

# MISW 2021 Program and Contents

5<sup>th</sup> August (Thursday)

10:00-10:10	<b>Opening Remark</b> by President Kazuya Masu, Tokyo Institute of Technology
10:10-10:15	<b>Photo Session</b>
10:15-10:55	<b>Short Presentation</b> Introduction of Overseas Universities (5 min for each) <ol style="list-style-type: none"><li>1. Hanoi University of Science and Technology</li><li>2. Korea Advanced Institute of Science and Technology</li><li>3. University of Malaya</li><li>4. University of Moratuwa</li><li>5. The Hong Kong University of Science and Technology</li><li>6. Chulalongkorn University</li><li>7. Institut Teknologi Bandung</li><li>8. Tsinghua University</li></ol>
10:55-11:00	<b>Short Break</b>
11:00-12:00	<b>Plenary Lecture</b> “Communication Design: A Methodology for Managing Innovation Processes” by Professor Miki Saijo, School of Environment and Society, Tokyo Institute of Technology
12:00-13:30	<b>Lunch Break</b>
13:30-14:30	<b>Oral Presentation Session A1</b> Materials and Chemical Technology Presentation 11 min / Q&A 3 min for each Chairperson: <b>Nada Zaghloul</b>

**A1-1 The Development of High Temperature SiC Ceramic Thermoelectric Materials**

Ying Chung\*, Anna Gubarevich\*\* and Katsumi Yoshida\*\*

\* Department of Materials Science and Engineering, Tokyo Institute of Technology

\*\* Laboratory for Zero-Carbon Energy, Institute of Innovative Research

**A1-2 Heat-induced action spectrum shift in photocatalytic reaction**

Yohei Cho\*, Akira Yamaguchi\*, Aaron Sinaga\*, Yue Yang\* and Masahiro Miyauchi\*

\* Department of Materials Science and Engineering, Tokyo Institute of Technology

**A1-3 Effect of CaO and MgO on the network structure of silicate glass**

M. Tsuji\*, T. Watanabe\*, R. Endo\*, M. Susa\* and M. Hayashi\*

\* Department of Materials Science and Engineering, Tokyo Institute of Technology

**A1-4 Synthesis and photophysical processes of a tosyl-substituted ESIPT phthalimide that emits full-color fluorescence in solution**

A. Tabuchi\*, T. Hayakawa\*, S. Kuwata\*, R. Ishige\* and S. Ando\*

\* Department of Chemical Science and Engineering, Tokyo Institute of Technology

13:30-14:30 **Oral Presentation Session B1**

Environment and Society

Presentation 11 min / Q&A 3 min for each

Chairperson: **Linux Farungsang**

**B1-1 Identification and Modeling of Isolated Scatterers for Path Loss Prediction at Millimeter Wave**

X. He\*, K. Murakami\* and J. Takada\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**B1-2 Propagation Prediction in Outdoor Street Canyon Scenario at Millimeter Wave Bands**

Ek-amorn Shinwasusin\*, Kentaro Saito\*, Jun-ichi Takada\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**B1-3 Bridging the Knowledge Gap with AI: Writing Assistance for English Language Learners**

John M. Gayed\* and Jeffrey S. Cross\*

\* Department of Civil and Environmental Engineering, Tokyo Institute of Technology

**B1-4 Analysis of Reinforced Concrete Piles Considering Soil-Pile Interaction Effects**

L. Pan\*, A. C. Wijeyewickrema\* and B. K. Shrestha\*

\* Department of Civil and Environmental Engineering, Tokyo Institute of Technology

