

# ICMaSS

International Conference  
on Materials and Systems for Sustainability

# 2019

November 1-3, 2019

Nagoya University, Nagoya, Japan

## in conjunction with

- Nagoya University and National University of Singapore (NU-NUS): Cyber/Physical System in Energy-Efficient Smart Cities — From Materials Design, Alternative Energy Technologies to Intelligent Systems and Operation
- International Symposium on Creation of Life Innovation Materials for Interdisciplinary and International Researcher Development Satellite (iLIM-s)
- Energy System Symposium on Emerging Technologies for Next Generation Electric Power Systems



Organized by  
Organizing Committee of ICMaSS 2019, Nagoya University



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## Preface

It is a great pleasure that the Institute of Materials and Systems for Sustainability, IMaSS, of Nagoya University organizes the International Conference on Materials and Systems for Sustainability 2019 (ICMaSS2017) for three days from November 1<sup>st</sup> to 3<sup>rd</sup>, 2019 at the Noyori Conference Hall, the integrated Building (IB) and the Engineering and Science Building (ES) in Nagoya University, Japan. In order to realize the development of a sustainable and prosperous society, this conference aims to function as a platform to share and exchange new results and ideas for realizing the sustainable society, especially innovative energy-saving technologies, advanced measurement technologies, material and device developments, and system technologies. This conference has formerly been held as the International Symposium on EcoTopia Sciences every two years since 2005, at which materials, energy, the environment and social systems have been topics for the development of a sustainable society. We would like to further strengthen our focus on energy-saving at this new conference, ICMaSS, pursuing the same research directions as before. The state of the art technologies and the latest research results on materials, devices, and systems to contribute to the sustainability of the society will be presented by five plenary speeches, and more than 400 oral/poster presentations in three joint symposia and regular sessions.

We hope this conference will give perspectives of developments in Science and Technologies toward the realization of a sustainable world.

November 1<sup>st</sup>, 2019



Satoshi Iwata

Chair of the Organizing Committee



Masaaki Katayama

Chair of the Executive Committee

## Committees

### Organizing Committee

#### Chair

Satoshi IWATA (Nagoya University, Japan)

#### Vice-Chairs

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Tomomi UCHIYAMA (Nagoya University, Japan)

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Kazuaki SAWADA (Toyohashi University of Technology, Japan)

Masasuke TAKATA (Japan Fine Ceramics Center, Japan)

Yasuhiko TAKEIRI (National Institute for Fusion Science, Japan)

Takeki TOTSUKA (Chubu Electric Power Co., Inc., Japan)

Kazumasa FUNABIKI (Gifu University, Japan)

Hideki IBA (TOYOTA MOTOR CORPORATION, Japan)

Hideto MIYAKE (Mie University, Japan)

Toru IJIMA (Nagoya University, Graduate School of Science, Japan)

Masahiro OHKA (Nagoya University, Graduate School of Informatics, Japan)

Tomoo OGI (Research Institute of Environmental Medicine, Japan)

Kazuo SHIOKAWA (Nagoya University, Institute for Space-Earth Environmental Research, Japan)

Takashi HIBINO (Nagoya University, Graduate School of Environmental Studies, Japan)

Shufeng YE (Institute of Process Engineering, Chinese Academy of Science, China)

Ashwani K. GUPTA (University of Maryland, USA)

Somrat Kerdsuwan (King Mongkut's University of Technology North Bangkok, Thailand)

Y. H. Taufiq Yap (University Putra Malaysia, Malaysia)

Hassan BEVRANI (University of Kurdistan, Iran)

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Toru UJIHARA (Nagoya University, Japan)

Masakuni OZAWA (Nagoya University, Japan)

Takeyoshi KATO (Nagoya University, Japan)

Koh SAITOH (Nagoya University, Japan)

### Executive Committee

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#### Secretary-General

Takeyoshi KATO (Nagoya University, Japan)

#### Program-Chair

Koh SAITOH (Nagoya University, Japan)

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Kentaro KOBAYASHI (Nagoya University, Japan)

Masaaki ARAIDAI (Nagoya University, Japan)

Masaki IMANAKA (Nagoya University, Japan)

## Program Overview

### Friday, November 1, 14:00 – 17:00

Opening Ceremony	Noyori Conference Hall
Plenary lectures	Noyori Conference Hall

### Friday, November 1, 17:15 – 19:15

Welcome Reception	Noyori Conference Hall
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### Saturday, November 2, 9:00 – 18:00 (details in the next page)

Plenary lecture	IB Hall
Joint symposia	IB bldg. & ES bldg.
Oral presentations	IB bldg. & ES bldg.
Poster presentations	IB bldg. & ES bldg.

### Saturday, November. 2, 19:00 – 21:00

Banquet (30min by Subway (Meijo-line, 11 stations))	ANA Crowne Plaza Hotel Grand Court Nagoya
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### Sunday, November. 3, 9:00 – 12:00 (details in the next page)

Plenary lecture	IB Hall
Joint symposium	IB bldg. & ES bldg.
Oral presentations	IB bldg. & ES bldg.

