

# PROGRAM

## MANA International Symposium 2019

4<sup>th</sup> March - 6<sup>th</sup> March, 2019

Venue: *Tsukuba International Congress Center EPOCHAL TSUKUBA*

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

### ***Monday, March 4<sup>th</sup>***

17:30 - *Registration*

18:00 - *Reception*

### ***Tuesday, March 5<sup>th</sup>***

8:30 - *Registration*

#### **Opening**

*(Chair: Tomonobu NAKAYAMA)*

9:00 - 9:15 *Greetings*

**Kazuhito HASHIMOTO** (President, NIMS)

**Tadatoshi KANEKO** (Director, WPI / Office for Basic Research Programs,  
Basic Research Promotion Division, MEXT)

**Akira UKAWA** ( WPI Program Director, JSPS)

9:15 - 9:35 *Research Activities of MANA*

**Takayoshi SASAKI** (Director, MANA, NIMS)

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

*(Chair: Takayoshi SASAKI)*

9:35 - 10:20 *" Nanoscale Multimaterials with Complex Anisotropies "*

**Gero DECHER** (Professor, University of Strasbourg, France)

10:20 - 10:35 *Group Photograph at the lobby staircase*

10:35 -11:00 *Coffee Break*

#### **Session 1: Adaptive Soft Materials**

*(Chair: Francoise Winnik, Naoto Shirahata )*

11:00 - 11:30 *"Stretchable Electronics and Energy Conversion Using Nano Perceptive Materials and Devices"*

**Pooi See LEE** (Professor, Nanyang Technological University, Singapore) **(Invited)**

11:30 - 12:00 *"Light-Directing Liquid Crystalline Nanostructures: From 1D to 3D"*

**Quan LI** (Professor, Kent State University, USA) **(Invited)**

12:00 - 12:30 *"Functional Molecular Liquids toward Stretchable Electret Applications"*

**Takashi NAKANISHI** (Group Leader, MANA) **(MANA Invited)**

12:30 - 13:30 *Lunch & Poster Session*

## Session 2: Functional Materials for Bio-Nano Sciences

(Chair: James K. Gimzewski, Jun Nakanishi)

- 13:30 - 14:00     *"Construction and Functional Emergence of Bioactuated Micro Nano System and Living Machined Wet Robotics"*  
**Keisuke MORISHIMA** (Professor, Osaka University, Japan) **(Invited)**
- 14:00 - 14:30     *"User-Programmable Hydrogel Biomaterials to Probe and Direct 4D Stem Cell Fate"*  
**Cole DEFOREST** (Assistant Professor, University of Washington, USA) **(Invited)**
- 14:30 - 14:45     *"Transmembrane Electric Wire Synthesized in Living Bacteria"*  
**Akihiro OKAMOTO** (Independent Scientist, MANA)
- 14:45 - 15:00     *" Self-assembling Pyrazinacenes "*  
**Jonathan HILL** (MANA Scientist, MANA, ICYS OB)
- 15:00 - 15:20     *Coffee Break*

## Session 3: Emergent Phenomena in Low-Dimensional and Topological Materials

(Chair: Akihiro Tanaka, Takashi Uchihashi )

- 15:20 - 15:50     *"Majorana Fermions in Topological Magnets"*  
**Yukitoshi MOTOME** (Professor, The university of Tokyo, Japan) **(Invited)**
- 15:50 - 16:20     *"Direct observation of nodal fermions in topological semimetals"*  
**Seigo SOUMA** (Associate Professor, Tohoku University, Japan) **(Invited)**
- 16:20 - 16:35     *"Spectroscopic demonstration of Opto-spincurrent control"*  
**Ryuichi ARAFUNE** (MANA Scientist, MANA)
- 16:35 - 16:50     *"Valley Hall Effect in Graphene/Hexagonal Boron Nitride Heterostructures"*  
**Takuya IWASAKI** (ICYS Researcher, ICYS)

## Special Talk & Poster Session

(Chair: Tomonobu Nakayama)

- 17:00 - 17:30     **Special Talk;**  
*"Two Demons who brought Quantum Computer"*  
**Aya FURUTA** (Chief Editor, Nikkei Science, Japan) **(Invited)**
- 17:00 - 18:30     *Poster Session*
- 18:30 - 20:30     *Banquet*

## Wednesday March 6<sup>th</sup>

## Session 4: Nanomaterials and Structures for Perceptive Systems

### Keynote Lecture 2;

(Chair: Katsuhiko Ariga, Jonathan Hill )

- 9:00 - 9:45     *"How Do You Make a Micro-Robot?"*  
**Thomas E. MALLOUK** (Professor, The Pennsylvania State University, USA)
- 9:45 - 10:15     *"Polar Semiconductor Based Nanomechanical Sensors"*  
**János VOLK** (Institute of Technical Phys. & Materials Science, Hungary, ICYS OB) **(Invited)**
- 10:15 - 10:45     *"Speedy DNA Machines are on a Roll: Synthetic Motors that Consume Chemical Energy to generate Mechanical Work"*  
**Khalid SALAITA** (Associate Professor, Emory University, USA) **(Invited)**

10:45 - 11:00      *Coffee Break*

**Session 5: Young Scientists' Session**

(Chair: *Shinsuke Ishihara*)

11:00 - 11:15      *"Porphyrins as multi-responsive sensors"*

**Jan LABUTA** (Independent Scientist, MANA, ICYS OB)

11:15 - 11:30      *"Shape memory polymers for biological applications"*

**Koichiro UTO** (Independent Scientist, MANA, ICYS OB)

11:30 - 12:30      ***Poster Session (Award Selection)***

12:30 - 13:30      *Lunch*

**Session 6: Controlled Transport Through 2D Systems**

(Chair: *Yutaka Wakayama*)

**Keynote Lecture 3;**

13:30 - 14:15      *"2D Materials and beyond"*

**Yoshihiro IWASA** (Professor, The University of Tokyo, Japan)

14:15 - 14:45      *"Heterojunction based on atomically thin semiconductor film and its application"*

**Kazuhito TSUKAGOSHI** (Principal Investigator, MANA) (**MANA Invited**)

14:45 - 15:05      *Coffee Break*

**Session 7: Nanoscale Photo- and Field-Induced Phenomena**

(Chair: *Christian Joachim, Kazuhito Tsukagoshi*)

15:05 - 15:35      *"The Little Laser That Could A Focused Laser Beam: Useful Tool for Nanoscience Research"*

**Chorng-Haur SOW** (Professor, National University of Singapore, Singapore) (**Invited**)

15:35 - 16:05      *"Efficient Photoswitching of Molecular Conductance Using Photochromic Molecular Wire"*

**Kenji MATSUDA** (Professor, Kyoto University, Japan) (**Invited**)

16:05 - 16:20      *"Vertical resonant tunneling devices with attractive molecular quantum dots"*

**Ryoma HAYAKAWA** (Independent Scientist, MANA, ICYS OB)

16:20 - 16:35      *"Size-Matters in 1–2 nm Silicon Nanocrystals: Critical Size for Changing the Electronic States from Bulky to Atomic Configurations"*

**Naoto SHIRAHATA** (Associate Principal Investigator, MANA, ICYS OB)

**Award and Closing Ceremony**

16:40 - 16:50      *Poster Award Ceremony*

**Tomonobu NAKAYAMA, Yutaka WAKAYAMA** (Deputy Directors, MANA)

16:50 - 17:00      *Closing*

**Takayoshi SASAKI** (Director, MANA)

***Thursday, March 7<sup>th</sup>***

10:00 - 12:00      **Lab. Tour**