

# Nagoya Univ.-Tsinghua Univ.-Toyota Motor Corp.-Hokkaido Univ. Joint Symposium

— Materials Science and Nanotechnology for the 21st Century —

July 28-30, 2019, Hakodate, Japan



**TOYOTA**



Supported by



HOKKAIDO UNIVERSITY  
**AMBITIOUS  
LEADER'S PROGRAM**  
Fostering Future Leaders to  
Open New Frontiers in Materials Science

**Frontier Chemistry Center**  
フロンティア化学教育研究センター

# General Information

## **Date**

July 28~30, 2019

## **Registration & Information Desk**

July 28, 16:30~ Hotel Hokke Club Hakodate

July 29, 9:00~ Hakodate Arena

## **Welcome Reception**

July 28, 18:30~, Hakodate bay (cruise ship)

## **Conference Venue**

Hakodate Arena, Yunokawa 1-32-2, Hakodate 042-0932, Japan

(〒042-0932 函館市湯川町 1-32-2; 函館アリーナ)

## **Registration Fees**

Non-student JPY 10,000

Student JPY 7,000

## **Official Language**

All the lectures and discussion will be conducted in English.

## **Invited Oral Presentation**

Location: Hakodate Arena Meeting Room A

All speakers present their talk via the LCD projection system supplied in the lecture room. Each speaker has 15 min to give a talk, including a few minutes for discussion.

## **Poster Presentation**

Location: Hakodate Arena Meeting Room B

The posters can be set up from 12:30 on July 29. The poster session will be held from 13:15 to 14:15 on July 29. A panel of 120 cm (w) by 180 cm (h) will be provided for each poster. The authors have to remove their posters immediately after the poster session is over.

**Banquet**

Date: July 29, Time: 18:30~20:00

Venue: Hakodate Seafood Izakaya UOMASA @Goryokaku

Fee: JPY 7,000 (including the welcome reception on July 28 and a lunch on July 29)

**Excursion**

Date: July 30; Time: 8:30~11:30; Fee: JPY 3,000

A half day bus tour. (Goryokaku Tower 五稜郭タワー→箱館奉行所 Hakodate Bugyosho→函館駅付近「摩周丸」Masyumaru)

**Accommodation**

Accommodation for participants will be arranged at Hotel Hokke Club Hakodate or Hotel Mystays Hakodate Goryokaku.

**Wi-Fi service**

Free wireless internet access is available at the conference venue.

**Contact information during the symposium**

Prof. Hiroki HABAZAKI

e-mail: [habazaki@eng.hokudai.ac.jp](mailto:habazaki@eng.hokudai.ac.jp)

or

Dr. Chunyu ZHU

e-mail: [chunyu6zhu@eng.hokudai.ac.jp](mailto:chunyu6zhu@eng.hokudai.ac.jp)

mobile phone: 080-3294-9851

# Scientific Program

## *Sunday, July 28*

16:30 –       **Registration**

18:30-       **Opening Ceremony**

## *Monday, July 29*

9:00 – 9:30       **Registration and Preparation**

9:30 – 9:45       **Opening Address**

(Prof. Hiroki Habazaki, Hokkaido University)

(Prof. Takahiro Seki, Nagoya University)

(Prof. Hong Lin, Tsinghua University)

(Dr. Katsutoshi Noda, Toyota Motor Corporation)

**<Session I>**       ***Chair: Prof. Hiroyuki ASANUMA and Prof. Manabu TOKESHI***

**9:45 – 11:00**

9:45 – 10:00       **Manabu TOKESHI** (*Hokkaido Univ.*)

**IL-01**               Development of a Portable Fluorescence Polarization Analyzer

10:00 – 10:15       **Xiaodan SUN** (*Tsinghua Univ.*)

**IL-02**               Nanostructural Materials for Osteochondral/Nerve Tissue Engineering and Cancer  
Theranostics

10:15 – 10:30       **Takahiro SEKI** (*Nagoya Univ.*)