### Sunday, November 3, 12:30 – 13:00

Outstanding Presentation Awards Ceremony	ES Hall
Closing Ceremony	ES Hall

# Program Overview

## Timetable

### 01 Nov (Fri)

14:00 - 14:10	<b>Opening ceremony</b> (Noyori Conference Hall)
14:10	<b>Plenary lecture 1</b> (Noyori Conference Hall) Marcelo H. Ang Jr (National University of Singapore), "Mobility on demand using autonomous vehicles for all"
15:00	Break
15:10	<b>Plenary lecture 2</b> (Noyori Conference Hall) Akira Yoshino (Asahi Kasei Corp.), "The role of lithium ion battery for sustainable society"
16:00	Break
16:10	<b>Plenary lecture 3</b> (Noyori Conference Hall) Seiichi Nakamura (Kanazawa University), "An application of cosmic-ray muon imaging technology in Maya archaeology"
17:15 - 19:15	<b>Welcome reception</b>

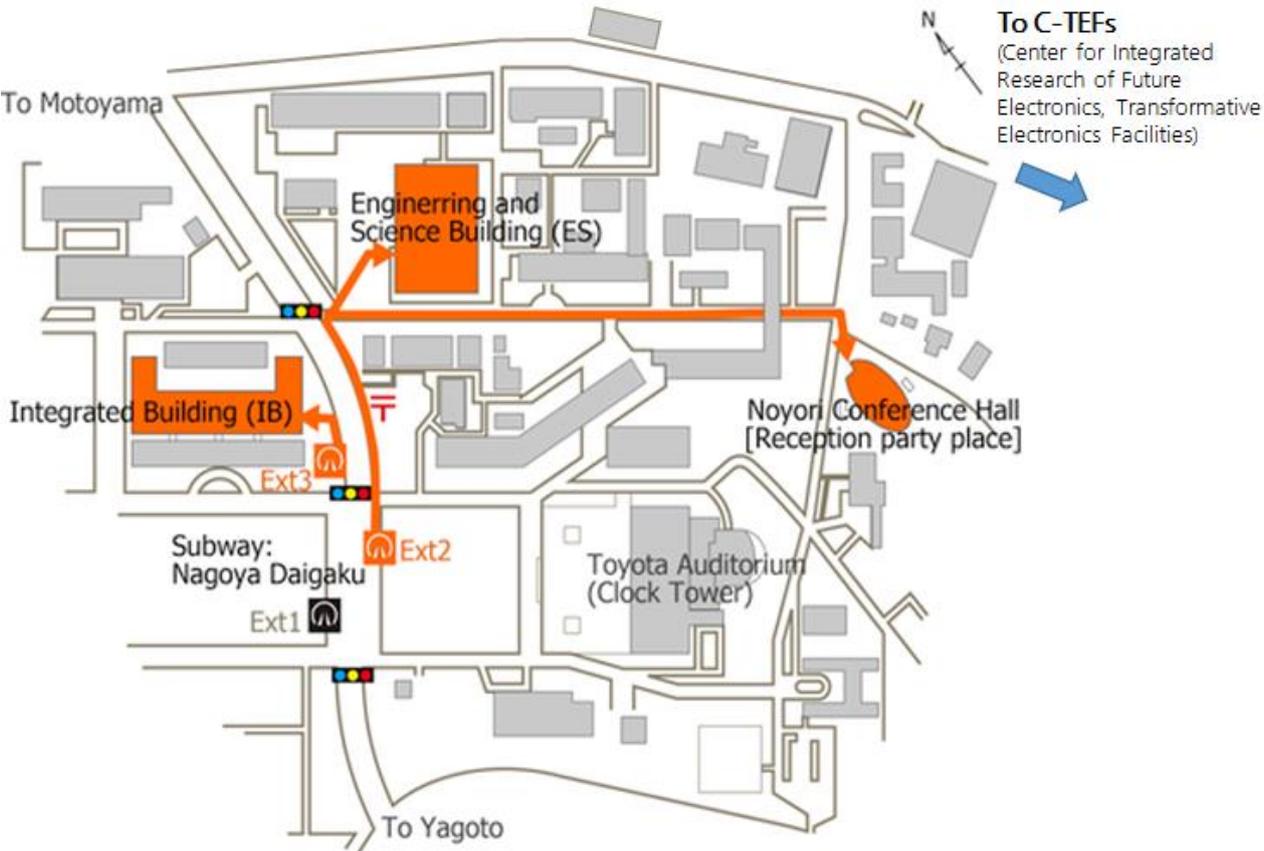
### 02 Nov (Sat)

9:00	<b>Plenary Lecture 4</b> (IB Main Hall) Tsuhan Chen (National University of Singapore), "Bridging the worlds of artificial intelligence and materials science and engineering"											
	ES Hall	ES021	ES022	ES024	ES025	IB Hall	IB011	IB013	IB014	IB015	ES Entrance hall	IB Entrance hall
10:00 - 12:00	<b>S1-I</b> NU-NUS Joint Symposium	<b>S2-I</b> iLIM-s	<b>A3-I</b> Nanomaterials	<b>S1-II</b> NU-NUS Joint Sympo		<b>A2-I</b> Nuclear Emulsion Technology and related topics		<b>A9-I</b> Eco system analysis and others	<b>A4-I</b> Energy Conversion	<b>A1-I</b> Advanced Measurements		
12:15 - 13:00	<b>Lunch</b>											
13:00 - 14:00											<b>Poster I</b> S1, S2	<b>Poster II</b> A1, A4, A6, A8
14:00 - 17:00	<b>S1-III</b> NU-NUS Sympo	<b>S2-II</b> iLIM-s	<b>A3-II</b> Nanomaterials	<b>A5</b> Transportation	<b>S3-I</b> Energy System Symposium	<b>A2-II</b> Nuclear Emulsion Technology and related topics	<b>A6-I</b> Information and Communication	<b>A9-II</b> Eco system analysis and others	<b>A4-II</b> Energy Conversion  <b>A8-I</b> Power Electronic	<b>A1-II</b> Advanced Measurements		
17:00 - 18:00	<b>S1-IV</b> NU-NUS Sympo										<b>Poster III</b> A3, A7	<b>Poster IV</b> A2, A9
19:00 - 21:00	<b>Banquet</b> (ANA CROWNE Plaza Hotel)											