13:30-14:30 **Oral Presentation Session C1**

Engineering

Presentation 11 min / Q&A 3 min for each

Chairperson: **Sachika Kurokawa**

**C1-1 Design of High Efficiency CMOS Rectifier with Wide Dynamic Range for RF Energy Harvesting**

A. Choo\*, H. Ramiah\* and S. Mekhilef\*

\* Department of Electrical Engineering, University of Malaya

**C1-2 Paper Media Temperature Prediction Modeling in Electrophotographic Process by Means of LSTM Network**

T. Ishikura\*, T. Hase\*, \*\*, S. Kawasaki\*, E. Dursunkaya\*, K. Hemmi\*\*,

K. Yamazaki\*\*, S. Kuramoto\*, K. Kato\*\*, \*\* and K. Fushinobu\*

\*Department of Mechanical Engineering, Tokyo Institute of Technology

\*\* Ricoh Company, Ltd

**C1-3 The Study of Pleat Shape on the Air Filtration Performance**

J. E. Yit\*, Y. H. Yau\* and B. T. Chew\*

\* Department of Mechanical Engineering, Faculty of Engineering, University of Malaya

**C1-4 The Effects of Conductor Notches Size on Electric Field Distribution in GIS Spacer**

M. R. Fabio\*, S. Hidayat\* and U. Khayam\*

\* School of Electrical Engineering and Informatic, Bandung Institute of Technology

14:30-14:45 **Short Break**

14:45-15:45 **Oral Presentation Session A2**

Materials and Chemical Technology

Presentation 11 min / Q&A 3 min for each

Chairperson: **Ying Chung**

**A2-1 Comparison of Exposure of Epoxy Resin in Liquid and Vapor Phase of HCl to Assess Durability of FRP Chemical Storage Tank**

Dharmakusumah Tania N.\*, Masatoshi Kubouchi\* and Winarto Kurniawan\*

\* Chemical Science and Engineering, Tokyo Institute of Technology

**A2-2 Fabrication and Characterization of Nano-Structured ZnS:Cu LED**

Aulia Ghifari Nurlis\*, Damar Rastri Adhika\*,\*\* and Ahmad Nuruddina\*

\* Department of Engineering Physics, Institut Teknologi Bandung

\*\* National Research Center for Nanotechnology, Insitut Teknologi Bandung

**A2-3 Partial phase diagram of the cuspidine( $3\text{CaO} \cdot 2\text{SiO}_2 \cdot \text{CaF}_2$ )-gehlenite( $2\text{CaO} \cdot \text{SiO}_2 \cdot \text{Al}_2\text{O}_3$ )-dicalcium silicate( $2\text{CaO} \cdot \text{SiO}_2$ )- $\text{CaF}_2$  quaternary system**

N. Kakuta\*, T. Watanabe\*, R. Endo\*, M. Hayashi\* and M. Susa\*

\* Department of Materials Science and Engineering, Tokyo Institute of Technology

**A2-4 Investigation of SFCA-I solid solution region on phase diagram**

T. Onishi\*, R. Endo\*, T. Watanabe\*, M.Susa\* and M. Hayashi\*

\* Department of Metallurgy and Ceramics Science, Tokyo Institute of Technology

14:45-15:45 **Oral Presentation Session B2**

Environment and Society

Presentation 11 min / Q&A 3 min for each

Chairperson: **Xinrui He**

**B2-1 Importance of sewage sludge for biodiesel production and carbon neutrality in Tokyo**

Muhammad Usman\*, Shuo Cheng\* and Jeffrey S. Cross\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**B2-2 Phytoremediation of antibiotic contaminated environmental water using duckweed Lemna aoukikusa and phytotoxicity of antibiotics**

\* Thyagarajan Nivetha

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**B2-3 Techno-Economic Assessment of Biorefinery from Oil Palm Frond Petiole for Bioethanol and Electricity Production in Indonesia**

Aulia Shabrina\* and Koji Tokimatsu\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**B2-4 The Use of Tuned Mass-Damper-Inerters (TMDIs) for Response Control of Buildings**

E. R. Lumbantobing\* and A. C. Wijeyewickrema\*

\* Department of Civil and Environmental Engineering, Tokyo Institute of Technology

