

## PROGRAM

### MANA International Symposium 2018

5<sup>th</sup> March – 7<sup>th</sup> March, 2018

Venue: *Tsukuba International Congress Center EPOCHAL TSUKUBA*

(Address: 2-20-3, Takezono, Tsukuba, Ibaraki, 305-0032, Japan)

#### ***Monday March 5<sup>th</sup>***

18:00 - Reception

#### ***Tuesday March 6<sup>th</sup>***

##### **Opening**

(Chair: Tomonobu Nakayama)

9:00 - 9:05 Opening Address

**Kazuhiro Hashimoto** (President of NIMS)

9:05 - 9:15 Greetings

**Ryuma Ohara** (Director of Office for Basic Research Programs, Basic Research  
Promotion Division, MEXT)

**Akira Ukawa** (Program Director of WPI; Deputy Director, RIKEN Advanced  
Institute for Computational Science)

9:15 - 9:30 Outline of MANA

**Takayoshi Sasaki** (MANA Director)

##### **Keynote Lecture 1**

(Chair: Tomonobu Nakayama)

9:30 - 10:20 Can we reverse-engineer the brain?

**Michael Roukes** (Professor, California Institute of Technology) **(Invited)**

10:20 - 10:30 *Group Photograph at the Main Entrance*

10:30 - 10:45 *Coffee Break*

##### **Session 1: Future of Nanosensors**

(Chair: Jin Kawakita)

10:45 - 11:15 Nanosensors and centrifugal microfluidics

**Anja Boisen** (Professor, Technical University of Denmark) **(Invited)**

11:15 - 11:45 Measurement-oriented Machine Learning for Advanced Sensing

**Takashi Washio** (Professor, the Institute of Scientific and Industrial Research,  
Osaka Univ.) **(Invited)**

11:45 - 12:00 Nanomechanical Sensors (MSS, AMA) toward Olfactory IoT Sensing Systems

**Genki Yoshikawa** (Group Leader, MANA)

12:00 - 12:15 Torque magnetometry using a membrane-type surface stress sensor  
**Hideyuki Takahashi** (Assistant Professor, Kobe University) **(Invited)**

12:15 - 13:30 *Lunch*

**Session 2: Application of 2D Nanomaterials** (Chair: Yutaka Wakayama)

13:30 - 14:00 Graphene and 2D material-based devices for sensing application

**Max Christian Lemme** (Professor, RWTH Aachen University) **(Invited)**

14:00 - 14:30 Emission and detection of terahertz radiation using graphene-based atomically-thin 2D heterostructures

**Taiichi Otsuji** (Professor, Research Institute of Electrical Communication Tohoku University) **(Invited)**

14:30 - 14:45 Topological Transport in Graphene Superlattices

**Satoshi Moriyama** (Senior Reseacher, MANA)

14:45 - 15:00 Semiconductor Devices of Organic Nano-sheet Crystals

**Jun Takeya** (Professor, University of Tokyo; PI, MANA)

15:00 - 15:20 *Coffee Break*

**Session 3: Interplay between Nano and Light** (Chair: Tadaaki Nagao, Genki Yoshikawa)

15:20 - 15:50 How is light converted into uni-directional ion transport in rhodopsins?

**Hideki Kandori** (Professor, Nagoya Institute of Technology) **(Invited)**

15:50 - 16:20 Bringing Photonics to the Atomic Scale

**Javier Aizpurua** (Professor, CSIC-UPV/EHU and DIPC) **(Invited)**

16:20 - 16:50 Coordination Nanosheet (CONASH) - Synthesis, Structure and Functions

**Hiroshi Nishihara** (Professor, The University of Tokyo) **(Invited)**

16:50 – 17:05 A non-toxic heavy-metal-free light-emitting diodes based on silicon nanocrystals