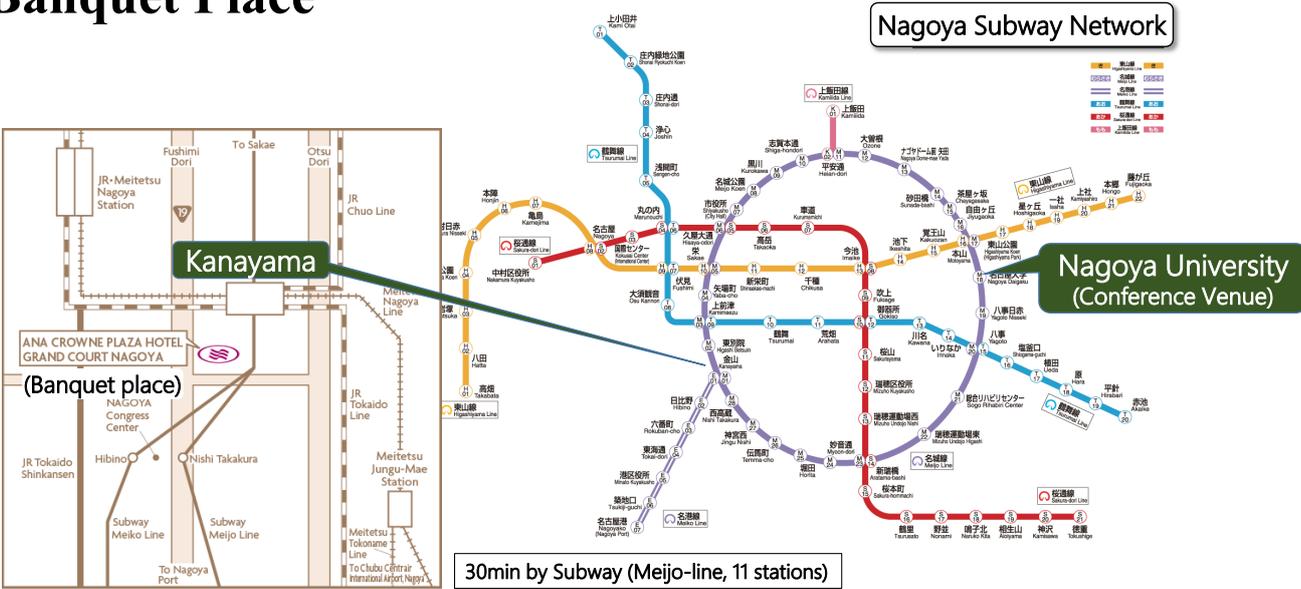
### 03 Nov (Sun)

9:00	<b>Plenary Lecture 5</b> (IB Main Hall) Hany Helal (Cairo University), "Could new technologies reveal 4500 years' mystery of the pyramids of Egypt? ScanPyramids Project"											
	ES Hall	ES021	ES022	ES024	ES025	IB Hall	IB011	IB013	IB014	IB015	ES Entrance hall	IB Entrance hall
9:30 - 12:00	<b>S1-V</b> NU-NUS Joint Sympo		<b>A3-III</b> Nanomaterials		<b>A7</b> Electric Power System	<b>A3-III</b> Nuclear Emulsion Technology and related topics	<b>A6-II</b> Info & Comm		<b>A8-II</b> Power Electronic	<b>A1-III</b> Advanced Measurements		
12:30 - 13:00	<b>Closing Ceremony</b> (ES Hall)											

# Conference Site



# Banquet Place



# Floor Plan of Conference Site

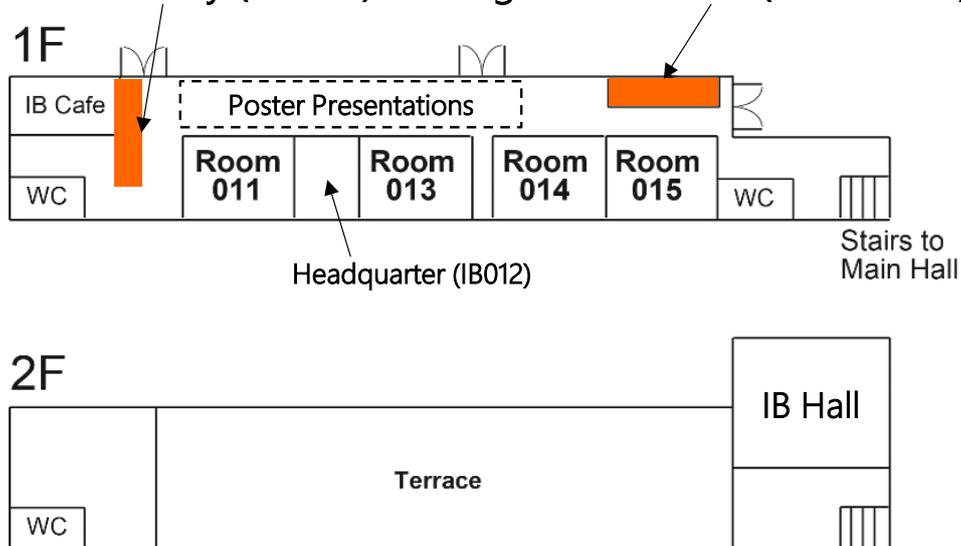
## Noyori Conference Hall (November 1)