14:45-15:45 **Oral Presentation Session C2**

Materials and Chemical Technology

Presentation 11 min / Q&A 3 min for each

Chairperson: **Yohei Cho**

**C2-1 Diketopyrrolopyrrole and Bithiophene Imide-Based Acceptor-Acceptor Copolymers for Organic Field-Effect Transistor Application**

Waner He\* and Tsuyoshi Michinobu\*

\* Department of Materials Science and Engineering, Tokyo Institute of Technology

**C2-2 A Method to Fabricate Schottky Diode of Monolayer Fluorinated Graphene**

Hongxin Zhu\*, Siqu Xie\* and Haidong Wang\*

\* Department of Engineering Mechanics, Tsinghua University

**C2-3 Fluorescent Radical Precursors That Can Visualize Polymer Chain Scission**

Takumi Yamamoto\*, Daisuke Aoki\* and Hideyuki Otuska\*

\* Department of Chemical Science and Engineering, Tokyo Institute of Technology

**C2-4 Using Experimental and Computational Approaches to Optimize the Catalytic Lignin Hydrogenolysis**

Yin Liu\*, Shuo Cheng\* and Jeffrey Scott Cross\*

\* Department of Materials Science and Engineering, Tokyo Institute of Technology

15:45-16:00 **Short Break**

16:00-17:00 **Oral Presentation Session A3**

Materials and Chemical Technology

Presentation 11 min / Q&A 3 min for each

Chairperson: **Tania Natasha Dharmakusumah**

**A3-1 Experimental Phase Diagram Study on Ti-Al-Ni Ternary System**

Jianhui Yu\*, Hirotoyo Nakashima\* and Masao Takeyama\*

\* Department of Materials Science and Engineering, Tokyo Institute of Technology

**A3-2 Facile chemical method to directly grow Ni(OH)<sub>2</sub> nanostructures on nickel foam for highly sensitive non-enzymatic glucose electrochemical sensor**

V. T Oanh\*, C. T Xuan\* and N. D Hoa\*

\* International Training Institute for Materials Science,  
Hanoi University of Science and Technology

**A3-3 Interfacial reaction mechanism between CaO-MgO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> melts and yttria stabilized zirconia**

K. Tsukamoto\*, R. Endo\*, T. Watanabe\*, M. Susa\*, M. Hayashi\*

\* Department of Materials Science and Engineering, Tokyo Institute of Technology

**A3-4 Solid phase equilibria of the iron rich corner of the CaO-SiO<sub>2</sub>-Fe<sub>2</sub>O<sub>3</sub>-5mass%Al<sub>2</sub>O<sub>3</sub> system**

A. Takahashi\*, T. Watanabe\*, R. Endo\*, M. Susa\* and M. Hayashi\*

\* Department of Materials Science and Engineering, Tokyo Institute of Technology

16:00-17:00 **Oral Presentation Session B3**

Environment and Society

Presentation 11 min / Q&A 3 min for each

Chairperson: **Muhammad Usman**

**B3-1 Development of Computational Cost Reduction Technique for Physical Optics Based Propagation Prediction at mmWave band**

Kang Che Chia\*, Jun-ichi Takada\* and Kentaro Saito\* \*\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

\*\* School of System Design and Technology, Tokyo Denki University

**B3-2 Passive Channel Sounder Development using Software Defined Radio and Cellular Signal**

D. Gautam\* and J. Takada\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**B3-3 Energy Saving Performance of the Snow Cooling System:**

**Relation between the Amount of Snow Cover and Energy Saving Performance**

Mako Mizuno\*, Yutaro Shimada\* and Koji Tokimatsu\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**B3-4 The Effects of Anthropogenic Heat at Different Resolutions in Weather Model**

Zihan Wang\*

\* Department of Transdisciplinary Science and Technology, Tokyo Institute of Technology