**IL-03**               High-density Polymer Brush Formation of Block Copolymers via Self-assembly

10:30 – 10:45       **Lingyun ZHAO** (*Tsinghua Univ.*)

**IL-04**               Multifunctional Magnetic Nanocomposite Biomaterials for Cancer Multimodality Treatment  
and Image

10:45 – 11:00       **Hiroyuki ASANUMA** (*Nagoya Univ.*)

**IL-05**               DNA and XNA Nanomachine Powered by Light Irradiation

11:00 – 11:15

***Break***

<Session II> *Chair: Prof. Tsukasa TORIMOTO and Prof. Hong LIN*

**11:15 – 12:30**

11:15 – 11:30 **Yasuchika HASEGAWA** (*Hokkaido Univ.*)  
**IL-06** Lanthanide Coordination Polymers for EL Devices

11:30 – 11:45 **Tsukasa TORIMOTO** (*Nagoya Univ.*)  
**IL-07** Wavelength Controllability of Band-edge Photoluminescence of Multinary Ag-In-Ga-S Quantum Dots

11:45 – 12:00 **Hong LIN** (*Tsinghua Univ.*)  
**IL-08** Enhanced Stability and Carrier Transport Quality of  $\alpha$ -CsPbI<sub>3</sub> Perovskite Nanocrystals with Reduced Graphene Oxide

12:00 – 12:15 **Chikara OHTSUKI** (*Nagoya Univ.*)  
**IL-09** Fabrication of Organically Modified Ceramics for Functional Biomaterials

12:15 – 12:30 **Akira KATO** (*Toyota Motor Co.*)  
**IL-10** Development of "Nd-reduced Heat-resistant Magnet"- 20-50% Reduction of Neodymium –

12:30 – 13:15 **Lunch**

<Session III>

**13:15 – 14:15** *Poster session*

14:15 – 14:30 **Break**

<Session IV> *Chair: Prof. Chunlei WAN and Prof. Kiyoharu TADANAGA*

**14:30– 15:45**

14:30 – 14:45 **Kunihito KOUMOTO** (*Nagoya Industrial Science Research Institute*)  
**IL-11** Thermoelectric Nanomaterials and Devices

14:45 – 15:00 **Rong YU** (*Tsinghua Univ.*)  
**IL-12** Subsurface Reconstruction in Oxide Surfaces

15:00 – 15:15 **Makoto KOBASHI** (*Nagoya Univ.*)  
**IL-13** Development of Smart Dies & Molds by Additive Manufacturing Technology

15:15 – 15:30 **Taro NAGAHAMA** (*Hokkaido Univ.*)  
**IL-14** Tunnel Magnetoresistance Effect in Magnetic Tunnel Junctions with Spinel Ferrite Electrodes

15:30 – 15:45 **Chunlei WAN** (*Tsinghua Univ.*)  
**IL-15** Low Thermal Conductivity Materials for Next Generation Thermal Barrier Coatings in Gas Turbine

15:45 – 16:00 **Break**

<Session V> *Chair: Prof. Zhengcao LI and Prof. Minoru OSADA*

**16:00 – 17:15**

16:00 – 16:15 **Kiyoharu TADANAGA** (*Hokkaido Univ.*)  
**IL-16** Preparation of Sulfide-based Lithium Ion-conducting Solid Electrolytes by Solution Process

16:15 – 16:30 <b>IL-17</b>	<b>Minoru OSADA</b> ( <i>Nagoya Univ.</i> ) 2D Materials: to Graphene and beyond?
16:30 – 16:45 <b>IL-18</b>	<b>Kazuhisa AZUMI</b> ( <i>Hokkaido Univ.</i> ) Electrodeposition of Al-Zn-Zr Coatings from EMIC-AlCl <sub>3</sub> Bath Using a Multi-counter Electrodes System
16:45 – 17:00 <b>IL-19</b>	<b>Zhengcao LI</b> ( <i>Tsinghua Univ.</i> ) Materials Degradation and Safety of Nuclear Energy Systems
17:00 – 17:15 <b>IL-20</b>	<b>Yuji MASUBUCHI</b> ( <i>Hokkaido Univ.</i> ) Novel Metal Carbodiimides Prepared by Ammonia Nitridation
<b>18:30~</b>	<b><i>Banquet and NTTH Award Ceremony at “Hakodate Seafood Izakaya UOMASA @Goryokaku”</i></b>
<b>20:00~</b>	<b><i>To Hakodate Mountain for Night Scene</i></b>