1<sup>st</sup> Floor: Registration & Welcome Reception

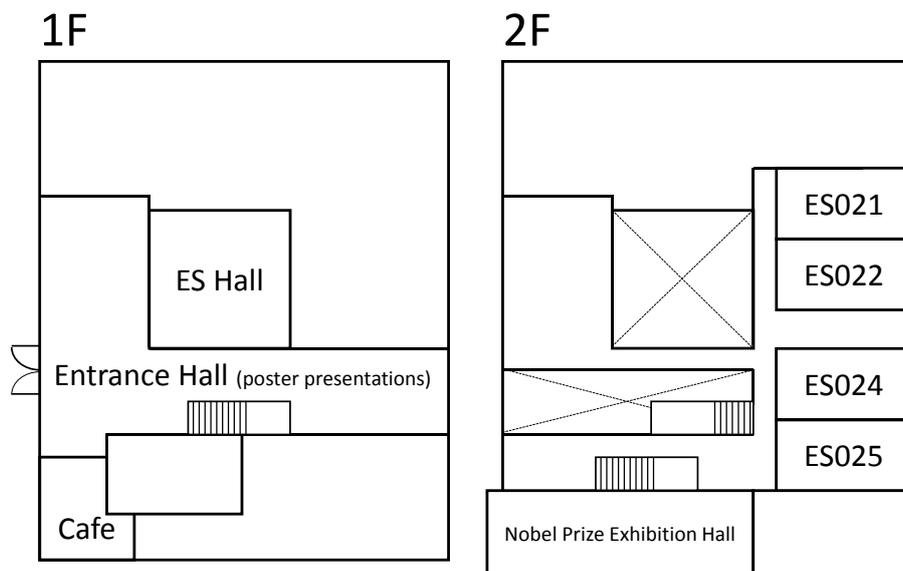
2<sup>nd</sup> Floor: Opening Ceremony & Plenary Lectures

## IB (Integrated Building) (November 2 & 3)

Lunch box Delivery (Nov. 2)      Registration desk (Nov. 2 & 3)



## ES (Engineering & Science Building) (November 2 & 3)



## General Information

### Registration Desk

- Fri. November 1, 13:00 – 19:00  
at Noyori Conference Hall
- Sat. November 2, 8:00 – 17:30  
at IB entrance hall
- Sun. November 3, 8:00 – 12:00  
at IB entrance hall

### Welcome Reception

- Date: Fri. November 1, 2019
- Time: 17:15 – 19:15
- Venue: Noyoroi Conference Hall 1F

### Banquet

- Date: Sat. November 2, 2019
- Time: 19:00 – 21:00
- Venue: The Grand Court Room of  
ANA Crowne Plaza hotel Ground Court  
Nagoya
- Access: Subway Meijo-line (Clockwise),  
Kanayama Station (30min from Nagoya Univ.  
Station)
- Fee: Delegates JPY 10,000  
Students JPY 5,000

Note:

- ✓ Registration fee does not include the banquet ticket. The ticket can be purchased at the registration desk until 12:00 on November 2. Please note that banquet tickets are handled on a first come, first serve basis.
- ✓ Please come to the banquet venue at least 15 minutes before starting.
- ✓ Please take the subway Meijo-line (Clockwise) 18:11 or 18:21 from Nagoya Univ. Station to Kanayama Station.

### Lunch

- Sat. November 2, 11:30 – 13:00
- ✓ Lunch box will be provided from 11:30 at the west corner of IB entrance Hall.
- ✓ Lunch ticket is included in the conference pack.
- ✓ Limited number of lunch boxes for vegetarian is available.

### Coffee Break

- Sat. November 2, 12:00 – 14:00  
at IB entrance Hall & ES entrance hall
- Sat. November 2, 16:30 – 18:00  
at IB entrance hall & ES entrance Hall
- Sun. November 3, 9:30 – 12:30  
at ES entrance hall

### WiFi connection

WiFi connection is available. Please visit the registration desk to pick up the login ID and password.

To set up WiFi network on your computer,

1. set ESS-ID to “nuwnet”,
2. make encryption inactive.

### Outstanding Presentation Award

Among the oral and poster presentations, the presentation prize will be awarded to the outstanding presenters under the age of thirty years old. Awarding ceremony will be held in the Closing Ceremony.

### Headquarter

(Local organizing committee)

- Fri. November 1, 13:00 – 17:00  
at Noyori Conference Hall (1<sup>st</sup> Floor)
- Sat. November 2 & Sun. November 3  
at IB012

## **Presentation Instructions**

### **Presentation Time**

Plenary Speakers (1 – 3):	50 min (including discussion)
Plenary Speakers (4 & 5):	30 min (including discussion)
Invited Speakers:	30 min (including 5 min discussion)
Oral Speakers:	15 min (including 3min discussion)
Poster Presentation:	60 min

(Poster presenters are requested to stay in front of the poster for the discussion with the audiences.)

### **Date & Room**

Please confirm the session date and room of your presentation in the program pages.

