

# MISW Program and Contents

*Thursday, 6<sup>th</sup> August*

**Registration (8:30-9:00)** Registration Desk

**Opening Remark (9:00-9:10)**

Kuramae Hall, Tokyo Tech. Front

Prof. Kikuo Kishimoto

*Dean, School of Engineering, Professor*

**Photo Session (9:10-9:25)**

Kuramae Hall, Tokyo Tech. Front

**Short Presentation (9:30-10:10)**

Kuramae Hall, Tokyo Tech. Front

Introduction of Overseas University

1. University of Malaya
2. The Hong Kong University of Science and Technology
3. Tsinghua University
4. KAIST
5. Nanyang Technological University
6. Chulalongkorn University
7. National Taiwan University
8. Hanoi University of Science and Technology

**Poster Session (10:10-11:00)**

Kuramae Hall, Tokyo Tech. Front

**P-1 The Effect of Substrate Conduction on the Oscillating Motion and the Thermal Performance of a Flat Plate Pulsating Heat Pipe**

Aejung Yoon and Sung Jin Kim

*School of Mechanical, Aerospace, and Systems Engineering, Korea Advanced Institute of Science and Technology*

**P-2 Towards Designing a Touch-based Emotional Communication Device**

L. Haritaipan and C. Mougenot

*Department of Mechanical Sciences and Engineering*

- P-3 Conductivity and thermoelectric power of the organic conductors (BTBT)<sub>2</sub>X (X: PF<sub>6</sub>, AsF<sub>6</sub>, SbF<sub>6</sub>, and TaF<sub>6</sub>)**  
Yasuhiro Kiyota, Tomofumi Kadoya, Kodai Iijima, Toshiki Higashino, Tadashi Kawamoto, Kazuo Takimiya and Takehiko Mori  
*Department of Organic and Polymeric Materials*
- P-4 Numerical analysis of vibration behavior of wind turbine blades**  
N. Miki, T. Kawaguchi and M. Okuma  
*Department of Mechanical and Aerospace Engineering*
- P-5 Blade Vibration Monitoring System available for Large Wind Turbines already in Site**  
T. Azami, T. Kawaguchi and M. Okuma  
*Department of Mechanical and Aerospace Engineering*
- P-6 Performance evaluation of an open loop dual-polarized MIMO (Multiple Input Multiple Output) system under Rician fading conditions -**  
Djiby Marema DIALLO and Jun-Ichi TAKADA  
*Department of International Development Engineering*
- P-7 Carrier injection and accumulation in double-layer OLED with secondary doped PEDOT:PSS anode**  
Takako Otsuka, Dai Taguchi, Takaaki Manaka, Mitsumasa Iwamoto  
*Department of Physical Electronics*
- P-8 Hybrid brain computer interface using EEG/Gaze in a cursor control task**  
Haofei WANG and Bertram SHI  
*Department of Electronic and Computer Engineering, Hong Kong University of Science & Technology*
- P-9 Compression Techniques for Graph Signals**  
Pei-Hsuan Hung and Isao Yamada  
*Department of Communications and Computer Engineering*
- P-10 Motivations of Content Development in Online Research Database: Towards Sustainable Platform for Knowledge Exchange and Sharing**  
T. Inoue, S.Y. Yamaguchi and J. Takada  
*Department of International Development Engineering*

*Break (11:00-11:10)*

**Plenary Lecture (11:10-12:10)**

Kuramae Hall, Tokyo Tech. Front

Prof. Kei Hirose

*Director, The Earth-Life Science Institute, Professor*

**What is ELSI?: Introduction to Our New Institute and Exciting Research**

Lunch (12:10-13:30)

ORAL SESSION 1 (13:30-14:45)