16:00-17:00 **Oral Presentation Session C3**

Environment and Society

Presentation 11 min / Q&A 3 min for each

Chairperson: **Nivetha Thyagarajan**

**C3-1 Bio-oil Produced from Pyrolysis of Spent Coffee Grounds**

T. M. Yasser\*, Shuo Cheng\* and Jeffrey S. Cross\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**C3-2 Uptake and Effects of Microplastic Fibers and Fragments on Seawater Commercial Bivalves**

Jessica\*, Shuo Cheng\* and Jeffrey S. Cross\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**C3-3 Effect of Temperature Change on Structural Performance of Stainless Steel Reinforced Concrete Structures**

Charoenkijwattanakul Peerapong\* and Chijiwa Nobuhiro\*

\* Department of Civil and Environmental Engineering, Tokyo Institute of Technology

**C3-4 Nursery Choice Behavior Model: Application to Evaluation of Local Childcare Facility Planning**

Kotaro MASUKI\* and Takuya OKI\*

\* Department of Architecture and Building Engineering, Tokyo Institute of Technology

## 6<sup>th</sup> August (Friday)

10:00-11:00 | **Oral Presentation Session A4**  
Materials and Chemical Technology  
Presentation 11 min / Q&A 3 min for each  
Chairperson: **Jianhui Yu**

- C4-1 **Biomass-Based Polymerization via Organophosphate-Catalyzed Polymerization**  
Ye Cheng\* and Tsuyoshi Michinobu\*  
\* Department of Materials Science and Engineering, Tokyo Institute of Technology
- C4-2 **Intracellular Temperature Measurement and Imaging at Single-cell Level Based on Raman Spectroscopy**  
Siqi Xie\*, Hongxin Zhu\* and Haidong Wang\*  
\* Department of Engineering Mechanics, Tsinghua University
- C4-3 **Conversion of greenhouse gas into hydrogen by semiconductor-based photocatalyst**  
Uranulzii Batbayar\*, Akira Yamaguchi\*, Yohei Cho\* and Masahiro Miyauchi\*  
\* Department of Materials Science and Engineering, Tokyo Institute of Technology
- C4-4 **Delayed Luminescence Properties of Imide Compounds having Naphthalene, Biphenyl and Oxydiphthalic Core Structures**  
M. Doi\*, K. Muto\*, M. Nara\*, N. Liang\*, R. Ishige\* and S. Ando\*  
\* Department of Chemical Science and Engineering, Tokyo Institute of Technology

10:00-11:00 | **Oral Presentation Session B4**  
Environment and Society  
Presentation 11 min / Q&A 3 min for each  
Chairperson: **John Maurice Gayed**

- B4-1 **Human Body Motion Modeling for A Study of Human Shadowing in Millimeter Band**  
Zhang Enqi\*, N. Keerativoranan\* and J. Takada\*  
\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology
- B4-2 **The Study of Vehicular Channel Modeling via Ray Tracing and Moving Object Detection by Stereo Cameras**  
S. Saisa-ard\*, N. Keerativoranan\*, K. Saito\* and J. Takada\*  
\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology
- B4-3 **Life Cycle Assessment of Integrated Waste Management in Jakarta**  
Rivaldi Madyatama\*, Arif Darmawan\*, Baskoro Lokahita\*, Yutaro Shimada\* and Koji Tokimatsu\*  
\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology
- B4-4 **Seismic Response of RC Buildings with a Concrete Filled Steel Tube (CFST) Pile**  
S. Castellanos\*, A. Wijeyewickrema\* and B. Shrestha\*  
\* Department of Civil and Environmental Engineering, Tokyo Institute of Technology

10:00-11:00 **Oral Presentation Session C4**  
Engineering  
Presentation 11 min / Q&A 3 min for each  
Chairperson: **Alexander Chia Chun Choo**