### **Oral presentation**

- ✓ Speaker ready room is not prepared. Please bring your own PC for the presentation.
- ✓ If you use the connector cable other than D-Sub mini 15 pin VGA, please bring your own connector cable.
- ✓ Speakers are requested to come to the session room at least 10 minutes before the session starts.
- ✓ If it is not convenient for you, please contact the session-chair or any staff.

### **Poster presentation**

- ✓ Poster sessions will be held in IB entrance hall and ES entrance hall.
- ✓ Please check the conference program for your presentation number and find the board marked with your presentation number.
- ✓ Presenters will be allowed to display during the display time.
- ✓ Materials to mount the poster on the poster board will be provided.
- ✓ If you have any questions, please contact the session-chair or any staff.

## Sponsors

### Financial Support

- ◆ Daiko Foundation, Japan
- ◆ Research Foundation for the Electrotechnology for Chubu, Japan
- ◆ Suzuki Foundation, Japan
- ◆ Nagoya University (the program for promoting the enhancement of research universities)

### Supports (Advertising)

- |   |  |
|---|--|
| ◆ Murata Manufacturing Co., Ltd.        | ◆ ROHM   |
| ◆ Gatan, Inc.                           | ◆ Thermo Fisher Scientific   |
| ◆ Mitsubishi Electric Corporation       | ◆ Advanced Characterization Nanotechnology Platform by MEXT, NAGOYA UNIVERSITY HVEM Lab. |
| ◆ YAZAKI Corporation                    |  |
| ◆ NIPPON CHEMI-CON CORPORATION          | ◆ JEOL Ltd.  |
| ◆ Nihon Synopsys G.K.                   | ◆ Hitachi High-Technologies Corporation  |
| ◆ OMRON Corporation                     | ◆ Hamamatsu Photonics K.K.   |
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| ◆ JSR Corporation                       | ◆ PONY ELECTRIC CO.,LTD  |
| ◆ NAKAI Electrical Construction INC     |  |

### Supports for NU-NUS joint symposium

- ◆ Japan Society for the Promotion of Science

## Supporting Organizations

- |  |   |
|--|---|
| ◆ Combustion Society of Japan  | ◆ The Institute of Light Metals                           |
| ◆ The Heat Transfer Society of Japan   | ◆ The Japan Society of Mechanical Engineers, Tokai Branch |
| ◆ The Institute of electrical Engineers of Japan, Tokai-section                        | ◆ The Society of Chemical Engineers, Japan                |
| ◆ The Institute of electronics, Information and Communication Engineers, Tokai-section |   |

## Opening Ceremony

**Fri. November 1, 14:00 – 14:10, Noyori Conference Hall**

Master of Ceremony: Masaaki KATAYAMA (Executive Committee Chair)

### Opening Address

Satoshi IWATA (Organizing Committee Chair)

### Welcome Address

Akihiro SASOH (Vice President, Nagoya Univ.)

## Plenary Lectures

**Fri. November 1, 14:10 – 17:00, Noyori Conference Hall**

### Speaker 1 (14:10 – 15:00):

**Marcelo H. ANG Jr. (National University of Singapore)**

**[“Mobility on Demand using Autonomous Vehicles for All”](#)**

Marcelo H Ang Jr received his BSc and MSc degrees in Mechanical Engineering from the De La Salle University in the Philippines and University of Hawaii, USA in 1981 and 1985, respectively, and his PhD in Electrical Engineering from the University of Rochester, New York in 1988 where he was an Assistant Professor of Electrical Engineering. In 1989, he joined the Department of Mechanical Engineering of the National University of Singapore where he is currently an Associate Professor and Acting Director of the Advanced Robotics Center. His research interests span the areas of robotics, mechatronics, autonomous systems, and applications of intelligent systems. He teaches robotics; creativity and innovation; applied electronics and instrumentation; computing; design and related areas. In addition to academic and research activities. He is also actively involved in the Singapore Robotic Games as its founding chairman, and the World Robot Olympiad as member of its Advisory Council. Sample of his work can be found in <http://137.132.146.218/marcelo/videos/>



**Speaker 2 (15:10 – 16:00):**

**Akira YOSHINO (Asahi Kasei Corp.)**

**“The Role of Lithium Ion Battery for Sustainable Society”**

Dr. Yoshino, a native of Japan, was born on January 30, 1948, and earned a B.S. and M.S. in engineering from the Department of Petroleum Chemistry at Kyoto University in 1970 and 1972, respectively. In 1972, he joined the research organization of Asahi Kasei Corp. in Kawasaki, Kanagawa, Japan, where he engaged in research on functional polymers and electronic materials. In 1981, he started a research effort on high-energy-density secondary batteries. In 1985, he invented a new battery system of C/LiCoO<sub>2</sub>, which would become known as the lithium-ion battery (LIB). He also developed a range of basic technologies required to make the LIB practical, such as methods to fabricate electrodes using metal foil current collectors, microporous separators made of polyethylene, carbonate-based electrolytes, safety devices, and charging methods.

In 1992 he moved to A&T Battery Corp., a joint venture between Asahi Kasei and Toshiba for commercial LIB manufacture. In 1996, he returned to Asahi Kasei and continued further LIB research. He is now an Asahi Kasei Honorary Fellow. He also serves as President of the Consortium for Lithium Ion Battery Technology and Evaluation Center (LIBTEC), and as Professor Meijo University and Visiting Professor Kyushu University.



