President Durga Misra, IEEE EDS Vice-President Shu Ikeda, IEEE/EDS VP of Meetings and Conferences Hiroyuki Akinaga, Hokkaido University
17:40 – 18:10	**Panel Discussion** Moderator: Pei-Wen Li, National Yang Ming Chiao Tung University Panelists: Ana Claudia Arias, UC Berkeley Anna-Maria Pappa, Khalifa University Kyoko Kitamura, Tohoku University
18:10 – 18:45	**Q&A and Open Discussion**
18:45 – 19:00	**Networking**

13:00 – 19:00

Let's co-create! Lightning Shower Pitch for co-creation

Introductory talk / Yasuhito Yoshimizu (EmotionX Inc.)

Venue: Hall 6B

Connect with fellow exhibitors today through tomorrow to update your research, technology and business!

17:00-18:00 We offer you the opportunity to pitch (<4min) to exhibitors.

13:00 – 19:00

Expo-Demo

Venue: Hall 6B

13:00 – 19:00	**Expo**
	CIES, Tohoku University
	EAGLYS Inc.
	EdgeCortix Corporation
	Faeger CO., LTD.
	Fixstars Corporation
	IDDK Co., Ltd.
	Mitsubishi Corporation
	Morgenrot Inc.
	NY Creates
	SCREEN Semiconductor Solutions Co., Ltd.
	Spin Sensing Factory Corp.
	TANAKA PRECIOUS METAL TECHNOLOGIES Co., Ltd.
	Techno Print Co., Ltd.
	tei Solutions Inc.
	Yokogawa Electric Corporation

19:00 – 20:00

Welcome Reception

Venue: Hall 6A

October 21st (Tuesday), 2025

8:30 – 11:30

Plenary/Keynote

Chair: Hiroyuki Akinaga (Hokkaido Univ.), General Co-chair, DTDA2025

Venue: Hall 5A

8:30 – 8:35	**Welcome Remark** Shu Ikeda, General Chair, DTDA 2025
8:35 – 8:40	**Opening Remark by EDS** **EDS Awards Ceremony** Bin Zhao, President, IEEE Electron Device Society
PN-1 8:40 – 9:20	**Unleashing Power of MEMS for Diversified Applications [Plenary]** Susumu Kaminaga, SK Global Advisers Co., Ltd.
KY-1 9:20 – 9:55	**Social Implementation of Spintronics Low-Power Semiconductors** **-Innovation by Semiconductor Game-Changing Technology- [Keynote]** Tetsuo Endoh, Power Spin Inc.
KY-2 9:55 – 10:30	**Sustainable Electronic Biosensors through Advanced Materials Engineering [Keynote]** Anna-Maria Pappa, Khalifa University
KY-3 10:30 – 11:05	**Towards Wireless Printed Flexible Electronics [Keynote]** Ana Claudia Arias, UC Berkeley
KY-4 11:05 – 11:30	**The Hidden Thread: Water as the Lifeblood of the Semiconductor Age [Keynote]** Slava Libman, FTD Solutions Inc.

11:30 – 12:30 Lunch

12:30 – 15:20

Application Session Area 1: Unleashing Power of MEMS

Chairs: Kentaro Totsu (Tohoku Univ.), Yongfang Li (Toshiba)

Venue: Hall 5A

AR-1-1 12:30 – 13:00	**Contribution to Solving Social Problems through MOEMS Technology that Enables Equipment Miniaturization [Invited]** Toshihisa Atsumi, Hamamatsu Photonics K.K
AR-1-2 13:00 – 13:20	**Investigating Semiconductor Sulfur-based Gas Sensor Conditions for Real-time Algae Pollution Detection** Moumita Deb[1], Hsu-Yang Tsai[1], Laurent Noel[2,3], Pin-Hsuan Li[1], Olivier Soppera[2,3], and Hsiao-Wen Zan[1], [1]National Yang Ming Chiao Tung University, [2]Université de Haute-Alsace, [3]Université de Strasbourg

