2nd Joint Workshop between NTU, Singapore and Tokyo Tech

November 17-18, 2016
Tokyo Institute of Technology
Day 1 - November 17 (Thursday)

Opening & Plenary Sessions (9:30-12:15)

9:00 Registration

9:30 Opening Session @West Bldg 5, W531, Lecture Theatre

9:30-9:45 Welcome Remarks
Dr. Yoshinoa MISHIMA, President (Tokyo Tech)

9:45–10:00 Opening Remarks
Prof. LAM Khin Yong, Chief of Staff and Vice President for Research (NTU)

10:00-10:30 Developments of Energy Storage and Conversion Devices
Prof. Ryoji KANNO (Tokyo Tech)

10:30-11:00 Introduction to Energy Research Institute at Nanyang Technological University
Prof. CHAN Siew Hwa (NTU)

11:00 Coffee Break @Entrance to Lecture Theatre

11:15 Plenary Session @West Bldg 5, W531, Lecture Theatre

11:15-11:45 Utilization of CO2 as a Renewable Carbon Resource
Prof. Nobuharu IWASAWA (Tokyo Tech)

11:45-12:15 Reductive Molecular Transformation by Sodium Hydride
Prof. Shunsuke CHIBA (NTU)
Breakout Sessions (13:45-17:20)

Session 1: Robotics

13:45 -17:20  Session 1  @West Bldg 5, W531, Lecture Theatre

Moderator: Prof. Yukio TAKEDA (Tokyo Tech)

13:45 -15:25  Session 1-1: Assistive Robotics Technology to Support Aged Society

13:45-14:10  Introduction, Interactive Design of Assistive Devices
Prof. Yukio TAKEDA (Tokyo Tech)

14:10-14:35  From Robot-Aided Rehabilitation to Soft Wearable Exosuit: Human in the Loop
Assist. Prof. Lorenzo MASIA (NTU)

14:35-15:00  Artificial Heart and Power Supply Systems for Heart Failure Patients
Assoc. Prof. Wataru HIJIKATA (Tokyo Tech)

15:00-15:25  Soft Robotics - their applications and basic technologies -
Prof. Koichi SUZUMORI (Tokyo Tech)

15:25-15:40  Coffee break

15:40-17:20  Session 1-2: Robot Technology to Support New Industry

15:40-16:05  Robotic Solutions for Infrastructure Preventive Maintenance
Dr. Michele GUARNIERI (HiBot)

16:05-16:30  Robotic Manipulation with Contact and Dynamics
Assist. Prof. PHAM Quang Cuong  (NTU)

16:30-16:55  Assistive Mobile Robot and Decommissioning Robot
Assoc. Prof. Gen ENDO (Tokyo Tech)

16:55-17:20  Surgical Robot Systems using Pneumatic Actuators
Assoc. Prof. Kotaro TADANO (Tokyo Tech)
Session 2: Hydrogen Energy

13:45 - 15:25  Session 2  @West Bldg 8, 10F, Conf. Rm

Moderator:  Prof. Ken OKAZAKI (Tokyo Tech)

Prof. Manabu IHARA (Tokyo Tech)

14:05-14:30  Fuel Cell and Hydrogen Technologies Programme at ERI@N
Prof. CHAN Siew Hwa (NTU)

14:30-14:50  Developments of Chalcogenide Based Thin-Film Solar Cells
Prof. Akira YAMADA (Tokyo Tech)

14:50-15:10  Chemical Energy Conversion to Chemicals and Power using a FC Reactor and New Electrocatalysts
Prof. Ichiro YAMANAKA (Tokyo Tech)

15:10-15:25  Panel Discussion among speakers and audience on a possible collaboration among NTU and Tokyo Tech

15:25-15:40  Coffee break

Session 3: Recycling of Materials and Separation of Elements/Nuclides

15:40 - 17:20  Session 3  @West Bldg 8, 10F, Conf. Rm

Moderator:  Assoc. Prof. Koichiro TAKAO (Tokyo Tech)

15:40-16:00  Removal of Radioactive Cesium from Soil contaminated by Fukushima Daiichi NPP Accident
Prof. Kenji TAKESHITA (Tokyo Tech)

16:00-16:20  Crystallochemical Designs for Nuclear Waste Fixation
Prof. Tim WHITE (NTU)

16:20-16:40  Micro-Nano Fluidic Device for Separation and Analysis of Radionuclides
Assoc. Prof. Takahiko TSUKAHARA (Tokyo Tech)

16:40-17:00  Ionic Liquids and Their Application in Separation
Assoc. Prof. LEE Jong-Min (NTU)

17:00-17:20  R&E in Nuclear Safety and Security
Prof. Claude GUET (NTU)
Session 4: New Molecular Chemistry

13:45 - 17:20  Session 4  @Main Bldg, Rm 345

Moderator:  Prof. Nobuharu IWASAWA (Tokyo Tech)

13:45-14:05  High-density Polymer Brushes Offering a Surface for Near-zero Azimuthal Anchoring of Liquid Crystals at Room Temperature
Assoc. Prof. Masatoshi TOKITA (Tokyo Tech)