**Speaker 3 (16:10 – 17:00):**

**Seiichi NAKAMURA (Kanazawa University)**

**[“An Application of Cosmic-ray Muon Imaging Technology in Maya Archaeology”](#)**

Seiichi Nakamura was born in Kofu, Yamanashi, Japan in 1958. He is a professor at the Center for Cultural Resource Studies of the Institute of Human and Social Sciences of Kanazawa University since 2012 and a visiting professor at the Institute of Comparative Archaeology of Waseda University since 2007. After obtaining his degree from the Department of Archaeology of Kanazawa University with a specialization in the study of Ancient Maya civilization in 1983 he moved to Central America to work in the field of Maya archaeology. He has directed some major archaeological projects in Honduras and Guatemala, including projects at two World Heritage Sites: the Maya Site of Copan in Honduras and Tikal National Park in Guatemala. He was director of La Entrada Archaeological Project (PALE, Phase I: 1984-1990, Phase II: 1991-1995), Las Pilas Archaeological Project (1995-1997), the Integral Program for Conservation of Copan Archaeological Park (PICPAC 1999-2002), and the Copan Archaeological Project (PROARCO, Phase I: 2003-2018 and Phase II: 2019-). He is actually collaborating with a Nagoya University research team at the Maya Site of Copan in the possibilities of new imaging methods using cosmic-ray muons.



**Sat. November 2, 9:00 – 9:30**

**Speaker 4:**

**Tsuhan CHEN (National University of Singapore)**

**“Bridging the Worlds of Artificial Intelligence and Materials Science and Engineering”**

Professor Chen Tsuhan was appointed Deputy President (Research and Technology) and Distinguished Professor at the National University of Singapore (NUS) on 1 June 2018. Prof Chen is a renowned expert in pattern recognition, computer vision, and machine learning. He is also the Chief Scientist of AI Singapore, a national programme in artificial intelligence hosted at NUS.



Prof Chen received the Charles Wilts Prize for outstanding independent research in Electrical Engineering leading to a PhD degree at the California Institute of Technology in 1993. He was a recipient of the US National Science Foundation CAREER Award, titled “Multimodal and Multimedia Signal Processing,” from 2000 to 2003. He received the Benjamin Richard Teare Teaching Award in 2006, the Eta Kappa Nu Award for Outstanding Faculty Teaching in 2007, both at the Carnegie Mellon University, and the Michael Tien Teaching Award in 2014 at the Cornell University.

**Sun. November 3, 9:00 – 9:30**

**Speaker 5:**

**Hany HELAL (Cairo University)**

**[“Could New Technologies reveal 4500 years’ mystery of the Pyramids of Egypt? ScanPyramids Project”](#)**

Hany Helal was born in Egypt in 1951 and graduated from mining engineering, Cairo University, in 1974. He got his Ph.D. in Rock Mechanics from Nancy School of Mines, France, 1982. Hany Helal is currently a Professor of Rock Mechanics and Engineering at Cairo Faculty of Engineering. He is an expert in Higher Education Reform, Science & Technology, Innovation and Entrepreneurship. He has a long experience in international cooperation and cultural heritage. He is the President of Senghor University in Alexandria and the Secretary General of the Steering Committee of Egypt-Japan Education Partnership (EJEP). He used to be the Minister of Higher Education and Scientific Research. He was appointed the Secretary General of the Education Development Fund and worked as the Egyptian Cultural and Scientific Counselor in France, Belgium and Switzerland. He was the National TEMPUS Coordinator (EU Higher Education Enhancement program). He acted as UNESCO Consultant / Administrative Director, International Centre for Synchrotron-Light for Experimental Sciences and Applications in the Middle East (SESAME). He served as a Program Specialist Earth Sciences, UNESCO Cairo Office.



Hany Helal received several awards, including the JICA President Award in recognition of outstanding contribution in enhancement of the social and economic development of partner countries, October 2018.

## **Closing Ceremony**

**Sun. November 13 12:30 – 13:00, ES hall**

Master of Ceremony: Masaaki KATAYAMA (Executive Committee Chair)

**Outstanding Presentation Awards Ceremony**

**Closing Remarks**

Tomomi UCHIYAMA (Organizing Committee Vice-Chair)

# Oral Presentations

## Saturday, November 2

### A1-I: Advanced Measurements I

(10:00-12:00, IB015)

**Chair: Shunsuke MUTO (Nagoya Univ.)**

[A1-I-1  
\(1200\)](#) Vortices and Spatial Modes in Electron and X-ray Beams

**Invite** Benjamin J. McMorran<sup>1</sup>, Jordan S. Pierce<sup>1</sup>, Spencer Alexander<sup>1</sup>, Cameron Johnson<sup>1</sup>, James Lee<sup>2</sup>, Sujoy Roy<sup>2</sup> and Andrew Forbes<sup>3</sup>

<sup>1</sup>Department of Physics, University of Oregon

<sup>2</sup>Advanced Light Source, Lawrence Berkeley National Laboratory

<sup>3</sup>School of Physics, University of the Witwatersrand, Johannesburg

[A1-I-2  
\(1047\)](#) Performance of orbital-angular-momentum measurements using forked gratings

Koh Saitoh<sup>1</sup>, Yuuki Noguchi<sup>1</sup>, Wei Li<sup>1,2</sup> and Masaya Uchida<sup>1,3</sup>

<sup>1</sup>Institute of Materials and Systems for Sustainability, Nagoya University,

<sup>2</sup>Dalian Polytechnic University

<sup>3</sup>Advanced Science Research Laboratory, Saitama Institute of Technology