AR-1-3 13:20 – 13:40	**Development of a High-Sensitivity Particulite Matter Micro-Sensor Integrated with a Virtual Impactor** Chia-Hsu Hsieh, Cheng-Chuan Chou, Pei Su, Shao-Chen Ma, and I-Yu Huang, National Sun Yat-sen University
AR-1-4 13:40 – 14:00	**Piezoelectric MEMS Acoustic Emission Sensors** Yongfang Li, Yuki Ueda, Takashi Usui, and Kazuo Watabe, Toshiba Corporation
AR-1-5 14:00 – 14:20	**A Wearable IoT Sensor on a Metamaterial-Integrated Energy Harvesting Flexible Printed Circuit** Rin Yoshihara[1], Kota Morishita[1], Yuji Takata[1], Yuya Tanaka[1], Gen Hashiguchi[2], Hiroshi Toshiyoshi[3], and Takaaki Suzuki[1], [1]Gunma University, [2]Shizuoka University, [3]The University of Tokyo
AR-1-6 14:20 – 14:40	**Bendable Subwavelength Grating Waveguides with Cantilevers toward Compact Terahertz Optical Switches** Kohei Chiba and Yoshiaki Kanamori, Tohoku University
AR-1-7 14:40 – 15:00	**Real-Time Thermal Simulation for Microelectronic Devices Using a Physics-Informed Neural Operator** Kazuya Yokota[1], Masaaki Baba[1], and Andy Tyrrell[2], [1]Nagaoka University of Technology, [2]University of York
AR-1-8 15:00 – 15:20	**Triboelectric Nanogenerator with Micro-Concave Array on the Contact Interface** Shota Watanabe, Fumiya Ito, Koichi Murakami, Yuji Takata, Yuya Tanaka, and Takaaki Suzuki, Gunma University

12:30 – 17:30

Application Session Area 2: Biosensors, Bioelectronics, Biomedical Devices

Chairs: Madoka Takai (Univ. of Tokyo), Yuhei Hayamizu (Inst. of Science Tokyo)

Venue: Hall 5B

AR-2-1 12:30 – 13:00	**Material and Scaling Aspects for Biosensors and Cell-Device Interfacing with Micro- and Nanoelectronic Devices [Invited]** Sven Ingebrandt, RWTH Aachen University
AR-2-2 13:00 – 13:30	**Towards Brain-wide Neural Electrical Recording [Invited]** Xiaojie Duan, Peking University

AR-2-3 13:30 – 13:50	**Millimeter-Wave (mm-Wave) Echo Features Detection with Deep Learning -base Classifier for Parkinson's Upper Limb Tremors Classification** Pi-Yun Chen[1], Shao-Ting Yang[1], Chun-Yu Lin[1], Neng-Sheng Pai[1], Hsiang-Yueh Lai[1], Chao-Lin Kuo[2], Ping-Tzan Huang[3], Chien-Ming Li[4], and Chia-Hung Lin[1], [1]National Chin-Yi University of Technology, Taiwan, [2]National Kaohsiung University of Science and Technology, [3]National Pingtung University of Science and Technology, [4]Tainan Municipal Hospital, Taiwan
AR-2-4 13:50 – 14:10	**Material, Device, Systems for Smart Contact Lens Applications** Takeo Miyake, Waseda University
AR-2-5 14:10 – 14:30	**Design and Evaluation of a Compact, Non-Intrusive EEG Headset with Candle-Like Microneedle Electrodes** Niklas Kostelidis, and Miki Norihisa, Keio University
AR-2-6 14:30 – 14:50	**Ultrathin Film-Based Bio-Integrated Electronics for Healthcare and Sports** Kento Yamagishi, The University of Tokyo
AR-2-7 14:50 – 15:20	**Transient Closed-Loop System for Autonomous Electrotherapy [Invited]** Yeonsik Choi, Yonsei University
15:20 – 15:30	Break
AR-2-8 15:30 – 15:50	**Lateral Voltage as a Novel Input for Artificial Lipid Bilayers Based on Electrode-Integrated Teflon Film** Maki Komiya[1], Daisuke Tadaki[1], and Ayumi Hirano-Iwata[1,2], [1] Research Institute of Electrical Communication, Tohoku University, [2]Advanced Institute for Materials Research, Tohoku University
AR-2-9 15:50 – 16:10	**Peptide-functionalized Two-dimensional Materials for Biosensing** Yuhei Hayamizu, Institute of Science Tokyo
AR-2-10 16:10 – 16:30	**Development of A High-Sensitivity Flexural Plate-Wave Based Micro Biosensor Array with Low Insertion Loss for Detection of Breast Cancer** Chia-Hsu Hsieh[1], Bo-Yan Liu[1], Yu-Te Wu[2], Cheng-Chuan Chou[1], I-Yu Huang[1, 2] [1] Institute of Innovative Semiconductor Manufacturing, National Sun Yat-sen University, [2]Department of Electrical Engineering, National Sun Yat-sen University, Taiwan
AR-2-11 16:30 – 16:50	**2D MoS_2 Diode Sensors for the Detection of Cytokine TNF-alpha** Michael M Adachi[1], Thushani De Silva[1], Mirette Fawzy[2], Hamidreza Ghanbari[1], Amin Abnavi[1], Ribwar Ahmadi[1], Karen L Kavanagh[2], [1]School of Engineering Science, Simon Fraser University, [2]Department of Physics, Simon Fraser University, Canada