***Tuesday, July 30***

8:00 – 8:30    ***Closing Ceremony***

8:30 –        ***Departure from Hakodate***

## Poster Session

*Monday, July 29, 13:15 – 14:15*

- P-01**      **Wei LIU** (*Hokkaido University*)  
Sugar-assisted Noncovalent delamination of Carbon Nitride Nanosheets for Enhanced Photocatalytic Performance
- P-02**      **Hirotoishi NAKAJIMA** (*Nagoya University*)  
Preparation and Electrocatalytic Activity of PtRu Alloy Nanoparticles via Simultaneous Sputtering onto an Ionic Liquid
- P-03**      **Yazi WANG** (*Tsinghua University*)  
Relation Between Valence Band Offset Effect and Carrier Recombination in Cu(In,Ga)Se<sub>2</sub> Thin-film Solar Cells
- P-04**      **F.D.R. Pedro Paulo** (*Hokkaido University*)  
Seven-coordinated Tb(III) Complexes with Thermo-sensible Abilities
- P-05**      **Ikuya OHSHIMA** (*Nagoya University*)  
Synthesis of Polymer Gel with Homogeneous Network Structure Prepared by Telechelic Poly (N-isopropylacrylamide)
- P-06**      **Wandong XING** (*Tsinghua University*)  
Structural and Magnetic Transition in NiO(111) Surface
- P-07**      **Ning WANG** (*Hokkaido University*)  
Incorporation of Bulk Proton Carriers in Cubic-type La<sub>0.7</sub>Sr<sub>0.3</sub>MnO<sub>3-δ</sub> Driven by Interplays of Oxygen and Manganese Redox
- P-08**      **Yue SHI** (*Nagoya University*)  
Controlled Synthesis and Transport Properties of 2D Oxide Nanosheets
- P-09**      **Feng HU** (*Tsinghua University*)  
Elimination Method of Continuous Grain Boundary and Its Effect on Properties of Silicon Nitride Ceramics
- P-10**      **Keine NISHIYAMA** (*Hokkaido University*)  
Detection of Avian Influenza Virus Using a Newly Developed FPIA Apparatus

- P-11**                      **Takafumi WADA** (*Nagoya University*)  
Compressive Deformation Behavior of BCC-type Lattice Structured Aluminum Fabricated by Selective Laser Melting
- P-12**                      **Zunlan HU** (*Tsinghua University*)  
Tailoring Shape of  $\alpha$ -Si<sub>3</sub>N<sub>4</sub> Powders from Amorphous Si<sub>3</sub>N<sub>4</sub> Powders Synthesized by Liquid Phase Method
- P-13**                      **Seongwoo JEONG** (*Hokkaido University*)  
The Frustration of O<sub>2</sub><sup>-</sup> ion Blocking in Mixed H<sup>+</sup>/O<sub>2</sub><sup>-</sup> Conducting Solid Electrolytes Boosts Energy Conversion of Fuel Cells
- P-14**                      **Kanta ENDO** (*Nagoya University*)  
Mammalian Cell Response to Layered Zirconium Phosphate with Organic Modification
- P-15**                      **Yuki SATO** (*Hokkaido University*)  
Thermal Oxidation Behavior of Platelet-type Carbon Nanofibers
- P-16**                      **Yanglingzhi CHEN** (*Nagoya University*)  
Liner Probe for Direct Visualization of Duplexed DNA
- P-17**                      **Xin ZHENG** (*Hokkaido University*)  
Effect of Uptake/Release of Coordinated Molecules on Gate-Opening Adsorption Behavior in Coordination Polymer