Presentation time: 11 min + Q&A: 3 min

Room A: W934 Lecture Room (3<sup>rd</sup> Floor) Mechanical Engineering

- A1-1 13:30-13:44 Car Design Evaluation Software (CDES)**  
PHAM ANH.V, NGUYEN HOAN.T  
*Hanoi University of Science and Technology - Department of Automotive Engineering*
- A1-2 13:45-13:59 Thermo-electric Model for Dielectric Breakdown by Phase-field Simulation**  
K. Soga, T. Saito, T. Kawaguchi and I. Satoh  
*Department of Mechanical and Control Engineering*
- A1-3 14:00-14:14 Early Co-design through Virtual Reality and Tangible User Interface**  
S.K. Maurya, P. Arrighi, C. Mougenot  
*Department of Mechanical Sciences and Engineering*
- A1-4 14:15-14:29 Experimental and Computational Studies on Flow between Concentric Rotating Cylinders**  
Z. W. Teo, Y. Nishiyama, T. Kawaguchi and T. Saito  
*School of Mechanical and Aerospace Engineering, Nanyang Technological University*
- A1-5 14:30-14:44 Distribution Analysis of Crossover Gas Transport Properties in PEFC Membrane**  
S. Ito, M. Kato and K. Fushinobu  
*Department of Mechanical and Control Engineering*

Room B: W935 Lecture Room (3<sup>rd</sup> Floor) Inorganic Chemistry

- B1-1 13:30-13:44 Crystalline Facet Effect of TiO<sub>2</sub> Scaffold on Organic-Inorganic Hybrid Perovskite Solar Cells**  
A. Tateyama, M. Maitani, Y. Wada  
*Department of Applied Chemistry*
- B1-2 13:45-13:59 Deoxidation of molten copper by oxygen pump using zirconia solid electrolyte**  
Yuya Morita, Yoshinao Kobayashi  
*Department of Metallurgy and Ceramics Science*

- B1-3 14:00-14:14 Copper-Zinc Intermetallic Catalytic Promoter for CO<sub>2</sub> Photoreduction**  
 Ge Yin, Hedeki Abe Etsuo Sakai and Masahiro Miyauchi  
*Department of Metallurgy and Ceramics Science*
- B1-4 14:15-14:29 Microfabrication of polystyrene quadrupole combined with top-down and bottom-up approach**  
 Tsuyoshi Takahashi, Akihiro Matsutani, Dai Shoji, Kunio Nishioka, Mina Sato, Toshihiro Isobe, Akira Nakajima, Sachiko Matsushita  
*Department of Metallurgy and Ceramics Science*
- B1-5 14:30-14:44 Metal nanostructures fabricated by the difference of interfacial energy at dielectric/metal interface**  
 T. Tatsuno, T. Sannomiya, T. Isobe, S. Matsushita and A. Nakajima  
*Department of Metallurgy and Ceramics Science*

*Break (14:45-14:55)*

**ORAL SESSION 2 (14:55-16:10)**

Presentation time: 11 min + Q&A: 3 min

Room A: W934 Lecture Room (3<sup>rd</sup> Floor) Electrical and Electronic Engineering

- A2-1 13:58-14:10 Impact Study of Photovoltaics on Daily Power Loss Reduction and Voltage Profiles with Optimal Configuration**  
 Koong Gia Ing, Toshiya Nanahara and H.Mokhlis  
*Department of Electrical and Electronic Engineering*
- A2-2 15:10-15:24 Study on the Ergodic Capacity of the 24×24 Wideband MIMO Channel in 11 GHz Band**  
 D.J. Suroso, K. Saito and J. Takada  
*Department of International Development Engineering,*
- A2-3 15:25-15:39 Study on Self-interference of Full Duplex Wireless Backhaul Links Between Base Stations**  
 Hao Liu and Jun-ichi Takada  
*Department of International Development Engineering*
- A2-4 15:40-15:54 Ultra high speed wireless communication leads to the BIG data world**  
 Zhang Haosheng, Kenichi Okada and Akira Matsuzawa *Department of Physical Electronics*
- A2-5 15:55-16:09 Development of a Narrow-Band Power Line Carrier Modem**  
 Nattakarn Wuthibenjaphonchai  
*Department of Electrical Engineering*