AR-2-12 16:50 – 17:10	**Biomimetic Stimulation of a Cardiomyocyte Cell Culture with a Bio-hybrid Pacemaker at Different Age of the Culture** Agnès Tixier-Mita[1], Timothée Lévi[2], Hiroshi Toshiyoshi[1] [1]Institute of Industrial Science, The University of Tokyo, Japan, [2]IMS, The University of Bordeaux, Japan
AR-2-13 17:10 – 17:30	**Biocompatible Microneedle Transdermal Sensor for Glucose Monitoring** Shicheng Zhou, Toshihiro Kasama, Ryo Miyake, Madoka Takai, The University of Tokyo

15:30 – 17:00

Application Session Area 3: Robotics for Smart Society

Chairs: Masanori Muroyama (Tohoku Inst. of Tech.), Harindu Sarathchandra (Shibaura Inst. of Tech.)

Venue: Hall 5A

AR-3-1 15:30 – 16:00	**From Human Mimicry to Robotic Mastery: How Sensor-Driven Telerobotics Paves the Way for AI Imitation of Complex Tasks [Invited]** Nilupul Nuwan Senevirathna, TsukArm Robotics / Shibaura Institute of Technology
AR-3-2 16:00 – 16:20	**Small Object Detection in Post-Recorded Videos Using GA-Optimized YOLOv9-tiny** Hung, Yung-Hsiang, Huang, Mei-Ling, Wang, Wen-Pai and Wei, Yu-Hsung, National Chin-Yi University of Technology
AR-3-3 16:20 – 16:40	**Development of Schlieren Optical Imaging Quality Optimization and Artifact Removal Technology based on Deep Neural Network** Wen-Lin Chu[1], Jia-Ming Zhou[1], Yi-Wei Lin[1], and Bo-Lin Jian[2], [1]National Chung Hsing University, [2]National Chin-Yi University of Technology
AR-3-4 16:40 – 17:00	**Manufacturing Process Root Cause Analysis with Graph Neural Networks** Akash Gaurav, Muralidhara VN, International Institute of Information Technology Bangalore

17:10 – 18:20

Application Session Area 4: Automobile

Chairs: Bernard Lim (Appscard), Eu Poh Leng (NXP)

Venue: Hall 5A

AR-4-1 17:10 – 17:40	**Transformation Through Innovation in Automotive Semiconductor Packaging [Invited]** Eu Poh Leng, NXP Semiconductors
AR-4-2 17:40 – 18:00	**Design and Implementation of Waypoint Path Controller for Unmanned Catamaran Surface Vehicle** Chao-Lin Kuo[1], Yu-Chi Pu[1], Chia-Hung Lin[2], [1]National Kaohsiung University of Science and Technology, [2]National Chin-Yi University of Technology
AR-4-3 18:00 – 18:20	**Advanced Semiconductor Packaging in Panel Level for Automotive devices: Challenges and Resolutions for Laser Induced Effects on Galvanic Corrosion in Aluminum Pads** Che Ming Fang[1], Yu Jen Tien[1], Wen Hung Huang[1], Poh Leng Eu[2], [1]NXP Semiconductor, Taiwan, [2]NXP Semiconductor, Malaysia

12:30 – 18:30

Workshop: Meet your Edge-AI at DtDA

Chair: Tetsuya Asai (Hokkaido Univ.)

