



2<sup>nd</sup>  
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. Yoshinao 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 CO<sub>2</sub> 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)

13:45-14:05 *Future Prediction of Hydrogen Energy System under NEDO Project: The Research Plan of 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)

## 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)

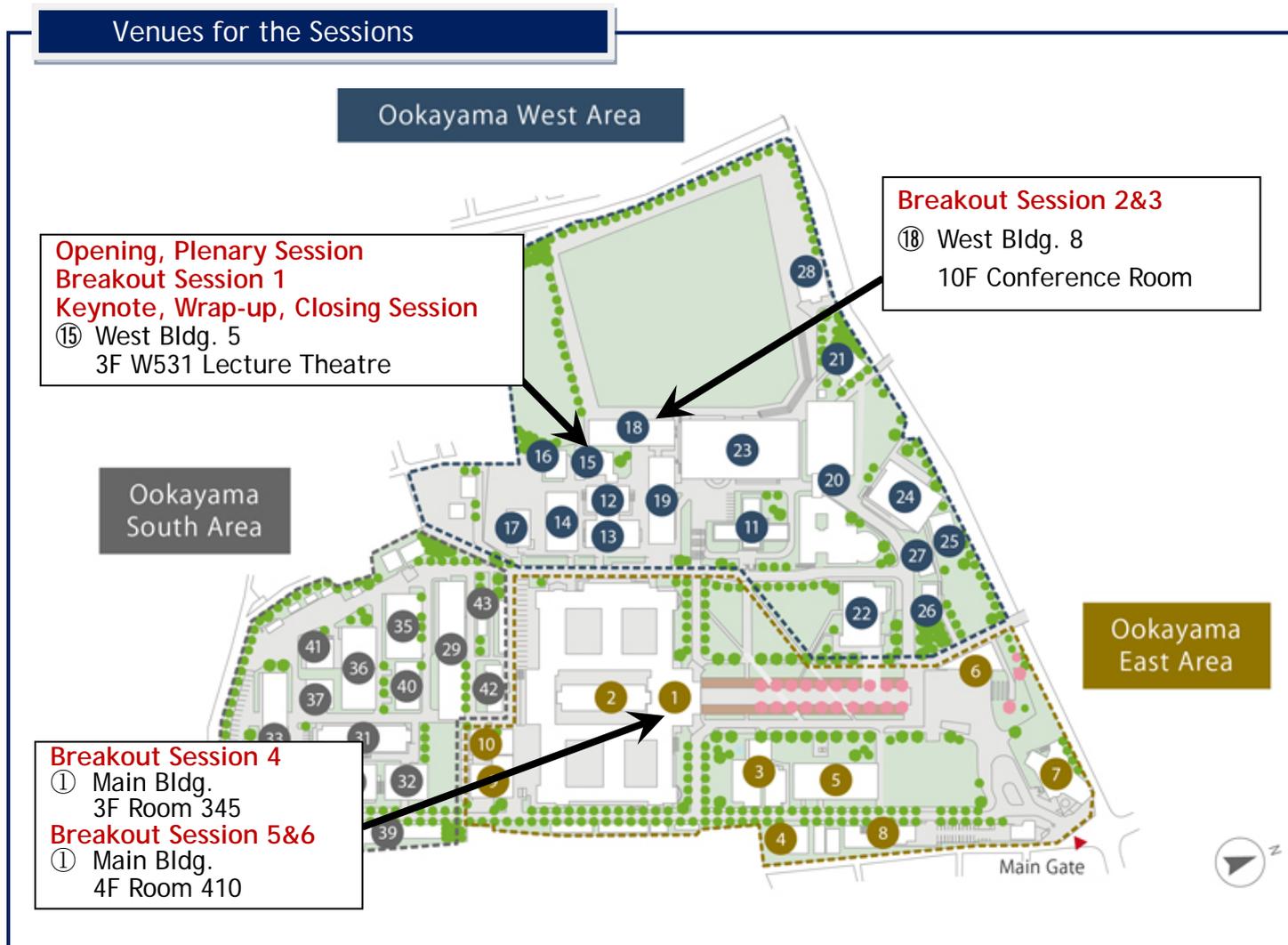
16:46-17:03 *Emotion Recognition using EEG Signals*

Assoc. Prof. SER Wee (NTU)

17:03-17:20 *Ultrasonic Actuator Technologies for Medical Applications*

Prof. Kentaro NAKAMURA (Tokyo Tech)





November 17 (Thu)

Time	Session & Event	Venues	Map
9:30 - 12:20	Opening & Plenary Session	West Bldg.5, 3F W531 Lecture Theatre	15
13:45 - 17:20	Session 1: Robotics	West Bldg.5, 3F W531 Lecture Theatre	15
13:45 - 15:25	Session 2: Hydrogen Energy	West Bldg.8, 10F Conference Room	18
15:40 - 17:20	Session 3: Recycling of Materials and Separation of Elements/Nuclides	West Bldg.8, 10F Conference Room	18
13:45 - 17:20	Session 4: New Molecular Chemistry	Main Bldg. 3F Room 345	1
13:45 - 15:25	Session 5: Water Resources	Main Bldg. 4F Room 410	1
15:40 - 17:20	Session 6: Medical Engineering and Brain Science	Main Bldg. 4F Room 410	1

November 18 (Fri)

Time	Session & Event	Venue	Map
9:30 - 12:40	Keynote, Wrap-up & Closing Session	West Bldg.5, 3F W531 Lecture Theatre	15