- B2-1 14:55-15:09 Deformation process of capillary induced contact between flat plates aligned at small interval**  
Takahiro Matsuo, Kousuke Takahashi, Kazuaki Inaba and Kikuo Kishimoto  
*Department of Mechanical Sciences and Engineering*
- B2-2 15:10-15:24 Synthesis of high-silica RHO-type zeolite with 8-membered ring pores by steam treatment**  
K. Ibata and M. Okamoto  
*Department of Applied Chemistry*
- B2-3 15:25-15:39 Effect of Carbon/carbonate Slurry on Power Generation of DCFC**  
A. Kimura, H. Watanabe and K. Okazaki  
*Department of Mechanical and Control Engineering*
- B2-4 15:40-15:54 Influence of Addition of Hydrogen on Reduction Behavior of Sinter Ore Using High Temperature X-ray Diffraction**  
Cai Boyuan, Watanabe Takashi, Hayashi Miyuki  
*Department of Metallurgy and Ceramics Science*
- B2-5 15:55-16:09 Magnetic Particle Movement-Assisted Porosity Alignment of Collagen-based Scaffold**  
Irawan V., Sugiyama T., and Ikoma T.  
*Department of Metallurgy and Ceramics Science*

*Friday, 7<sup>th</sup> August*

ORAL SESSION 3 (9:00-10:15)

Presentation time: 11 min + Q&A: 3 min

Room A: W934 Lecture Room (3<sup>rd</sup> Floor) Metallurgy & Building Materials

- A3-1 9:00-9:14 Measurement of density of oxide scale for cooling rate control of steel**  
H. Hiroki, R. Endo and M. Susa  
*Department of Metallurgy and Ceramics Science,*
- A3-2 9:15-9:29 Evaluation of heat transfer properties of the steel oxide scale by the water evaporation rate measurement**  
Y. Ohsugi, R. Endo, M. Ueda and M. Susa  
*Department of Metallurgy and Ceramics Science*
- A3-3 9:30-9:44 Estimating the Higher Mode Shear Amplification in Hybrid Precast Concrete Wall Buildings**  
H. A. D. Samith Buddika and Anil C. Wijeyewickrema  
*Department of Civil and Environmental Engineering*
- A3-4 9:45-9:59 Development of available cement material for salt damage environment**  
Shinsugi Masashi, Atarashi Daiki, Miyauchi Masahiro and Sakai Etsuo\*  
*Department of Metallurgy and Ceramics Science*
- A3-5 10:15-10:29 Design Recommendations for Efficient Seismic Response of Reinforced Concrete Coupled Walls**  
R.K. Adhikari, A. C. Wijeyewickrema  
*Department of Civil and Environmental Engineering*

Room B: W935 Lecture Room (3<sup>rd</sup> Floor) Organic Chemistry

- B3-1 9:00-9:14 Synthesis and Properties of Hyperbranched Aromatic Polyamide with Carboxylic Acid Terminal Groups from an ABB' Type Monomer**  
F. Hosokoshi, Y. Nabae, T. Hayakawa, M. Kakimoto  
*Department of Organic and Polymeric Materials*
- B3-2 9:15-9:29 Changes in Aggregation Structures of Polyimides Caused by Intermolecular Photo-crosslinking under Very High Pressure**  
E. Fujiwara, H. Fukudome, K. Murakami, R. Ishige and S. Ando  
*Department of Chemistry and Materials Science*
- B3-3 9:30-9:44 Correlation between Dark-current and Light Absorption of Polyimides**

**having a TPA Structure**

T. Chino, S. Fukuchi, K. Takizawa, S. Asai, R. Ishige, and S. Ando\*

*Department of Chemistry and Materials Science*

**B3-4 9:45-9:59 Control of photo-induced electron transfer using chemical designed hetero stacked structures**

T. Ano, F. Kishimoto, T. Terauchi, D. Mochizuki, M. Maitani, E. Suzuki, Y. Wada

*Department of Applied Chemistry*

**B3-5 10:00-10:14 Sulfonic Acid Functionalized Hyperbranched Poly(ether sulfone) Grafted onto Carbon Black as a Solid Acid Catalyst**

M. Tomita, J. Liang, Y. Nabae, T. Hayakawa and M. Kakimoto

*Department of Organic and Polymeric Materials*

**ORAL SESSION 4 (10:30-12:00)**

**Presentation time: 11 min + Q&A: 3 min**

**Room A: W934 Lecture Room (3<sup>rd</sup> Floor) Social Engineering**

**A4-1 10:30-10:44 New Method to Evaluate the Shear Capacity of Tapered RC Beams without Shear Reinforcement**

C. Hou, T. Nakamura, T. Iwanaga and J. Niwa

*Department of Civil Engineering*

**A4-2 10:45-10:59 Average Building Height Construction for Mesoscale Modeling Purposes**

N.S. Darmanto, A.C.G. Varquez and M. Kanda

*Department of International Development Engineering*

**A4-3 11:00-11:14 Pricing Strategy of E-commerce Company's Cross-border Logistics Considering Different Customer Utilities and Volume Discount Contracts**