Venue: Hall 5C

12:30 – 13:00	**Opening Talk "Meet your Edge-AI at DTDA"** **Scaling Edge-AI: From Local Perception to Distributed Learning and Social Systems [Invited]** Tatsuya Kaneko, Science Tokyo
13:00 – 13:30	**Edge AI for Sensing, Connectivity, and Resilience: From Environmental Monitoring to Next-Generation Networks [Invited]** Kai Wu, University of Technology Sydney
13:30 – 14:00	**An Edge-AI demonstration of Handwritten Fingerspelling (tentative) [Invited]** Ryoma Shinto and Takao Marukame, Hokkaido University
14:00-14:15	**Break and Registration for Workshop**
14:15-14:45	**Workshop Tutorial** Tatsuya Kaneko, Science Tokyo
14:45-16:30	**Workshop "To be an Edge-AIer with RaspAI"** Mentors: Tatsuya Kaneko[1], Kota Ando[2], Takao Marukame[2], [1]Science Tokyo, [2]Hokkaido University
16:30-18:30	**Idea Presentations, Free discussions, Closing**

13:00 – 18:30

Ignition contest / Let's co-create! Lightning Shower Pitch for co-creation

Introductory talk / Yasuhito Yoshimizu (EmotionX Inc.)

Venue: Hall 6B

Tell us what you co-created and what impressed you!

What updates did you get from conversations at this event?

17:00-18:00 We offer you the opportunity to pitch (<4min) to exhibitors.

13:00 – 18:30

Expo-Demo

Venue: Hall 6B

12:30 – 18:30	**Expo**
	CIES, Tohoku University
	EAGLYS Inc.
	EdgeCortix Corporation
	Faeger CO., LTD.
	Fixstars Corporation
	IDDK Co., Ltd.
	Mitsubishi Corporation
	Morgenrot Inc.
	NY Creates
	SCREEN Semiconductor Solutions Co., Ltd.
	Spin Sensing Factory Corp.
	TANAKA PRECIOUS METAL TECHNOLOGIES Co., Ltd.
	Techno Print Co., Ltd.
	tei Solutions Inc.
	Yokogawa Electric Corporation

19:00 – 21:00

Banquet

Venue: Senadai Ryokusaikan

October 22nd (Wednesday), 2025

9:00 – 12:10

Application Session Area 5: Environmental Impact Mitigation, Energy Reduction and Water Risk Management

Chairs: Shin Nakagawa (SCREEN), Slava Libman (FTD Solutions)

Venue: Hall 5A

AR-5-1 9:00 – 9:30	**The Trend of Circularly Mitigating Energy Consumption and Wastes for a Semiconductor Chips Manufacturing Fab. [Application Area Keynote]** Luh-Maan Chang, National Taiwan University & Purdue University
AR-5-2 9:30 – 9:50	**Advanced Materials for Sustainable MEMS: Parylene and Its Multiple Applications in Microsystem Technologies** Franz Selbmann[1,2], Martin Kühn[1,2], Florian Glauche[1,2], Frank Roscher[1], and Maik Wiemer[1], [1]Fraunhofer Institute for Electronic Nano Systems ENAS, [2]TU Bergakademie Freiberg
AR-5-3 9:50 – 10:10	**Single-crystal AlN Thin Films Epitaxially Grown on Si Wafer with Oxide Buffer Layer** Azusa N. Hattori, Osamu Nakagawara, and Kenji Ogata, I-PEX Piezo Solutions Inc.
AR-5-4 10:10 – 10:30	**Quick Check of Bacteria Risk in Food-polluted Water by Semiconductor Gas Sensor** Yu-Min Lin[2], Wei-Han Chen[1], Cong-Yi Lin[3], Chieh-An Tsai[1], Cheng-Chieh Su[1], Ming-Kai Sun[5], Li-Yin Chen[3], Yu-Cheng Lin[2], Olivier Soppera[4], Hsin-Fei Meng[1], Ding-Han Wang[2], Hsiao-Wen Zan[3], [1]National Yang Ming Chiao Tung University, [2]National Yang Ming Chiao Tung University, [3]National Yang Ming Chiao Tung University, [4]Universitéde Haute-Alsace
10:30 – 10:40	**Break**
AR-5-5 10:40 – 11:10	**Progress in Next-Generation Power Electronics Driven by SiC Power Semiconductors [Invited]** Yasunori Tanaka, National Institute of Advanced Industrial Science and Technology (AIST)
AR-5-6 11:10 – 11:30	**Low-Carbon Economic Dispatch Considering Virtual Power Plants (VPPs) in a Power Grid** Ping-Tzan Huang[1], Hong-Wei Sian[2], Feng-Chang Gu[2], Kuei-Hsiang Chao[2], Cheng-Tao Tsai[2], Long-Yi Chang[2], Yung-Chang Luo[2], Wen-Cheng Pu[2] and Chia-Hung Lin[2], [1]National Pingtung University of Science and Technology, [2]National Chin-Yi University of Technology