- C4-1 **Edge-Assisted Vehicular Computing Towards Eco-Safe Driving**  
Ahmad ALHILAL\* and Pan HUI\*  
\* Computer Science Department, The Hong Kong University of Science and Technology
- C4-2 **Effects of flow characteristics on heat transfer mechanisms of pulsating heat pipes**  
C. Jung\* and S. J. Kim\*  
\* Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology
- C4-3 **Basic characteristic of laser-induced forward transfer of metal particles**  
A. Komorizono\*, A. Tamura\* and K. Fushinobu\*  
\* Department of Mechanical Engineering, Tokyo Institute of Technology
- C4-4 **Molar extinction coefficient measurement of water vapor for inkjet droplet boundary layer characterization**  
Norika Okochi\*, Yoshihiro Harada\*, Masami Kadonaga\*, Shinichi Kuramoto\*, Koichi Kato\* and Kazuyoshi Fushinobu\*  
\* Department of Mechanical Engineering, Tokyo Institute of Technology

11:00-11:15 **Short Break**

11:15-12:00 **Oral Presentation Session A5**  
Materials and Chemical Technology / Engineering  
Presentation 11 min / Q&A 3 min for each  
Chairperson: **Ye Cheng**

- A5-1 **Hydrogen Production via Methane Pyrolysis in Molten Metal Bubble Column**  
N. Zaghloul\*, S. Kodama\* and H. Sekiguchi\*  
\* Department of Chemical Science and Engineering, Tokyo Institute of Technology
- A5-2 **Effect of initial phosphate concentration and stepwise/continuous light stress on astaxanthin accumulation in the microalga Haematococcus pluvialis**  
V. C. Liyanaarachchi\*, P. H. V. Nimarshana\*\* and T. U. Ariyadasa\*  
\* Department of Chemical and Process Engineering, University of Moratuwa  
\*\* Department of Mechanical Engineering, University of Moratuwa
- A5-3 **Dynamic Programming and Linear Programming for Odds Problem**  
Sachika Kurokawa\* and Tomomi Matsui\*  
\* Department of Industrial Engineering and Economics, Tokyo Institute of Technology

11:15-12:00 **Oral Presentation Session B5**  
Environment and Society  
Presentation 11 min / Q&A 3 min for each  
Chairperson: **Jessica**

**B5-1 Assessment of Rooftop Solar Photovoltaic Potential based on Machine Learning and GIS Spatial Analysis in Bangkok, Thailand**

Linux Farungsang\*, Alvin Christopher G. Varquez\* and Tokimatsu Koji\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**B5-2 A TOA-DOA Hybrid Factor Graph-based Technique for Multi-Target Geolocation and Tracking**

L. Jiang\*, M. Cheng\*\* and T. Matsumot\*\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

\*\* School of Information Science, Japan Advanced Institute of Science and Technology

**B5-3 Outdoor mmWave Band Tx Localization Using Scattering Path under Spectrum Sharing Scenario**

Chi Weiqi\*, N. Keerativoranan\* and Jun-ichi Takada\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

11:15-12:00 **Oral Presentation Session C5**

Environment and Society

Presentation 11 min / Q&A 3 min for each

Chairperson: **Siraphop Saisa-ard**

**C5-1 Development of community microgrids in urban residential area of Ulaanbaatar, Mongolia**

Tumurbaatar Uyanga\* and Jeffrey Scott Cross\*

\* Department of Transdisciplinary Science and Engineering, Tokyo Institute of Technology

**C5-2 Exploring Key Factors for Developing a New Readiness to Deal with Pandemic in Tourism Industry in Thailand**

P. Sochoeiya\*, N. Leelawat\* and J. Tang\*\*

\* Disaster and Risk Management Information Systems Research Group, Department of Industrial Engineering, Faculty of Engineering, Chulalongkorn University

\*\* International School of Engineering, Faculty of Engineering, Chulalongkorn University

**C5-3 Analysis of Traffic State Estimation Method Using Zen Traffic Data**

G. Dahiya\* and Y. Asakura\*

\* Department of Civil and Environmental Engineering, Tokyo Institute of Technology

12:00-15:00 **Lunch Break**

15:00-16:00 **Award Ceremony**