**Naoto Shirahata** (Associate Principal Investigator, MANA)

17:05 - 17:20 Spectroscopic Nano-transducers for Sensing Applications

**Tadaaki Nagao** (MANA Principal Investigator, Group Leader, MANA)

17:20 – 17:30 *Break*

17:30 - 18:50 **Poster Session 1**

19:00 - *Banquet*

**Wednesday March 7<sup>th</sup>**

**Young Scientists' Session**

(Chair: Renzhi Ma)

- 9:00 - 9:15      Data Processing Protocols for Chemical Sensors  
                    **Gaku Imamura** (Independent Researcher, MANA)
- 9:15 – 9:30      Magnetic Control of Electric Double Layer Transistor  
                    **Takashi Tsuchiya** (Senior Researcher, MANA)
- 9:30 – 9:45      Toxic gas detector based on carbon nanotube and supramolecular polymer  
                    **Shinsuke Ishihara** (Senior Researcher, MANA)
- 9:45 - 10:00      Conformation Manipulation and Motion of a Double Paddle Nanocar for  
                    the International Nanocar Race  
                    **Waka Nakanishi** (Senior Researcher, MANA)
- 10:00 - 10:30      *Morning Tea*

**Session 4: Functionality of Supramolecular Systems**

(Chair: Katsuhiko Ariga)

- 10:30 - 11:20      **Keynote Lecture 2**  
                    Potential Frameworks of Dynamic Molecular Recognition That We Can View beyond  
                    the Era of Molecular Machines  
                    **Seiji Shinkai** (Professor, Institute for Advanced Study, Kyushu University) **(Invited)**
- 11:20 - 11:50      Chromopore-Catalyst Assemblies for Solar Fuels  
                    **Kirk Schanze** (Professor, University of Florida) **(Invited)**
- 11:50 - 12:05      Functional Molecular Liquids towards Liquid Electret Applications  
                    **Takashi Nakanishi** (Group Leader, MANA)
- 12:05 - 12:20      Fullerene Nanocarbon Materials Self-Assembled at Liquid-Liquid Interface  
                    **Lok Kumar Sherestha** (Senior Researcher, MANA)
- 12:20 - 13:35      *Lunch*
- 13:00 - 14:00      **Poster Session 2**

**Keynote Lecture 3**

(Chair: Masakazu Aono)

- 14:00 - 14:50      From disease related protein mis-folding to advanced medicine - nanostructures  
                    at work  
                    **Sir Mark Welland** (Professor, University of Cambridge;  
                                    Master of St Catharine's College, Cambridge) **(Invited)**

**Session 5: Adaptive Properties of Nanomaterials**

(Chair: Takashi Nakanishi)

- 14:50 - 15:20    Sensor and actuators based on stimuli-responsive polymer nanomaterials  
                    **Albert P. H. J. Schenning** (Professor, Eindhoven University of Technology)  
                    **(Invited)**
- 15:20 - 15:50    Metal-based Supramolecular Array, Space and Motion  
                    **Mitsuhiko Shionoya** (Professor, The University of Tokyo) **(Invited)**
- 15:50 - 16:05    Ion conducting and electrocatalytic properties of 2D nanosheets  
                    **Renzhi Ma** (Associate Principal Investigator, MANA)
- 16:05 - 16:20    Block Copolymers Got Rhythm: Self-Assembly Supported by Dissipative Structure  
                    **Takeshi Ueki** (Senior Researcher, MANA)
- 16:20 - 16:40    *Afternoon Tea*

**Session 6: Energy & Signal Conversion using Nanomaterials**

(Chair: Naoki Fukata)

- 16:40 - 17:10    Plasmon-Enhanced Solar Energy Conversion in Metal-Semiconductor  
                    Heterojunctions  
                    **Nianqiang Wu** (Professor, West Virginia University) **(Invited)**
- 17:10 - 17:25    Photoelectric conversion using titanium nitride nanostructures  
                    **Satoshi Ishii** (Senior Researcher, MANA)
- 17:25 - 17:40    Rational Design and Engineering of Active Sites for Efficient Solar Fuel Production  
                    **Jinhua Ye** (MANA Principal Investigator, Group Leader, MANA)
- 17:45 - 18:00    **Award and Closing Ceremony**