AR-5-7 11:30 – 11:50	**Design Exploration of a Reconfigurable Architecture with Variable Parallelism for Neural Network Acceleration** Atsushi Hori, Yu Inoue, Fumiya Arai, Takao Marukame, Tetsuya Asai, and Kota Ando, Hokkaido University
AR-5-8 11:50 – 12:10	**Weight-Quantized Performance Improvement in Spiking Neural Networks and Convolutional Neural Networks for Resistive Memory Device Implementations** Ayane Matsuzaki, Seiji Adachi, Rei Kusunose, Kota Ando, Tetsuya Asai, Takao Marukame, Hokkaido University

9:00 – 11:30

Application Session Area 6: Smart Agriculture on the Ground and in Space

Chairs: Mayumi B. Takeyama (Kitami Inst. of Tech.), Kazuo Oki (The Univ. Tokyo / KUAS)

Venue: Hall 5B

AR-6-1 9:00 – 9:30	**Development of MBS-LAB: an Automated Bio-Experiment System for Microgravity Conditions in Low Earth Orbit using Our Semiconductor-Based Microscopic Observation Device [Invited]** Masano Nakayama, IDDK Co., Ltd.
AR-6-2 9:30 – 10:00	**Towards the Future of Fisheries: Sustainable Synergy between Land-based Aquaculture and Agriculture [Invited]** Akihiro Takemura, University of the Ryukyus
AR-6-3 10:00 – 10:30	**Development of an AI-Powered Robotic System for Vineyard Grape Harvesting [Invited]** Liangliang Yang, Kitami Institute of Technology
AR-6-4 10:30 – 10:50	**Comparison of Single and Multi-Modality YOLOv8 Models for Grapevine Segmentation** Ekkorn Thatreesophon, Yang Liangliang, Yohei Hoshino, Kitami Institute of Technology
AR-6-5 10:50 – 11:10	**A Study on Hydroponic Cultivation for Industrial-Scale Serial Rice Production** [1,2] Katsuro Fukozu, [3] Koji Kashima, [4] Masaru Sato, [4] Mayumi B. Takeyama, [2] Takayuki Ohba,[1] DWRI, [2] Science Tokyo, [3] ASAHI KOGYOSHA, [4] Kitami Inst. of Tech.
AR-6-6 11:10 – 11:30	**Optimization of Cultivation Conditions for Nicotiana Benthamiana in Hydroponic Plant Factories with Electric Irradiation** [1,2] Mayumi B. Takeyama, [1] Hikaru Murakami, [1] Masaru Sato, [3] Koji Kashima, [1] Kitami Inst. of Tech., [2] Science Tokyo, [3] ASAHI KOGYOSHA

12:00 – 13:00 Lunch

12:00 – 13:00

Luncheon Seminar by NY CREATES

Chair: Hiroko Sueyoshi (NY Creates)

Venue: Hall 5B

12:00 – 13:00	**A Global Semiconductor R&D Ecosystem For All** Steve Bennett, Frank Tolic, NY Creates

13:30 – 15:30

Application Poster Session

Venue: Hall 5A

13:30 – 14:30

Application Poster Session 1 – Core Presentation Time

Chair: Hirofumi Nakagawa (TANAKA PRECIOUS METAL TECHNOLOGIES)