[A1-I-3  
\(1207\)](#) Structured Light Beams from Synchrotron

Masahiro Katoh<sup>1,2</sup>

**Invite** <sup>1</sup>Hiroshima Synchrotron Radiation Center, Hiroshima University,

<sup>2</sup>Institute for Molecular Science, National Institutes of Natural Sciences

[A1-I-4  
\(1031\)](#) Visualization of Vortex Beam Phases by Electron Holography

Ken Harada

CEMS, RIKEN (The Institute of Physical and Chemical Research)

[A1-I-5  
\(1204\)](#) Optical Anomaly of GaN and SiC Crystals As Observed by New Optical Main Axis Mapping

Katsuo Tsukamoto<sup>1,2</sup>, Masayuki Imanishi<sup>1</sup>, Yusuke Mori<sup>1</sup> and Haruhiko Koizumi<sup>3</sup>

<sup>1</sup>Grad. School of Engineering, Osaka University,

<sup>2</sup>Grad. School of Science, Tohoku University

<sup>3</sup>Strategic Planning Office for Regional Revitalization, Mie University

### A1-II: Advanced Measurements II

(14:00-17:00, IB015)

**Chair: Shinya YAGI (Nagoya Univ.)**

[A1-II-1  
\(1104\)](#) I08-SXM: A multimodal scanning X-ray microscopy facility at the Diamond Light Source

Tohru Araki

Physical Science, Diamond Light Source

[A1-II-3  
\(1104\)](#) Direct observation of fatigue crack tips in a single crystalline Ni based superalloy

Yoshimasa Takahashi<sup>1,3</sup>, Daisuke Kobayashi<sup>2</sup>, Masaki Kashihara<sup>1</sup>, Tomohiro Kozawa<sup>1</sup> and Shigeo Arai<sup>3</sup>

<sup>1</sup>Department of Mechanical Engineering, Kansai University

<sup>2</sup>Chubu Electric Power Co., Inc.,

<sup>3</sup>Institute of Materials and Systems for Sustainability IMaSS, Nagoya University

[A1-II-4  
\(1116\)](#) Relationship between Active Slip Systems and Dislocation Walls during Cyclic Deformation in an Fe - 3 mass% Si Alloy

H.Shuto<sup>1,2</sup> Y Tanaka<sup>2</sup>, T Miyazawa<sup>2</sup>, S Arai<sup>3</sup> and T Fujii<sup>2</sup>

<sup>1</sup>Steel Research Laboratories, Nippon Steel Corporation,

<sup>2</sup>Tokyo Institute of Technology

<sup>3</sup>Nagoya University

## Oral Presentations

[A1-II-5  
\(1150\)](#)

Visualization of the Electric Potential in a Liionic Space charge Layer

Y-Nomura<sup>1,2</sup>, K Yamamoto<sup>3</sup>, T Hirayama<sup>3</sup>, E Igaki and K Saitoh<sup>2</sup>

<sup>1</sup>*Technology Innovation Division, Panasonic Corporation*

<sup>2</sup>*Department of Crystalline Materials Science, Nagoya University*

<sup>3</sup>*Nanostructures Research Laboratory, Japan Fine Ceramics Center,*

<sup>4</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A1-II-6  
Invite](#)

Theory of Atomic-scale Magnetic Signals in Transmission Electron Microscopy

J. Ruzs<sup>1</sup>, D. Negi<sup>1,2</sup>, P. Zeiger<sup>1</sup>, A. Edström<sup>3</sup>, A. Lubk<sup>4</sup>, L. Jones<sup>5,6</sup>, J.-C. Idrobo<sup>7</sup>

<sup>1</sup>*Dept. of Physics and Astronomy, Uppsala University*

<sup>2</sup>*Stuttgart Center for Electron Microscopy, Max Planck Institute, Stuttgart*

<sup>3</sup>*Materials Theory, ETH Zurich*

<sup>4</sup>*Institute for Solid State and Materials Physics, TU Dresden*

<sup>5</sup>*Advanced Microscopy Laboratory, CRANN, Dublin*

<sup>6</sup>*School of Physics, Trinity College Dublin*

<sup>7</sup>*Center for Nanophase Materials Science, Oak Ridge National Laboratory*

[A1-II-7  
\(1283\)](#)

X-ray Magnetic Circular Dichroism Studies on Ion Irradiated MnGa Films

Takeshi Kato<sup>1</sup>, Daiki Oshima<sup>2</sup> and Satoshi Iwata<sup>2</sup>

<sup>1</sup>*Department of Electronics, Nagoya University,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A1-II-8  
\(1003\)](#)

Recent Progress in Energy-Loss Magnetic Chiral Dichroism by Transmission Electron Microscopy

Shunsuke Muto

*Institute of Materials and Systems for Sustainability, Nagoya University,*

[A1-II-9  
\(1293\)](#)

Development of New Cryo-Electron Microscope for Simultaneous STEM, SEM Imaging and its Application to Biological Samples

Jiro Usukura<sup>1</sup>, Akihiro Narita<sup>2</sup>, Tomoharu Matsumoto<sup>2</sup>, Eiji Usukura<sup>1</sup>, Takeshi Sunaoshi<sup>3</sup>, Syunya Watanabe<sup>3</sup>, Yusuke Tamba<sup>3</sup>, Yasuhira Nagakubo<sup>3</sup>, Junzo Azuma<sup>3</sup>, Takashi Mizuo<sup>3</sup>, Kazutaka Nimura<sup>3</sup>, Masako Osumi<sup>4</sup>, Ryuichiro Tamochi<sup>3</sup> and Yoichi Ose<sup>3</sup>