H.L. Shih, David Ming-Huang Chiang Andy Ruey-Shan Guo

*Institute of Industrial Engineering, National Taiwan University, Taiwan*

**A4-4 11:15-11:29 Design of A Wearable Device for Emotional Communication**

T.C. Eow and C. Mougenot

*Department of Mechanical Sciences and Engineering*

**A4-5 11:30-11:44 Warehouse Location Determination For Humanitarian Relief Distribution in Nepal**

R. Maharjan, S. Hanaoka

*Department of International Development Engineering*

**A4-6 11:45-11:59 Combined Laser Diagnostic of Turbulent Combustion in a Swirling Chamber**

Wei Guo, Masayashu SHIMURA

*Department of aerospace and aviation , Tsinghua University*

Room B: W935 Lecture Room (3<sup>rd</sup> Floor) Mechanical Engineering

**B4-1 10:30-10:44 Influence of spatial beam profiles on laserscribing of thin film silicon solar cells**

R. Iida, B. Kim, H.D. Doan, and K. Fushinobu

*Department of Mechanical and Control Engineering*

**B4-2 10:45-10:59 Antiplane Wave Cloaking of an Elastic Circular Cylinder**

P. Tuttipongsawat and A.C. Wijeyewickrema

*Department of Civil Engineering*

**B4-3 11:00-11:14 Degradation of Fiber/Matrix Interfacial Properties due to Fatigue**

Hidekazu Arai, Bentang Arief Budiman, Kosuke Takahashi, Kazuaki Inaba and Kikuo Kishimoto

*Department of Mechanical Sciences and Engineering*

**B4-4 11:15-11:29 A Study of Utilization Plane Feature Extraction in ICP Based Fine Registration**

Muslimin, Jiang Zhu and Yoshioka Hayato

*Department of Mechanical and Control Engineering*

**B4-5 11:30-11:44 Studies on a method to estimate vibration of wind turbine blades**

A. Aihara, T. Kawaguchi and M. Okuma

*Department of Mechanical and Aerospace Engineering*

**B4-6 11:45-11:59 Giacometti Robotics: an Ultra-light, Strong and Large Scale Robot**

F. Ni, S. Kurumaya and K. Suzumori

*Department of Mechanical and Aerospace Engineering*

*Lunch (10:30-10:40)*

**ORAL SESSION 5 (13:10-14:40)**

Presentation time: 11 min + Q&A: 3 min

Room A: W934 Lecture Room (3<sup>rd</sup> Floor) Electronic & Communication Engineering

**A5-1 13:10-13:24 Thermoelectric Powered Wireless Sensor System for Small Modular Reactors**

Byunggi Kim, Hanfei Chen, He Tao, Madher Tewolde, Kazuyoshi

- Fushinobu, and Jon P. Longtin  
*Department of Mechanical and Control Engineering*
- A5-2 13:25-13:39 Development of Channel Sounder for Outdoor Distributed Wireless Networks**  
T. Srisooksai and J. Takada  
*Department of International Development of Engineering*
- A5-3 14:25-14:39 Exciton dynamics at the organic donor-acceptor interface studied by transient optical spectroscopies**  
T. Takenaka, T. Manaka and M. Iwamoto  
*Department of Physical Electronics*
- A5-4 13:40-13:54 Investigation of Clusters in Indoor Millimeter Wave Propagation**  
K. Wangchuk, K. Saito and J. Takada  
*Department of International Development Engineering*
- A5-5 13:55-14:09 Frequency Synthesizer for 5G Cellular Network**  
Liu Hanli, Teerachot Siriburanon, Kengo Nakata, Kenichi Okada and Akira Matsuzawa  
*Department of Physical Electronics*
- A5-6 14:10-14:24 Terahertz detectors for sensing and imaging applications**  
D. Suzuki, N. Fujimura, T. Hirano, S. Oda and Y. Kawano  
*Department of Physical Electronics*