Venue: Hall 5A

P1	**Material Modification by High-dose Ion Implantation using Ultra High-current Implanter** Ryota Wada, Yuya Uchida, Kazuhiro Kagawa, Takashi Kuroi, Takeshi Matsumoto, Nissin Ion Equipment Co., Ltd.
P3	**Development of a Polymer Film-Based Frequency Conversion Interposer for MEMS Vibration Energy Harvester** Kota Morishita[1], Yuji Takata[1], Yuya Tanaka[1], Gen Hashiguchi[2], Hiroshi Toshiyoshi[3], Takaaki Suzuki, [1]Gunma university, [2]Shizuoka university, [3]The University of Tokyo
P5	**Fabrication Method of a Natively Flexible Polymer MEMS** Ryuto Goto, Kota Morishita, Yuji Takata, Yuya Tanaka, Takaaki Suzuki, Gunma university
P7	**Extremely Sensitive Surface Acoustic Wave Sensor for Hydrogen Made from ϕ3.3mm Spherical Quartz Crystal and Pd-Pt Alloy Sensitive film** N. Takeda, T. Ohizumi, H. Fukushi, K. Yamanaka, T. Tanaka, T. Okano, A. Takeda, A. Akao, Y. Tsukahara, and T. Iwaya, Ball Wave Inc.
P9	**Optimal Design and Manufacturing of Sputtered Nitinol Stents for Intercranial Aneurysm Consolidation** Clément Chan, Frédéric Gillot, Norihisa Miki, Keio University, LTDS laboratory
P11	**Self-sterilizing Face Mask Employing Enzymatic Power Generation** Daniella Marie Gatus, Saman Azhari, Gábor Méhes, Takeo Miyake, Waseda University

P13	**Development of an LSI CMOS Microelectrode Array with Semi-Transparent Through-Hole Electrodes for Cardiomyocyte Culture and Future Biosensing Applications** Anne Claire Eliler, Ayako Mizushima, Junichi Sugita, Katsuhito Fujiu, Yoshio Mita, Agnès TIXIER-MITA, The University of Tokyo
P15	**Physical Reservoir Computing with Micropatterned Biological Neural Networks on High Density Microelectrode Arrays** Yusei Nishi[1], Hideaki Yamamoto[1], Ayumi Hirano-Iwata[1], Yuichi Katori[2,3], Shigeo Sato[1], [1]Tohoku University, [2]Future University Hakodate, [3]The University of Tokyo
P17	**HYDRA-MC: Hybrid Dynamic Reconfigurable Architecture for Multi-Controller Autonomous Systems** Ashwin Sriramulu, JJ Jayakanth, SRM Institute of Science and Technology
P19	**Drift-Free Three-Dimensional Position and Attitude Tracking with Direction-Sensitive Ultrasonic Microphones** Ryosuke Yoshii[1], Yoshinobu Yasuno[2], Hidekazu Kodama[2], Junei Kobayashi[1], Takashi Nakajima[1], [1]Tokyo University of Science, [2]Kobayasi Institute of Physical Research

14:30 – 15:30

Application Poster Session 2 – Core Presentation Time

Chair: Hirofumi Nakagawa (TANAKA PRECIOUS METAL TECHNOLOGIES)

Venue: Hall 5A

P2	**Real-Time Gait Anomaly Detection for Industrial Safety Using Edge-Based Pose Estimation** Yao-San Lin, Mei-Ling Huang, Yu-Chen Chang, National Chin-Yi University of Technology
P4	**Effects of Micropyramid Structures on Contact Interface of Triboelectric Nanogenerator** Fumiya Ito, Koichi Murakami, Shota Watanabe, Yuji Takata, Yuya Tanaka, Takaaki Suzuki, Gunma university
P6	**An Electrostatic Actuated MEMS Membrane for Enabling Tunability in Graphene Light Emitters** Karman Selvam[1], Nooshin Saeidi[1,2], Akshay Dudhat[1], Maik Wiemer[1], Harald Kuhn[1,2], Anna Kozłowska[3], Kamila Leśniewska Matys[3], Rafał Stankiewicz[3], Martin Kalbáč[4], Maryam Ehsani[5], Yvonne Joseph[5],[1]Fraunhofer ENAS, [2]Chemnitz University of Technology, [3]Łukasiewicz Research Network Institute of Microelectronics and Photonics, [4]J. Heyrovsky, Institute of Physical Chemistry, [5]TU Bergakademie Freiberg