14:05-14:25  Organocatalyzed Controlled Polymerization for Polymer Structural Design and Polymer Material Design
Assoc. Prof. Atsushi GOTO (NTU)

14:25-14:45  Metal Assembly in Organometallic Sandwich Frameworks
Prof. Tetsuro MURAHASHI (Tokyo Tech)

14:45-15:05  Molecular Transformation with Vinyl Azides
Prof. Shunsuke CHIBA (NTU)

15:05-15:25  Molecular-based Heterogeneous Photocatalysts for Solar Fuel Production
Assoc. Prof. Kazuhiko MAEDA (Tokyo Tech)

15:25-15:40  Coffee break

15:40-16:00  Artificial Photosynthesis by Light Absorption, Hydrogen Evolution, and Biomass Valorization
Assist. Prof. SOO Han Sen (NTU)

16:00-16:20  Bipolar Electropolymerization toward Conductive Material Networks
Assoc. Prof. Shinsuke INAGI (Tokyo Tech)

16:20-16:40  2D Materials for Electrocatalytic Carbon Dioxide and Proton Reduction
Assoc. Prof. Martin PUMERA (NTU)

16:40-17:00  SERS measurement of Single Molecular Junction
Prof. Manabu KIGUCHI (Tokyo Tech)

17:00-17:20  Plasmonic Liquid Marbles for In-situ Reaction Kinetics Tracking at Liquid-liquid Interface
Assoc. Prof. LING Xing Yi (NTU)

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**Session 5: Water Resources**

13:45 - 15:25  **Session 5**  @Main Bldg, Rm 410

**Moderator:** Prof. Shinjiro KANAE (Tokyo Tech)

13:45-14:05  *Fundamental and Applied Research for Enhancing Sustainability of Water Environments*
Assoc. Prof. Chihiro YOSHIMURA & Adjunct Assoc. Prof. Manabu FUJII (Tokyo Tech)

14:05-14:25  *High Performance Computational Hydraulics*
Assoc. Prof. LAW Wing Keung, Adrian (NTU)

14:25-14:45  *Advancements in Urban Climate Research at Tokyo Tech*
Adjunct Lecturer Alvin C.G. VARQUEZ (Tokyo Tech)

14:45-15:05  *Molecular Modeling of Seawater Treatment Processes using Novel Nanomaterials*
Assist. Prof. ZHOU Kun (NTU)

15:05-15:25  *The Impact and Control of Microbial Communities in Aquatic Systems*
Assoc. Prof. Scott RICE (NTU)

15:25-15:40  Coffee Break

**Session 6: Medical Engineering and Brain Science**

15:40 -17:20  **Session 6**  @Main Bldg, Rm 410

**Moderator:** Prof. Nobuhiro NISHIYAMA (Tokyo Tech)

15:40-15:57  *NTU’s Strategic Perspective for Neuroimaging: CeNReN*
Dr. PARASURAMAN Padmanabhan (NTU)

15:57-16:13  *Dystonia and Parkinsonism Caused by a Deficiency of Tetrahydrobiopterin*
Prof. Hiroshi ICHINOSE (Tokyo Tech)

16:13-16:30  *Engineering Broad-Spectrum Virucidal Drugs to Target Enveloped Viruses*
Assoc. Prof. CHO Nam-Joon (NTU)

16:30-16:46  *Design of Multifunctional Proteins for Tissue Engineering*
Prof. Eiry KOBATAKE (Tokyo Tech)

16:46-17:03  *Emotion Recognition using EEG Signals*
Assoc. Prof. SER Wee (NTU)

17:03-17:20  *Ultrasonic Actuator Technologies for Medical Applications*
Prof. Kentaro NAKAMURA (Tokyo Tech)
Day 12 - November 18 (Friday)
Keynote Presentations, Wrap-up & Closing Sessions
(9:30-12:40)

9:30     **Keynote Presentations**  @West Bldg 5, W531, Lecture Theatre

9:30-10:00  *Design and Control of Robots with Underactuated Mechanisms*
Prof. Nobuyuki IWATSUKI (Tokyo Tech)

10:00-10:30  *Robotics Activities in Automation Systems at DENSO*
Dr. Fumio KOJIMA (Denso Corporation)

10:30-11:00  *Innovations in Infrastructure Service Robotics*
Prof. CHEN I-Ming (NTU)

11:00     **Coffee Break**  @Entrance to Lecture Theatre

11:15     **Wrap-up Session**  @West Bldg 5, W531, Lecture Theatre

11:15-11:27   Report on Session 1: Robotics (12 min)
11:28-11:40   Report on Session 2: Hydrogen Energy (12 min)
11:40-11:52   Report on Session 3: Recycling of Materials and Separation of Elements/Nuclides (12 min)
11:53-12:05   Report on Session 4: New Molecular Chemistry (12 min)
12:05-12:17   Report on Session 5: Water Resources (12 min)
12:18-12:30   Report on Session 6: Medical Engineering and Brain Science (12 min)

12:30     **Closing Session**  @West Bldg 5, W531, Lecture Theatre

12:30-12:35   *Closing Remarks*
Prof. Tim WHITE (NTU)

12:35-12:40   *Closing Remarks*
Prof. Naoto OHTAKE (Tokyo Tech)
November 17 (Thu)

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