Room B: W935 Lecture Room (3<sup>rd</sup> Floor) Organic Chemistry

- B5-1 13:10-13:24 Creation of Well-ordered nanostructured Polyimide films**  
Y. Kushima, T. Hayakawa  
*Department of Organic and Polymeric materials*
- B5-2 13:25-13:39 TEMPO Functionalized Hyperbranched Polyimide for Heterogeneous Catalysis**  
Nobuhiro Takusari  
*Department of Organic and Polymeric Materials*
- B5-3 13:40-13:54 Purification of by-product glycerin on biodiesel production from used frying oil**  
Zhenqiang SHI, Hiroaki HABAKI and Ryuichi EGASHIRA  
*Department of International Development Engineering*
- B5-4 13:55-14:09 Self-assembly Nanotemplating For Well-ordered  $\pi$ -Conjugated Polythiophenes**  
K. Azuma, T. Hayakawa  
*Department of Organic and Polymeric materials*

- B5-5 14:10-14:24 Interfacial behavior of hyperbranched polystyrene modified by thermo-responsive polymer and its application to cell cultivation**  
Y. Sudo, Y. Nabae, T. Hayakawa and M. Kakimoto  
*Department of Organic and Polymeric Materials*
- B5-6 14:25-14:39 A new metal-free azide-alkyne click reaction for the chemical crosslinking of commodity polymers**  
Satomi Fukushima and Tsuyoshi Michinobu  
*Department of Organic and Polymeric Materials*

*Break (14:40-14:55)*

**ORAL SESSION 6 (14:55-16:10)**

**Presentation time: 11 min + Q&A: 3 min**

**Room A: W934 Lecture Room (3<sup>rd</sup> Floor)** Architecture

- A6-1 14:55-15:09 Embankment supported by deep mixing columns and a shallow mixing layer**  
B.T.T. Nguyen, T. Takeyama and M. Kitazume  
*Department of Civil Engineering*
- A6-2 15:10-15:24 Evaluation of Nonlinear Static Procedures for Unsymmetric-Plan RC Buildings**  
A. Shrestha and A. C. Wijeyewickrema  
*Department of Civil and Environmental Engineering*
- A6-3 15:25-15:39 Understanding factors affecting primary school teachers' use of ICT for student-centered education in Mongolia**  
S. Li, S. Yamaguchi  
*Department of International Development Engineering*
- A6-4 15:40-15:54 Behavior of RC Interface between Old and New Slabs under Push-off Test**  
Fakhruddin, T. Nakamura, M. Yamada and J. Niwa  
*Department of Civil Engineering*
- A6-5 15:55-16:09 Response of High-Rise Base-Isolated Reinforced Concrete Buildings Under Seismic Excitation**  
S. Bhagat and A. C. Wijeyewickrema  
*Department of Civil and Environmental Engineering*

Room B: W935 Lecture Room (3<sup>rd</sup> Floor) Metallurgical engineering

- B6-1 14:55-15:09 Solar hydrogen production based on ubiquitous quantum dots**  
Yuhiro Shiga, Srinivasan Nagarajan , Daiki Atarashi , Etsuo Sakai and Masahiro Miyauchi  
*Department of Metallurgy and Ceramics Science*
- B6-2 15:10-15:24 Coating mesoporous silica walls with titania**  
H. Satake and M. Okamoto  
*Department of Applied Chemistry*
- B6-3 15:25-15:39 Development of Thermal Conductivity Measurement Apparatus utilizing Principle of Bunsen Ice Calorimeter**  
M. Li, R. Endo and M. Susa  
*Department of Metallurgy and Ceramics Science*
- B6-4 15:40-15:54 Evaluation of the wettability between Cu-Fe alloy and FeO ~to prevent surface hot shortness**  
Daiki Kato, Yoshinao Kobayashi and Masahiro Susa  
*Department of Metallurgy and Ceramics Science*
- B6-5 15:55-16:09 Synthesis of hyperbranched polymer functionalized with ionic groups for thermosensitive cell culture surfaces**  
R. Kawai, Y. Sudo, Y. Nabae, T. Hayakawa, M. Kakimoto  
*Department of Organic and Polymeric Materials*

*Break (16:10-16:30)*

**Group Work (16:30-17:50)**

Co-op 1<sup>st</sup> Cafeteria

*Break (17:50-18:00)*

**Banquet and Award Ceremony (18:00-20:00)**

Co-op 1<sup>st</sup> Cafeteria