P8	**Optimization of Drill Margin Geometries to Minimize Bone Temperature Elevation** Mohd Faizal Ali Akhbar, Shahrizan Jamaludin, UNIVERSITI MALAYSIA TERENGGANU
P10	**A Hybrid Nanotube Platform for Size-Selective and Stimuli-Responsive Intracellular Delivery** Kazuhiro Oyama, Bowen Zhang, Takeo Miyake, Waseda University
P12	**Green Nanoengineering for Smart and Sensitive Piezoelectric Biosensors** Gurlal Singh, Sant Baba Bhag Singh University
P14	**Gold-CYTOP-Based Lipid Bilayer Platform for Modulating Ion Channel Activity via Horizontal Voltage Application** Tatsuya Nomoto[1], Maki Komiya[1], Haruka Okumura[2], Daikuke Tadaki[1], Yuzuru Tozawa[2], Ayumi Hirano-Iwata[1], [1]Tohoku University, [2]Saitama University
P16	**Self-doped PEDOT (S-PEDOT)-based Conductive Nanomesh for On-skin Biosensing** Michihiro Nakagome, Kento Yamagishi, Tomoyuki Yokota, Takao Someya, The University of Tokyo

9:00 – 12:00

EdgeCortix Edge AI Accelerator Workshop: Hands-On with SAKURA-II and MERA

Chair: Sudhakar Kale (EdgeCortix Inc.)

Venue: Hall 5C

9:00 – 10:10	**EdgeCortix Company Overview** Sudhakar Kale, EdgeCortix Inc.
10:10 – 10:50	**MERA Overview** Antonio Nevado Vilchez, Patrick Suwanvithaya, EdgeCortix Inc.
10:50 – 11:05	Break
11:05 – 11:25	**SAKURA-II Demonstations & Q&A** Patrick Suwanvithaya, Uzzal Podder, EdgeCortix Inc.
11:25 – 11:55	**Hands On Simulator** Uzzal Podder, EdgeCortix Inc.
11:55 – 12:00	**Final Q&A & Wrap-Up**

13:00 – 15:50

Forum: Driving Innovation through Collaboration between Devices and Applications

Chair: Akiko Ueda (AIST)

Venue: Hall 5C

13:00-13:05	**Opening Remarks** Toshiyuki Mitsue, Deloitte Tohmatsu Consulting
13:05-13:35	**Advancing Semiconductor Development in Tohoku: Current Initiatives and Future Plans** Takamitsu Imoto, Tohoku Bureau of Economy, Trade and Industry
13:35-14:05	**Non-technical Challenges in the Electronic Device Industry and the Role of Academia** Shuji Tanaka, Tohoku University
14:05-14:35	**Shaping Device Innovation through Application Collaboration: A Case Study on Secure Computation** Yoshihiro Ohba, EmotionX
14:35-14:45	**Break**
14:45-15:15	**Creating Value through Synergy between Devices and Applications** Motoshi Mineo, MACNICA, Inc.
15:15-15:50	**Panel Discussions**

9:00 – 16:00

Pitch & Demo

Host: Yoshihito Yoshimizu (KIOXIA), Mariko Ozawa (TEL), Hiroyuki Akinaga (Hokkaido Univ.)

Venue: Hall 6B

9:00 – 16:00

Expo-Demo

Venue: Hall 6B

9:00 – 16:00	**Expo**
	CIES, Tohoku University
	EAGLYS Inc.
	EdgeCortix Corporation
	Faeger CO., LTD.
	Fixstars Corporation
	IDDK Co., Ltd.
	Mitsubishi Corporation
	Morgenrot Inc.
	NY Creates
	SCREEN Semiconductor Solutions Co., Ltd.
	Spin Sensing Factory Corp.
	TANAKA PRECIOUS METAL TECHNOLOGIES Co., Ltd.
	Techno Print Co., Ltd.
	tei Solutions Inc.
	Yokogawa Electric Corporation

16:00 – 17:00

Closing

Chair: Hiroyuki Akinaga (Hokkaido Univ.), General Co-chair, DTDA2025

Venue: Hall 5A

Award Ceremony

International EDS MEMS Student Challenge

Awards presenter: Susumu Kaminaga (SK Global Advisers Co., Ltd.)

Ignition Contest Award 2025 DtDA

Awards presenter: Shuji Ikeda (tei solutions), General Chair, DTDA 2025