<sup>1</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

<sup>2</sup>*Graduate school of Science, Nagoya University*

<sup>3</sup>*Hitachi High-Technologies Corporation*

<sup>4</sup>*Japan Women's University*

**A2- I : Nuclear Emulsion Technology I**  
(10:00-12:15, IB Hall)

**Chair: Seigo MIYAMOTO (The Univ. of Tokyo)**

[A2-I-1](#) [\(1353\)](#) CosmicRay Imaging with Nuclear Emulsion

Kunihiro Morishima<sup>1,2,3,4</sup>, Nobuko Kitagawa<sup>3</sup>, Akira Nishio<sup>1</sup>, Mitsuki Kuno<sup>1</sup>, Yuta Manabe<sup>1</sup>, Kotaro Hikata<sup>1</sup> and Ami Sakakibara<sup>1</sup>

<sup>1</sup>*Department of Physics, Nagoya University*  
<sup>2</sup>*Institute for Advanced Research, Nagoya University*  
<sup>3</sup>*IMaSS, Nagoya University*  
<sup>4</sup>*PRESTO Researcher*

[A2-I-2](#) [\(1242\)](#) Study of cultural properties by the technique of cosmic ray physics

Katsumi Ishiguro<sup>1,2</sup>, Kiyohide Saito<sup>1</sup>

<sup>1</sup>*Archaeological institute of Kashihara in Nara prefecture*  
<sup>2</sup>*Nagoya University*

[A2-I-3](#) [\(1220\)](#) Steep bedrock topography beneath an active alpine glacier discovered by muon radiography

Akitaka Ariga

*on behalf of the Eiger Collaboration*  
*Albert Einstein Center for Fundamental Physics,*  
*Laboratory for High Energy Physics, University of Bern*

[A2-I-4](#) [\(1135\)](#) Omnidirectional muography for volcanoes the plan for first experimental proof in Omuroyama, Shizuoka, Japan.

S. Miyamoto<sup>1</sup>, Nagahara<sup>1</sup>, Morishima<sup>2</sup>, Nakano<sup>2</sup>, Koyama<sup>3</sup>, Suzuki<sup>4</sup>

<sup>1</sup>*The Univ of Tokyo*  
<sup>2</sup>*Nagoya Univ*  
<sup>3</sup>*Shizuoka Univ.*  
<sup>4</sup>*Izu Peninsula Geopark Promotion Council*

[A2-I-5](#) [\(1134\)](#) The demonstration of Omni-directional muography and 3 D density structural analysis at Omuro yama, Izu, Japan

Shogo Nagahara<sup>1</sup>, Seigo Miyamoto<sup>1</sup>, Kunihiro Morishima<sup>2</sup>, Toshiyuki Nakano<sup>2</sup>, Masato Koyama<sup>3</sup>, Yusuke Suzuki<sup>4</sup>

<sup>1</sup>*Earthquake Research Institute, The University of Tokyo*  
<sup>2</sup>*Nagoya University*  
<sup>3</sup>*Shizuoka University*  
<sup>4</sup>*Izu Peninsula Geopark Promotion Council*

[A2-I-6](#) [\(1287\)](#) Cosmic-ray radiography using nuclear emulsion in the great pyramid

Mitsuaki Kuno, Kunihiro Morishima, Akira Nishio, Yuta Manabe, Kotaro Hikata, Ami Sakakibara and Nobuko Kitagawa

*Nagoya University*

[A2-I-7](#) [\(1332\)](#) Next Generation Nuclear Emulsion Detector with excellent long-term stability

Akira Nishio, Kunihiro Morishima, Ken-ichi Kuwabara, Tetsuo Yoshida, Nobuko Kitagawa, Mitsuaki Kuno, Yuta Manabe, Kotaro Higata, Ami Sakakibara and Mitsuhiro Nakamura

*Nagoya University*

**A2- II : Nuclear Emulsion Technology II**  
(14:00-16:45, IB Hall)

**Chairs: Koichi KODAMA (Aichi Univ. of Education)**  
**Toshiyuki NAKANO (Nagoya Univ.)**

[A2-II-1](#) [\(1333\)](#) Nuclear emulsion readout system

Toshiyuki Nakano<sup>1,2</sup>, Ryousuke Komatani<sup>1</sup> and Masahiro Yoshimoto<sup>3</sup>

<sup>1</sup>*Graduate school of Science, Nagoya University*  
<sup>2</sup>*Kobayashi Masukawa Institute*  
<sup>3</sup>*Physics Department, Gifu University*

[A2-II-2](#) [\(1285\)](#) Status of Next Generation Nuclear Emulsion Film Facility in Nagoya University

H.Rokujo, T.Fukuda, M.Komatsu, K.Morishima, N.Naganawa, M.Nakamura, T.Nakano, K.Ohzeki and O.Sato

*Nagoya University*

## Oral Presentations

[A2-II-3  
\(1286\)](#)

GRAINE Project: Balloon-borne  
Gamma-ray Telescope with Nuclear  
Emulsion

Shigeki Aoki<sup>1</sup> for GRAINE collaboration<sup>1, 2, 3, 4, 5</sup>

<sup>1</sup>Kobe University

<sup>2</sup>Nagoya University,

<sup>3</sup>Okayama University of Science,

<sup>4</sup>Aichi University of Education and

<sup>5</sup>ISAS/JAXA

[A2-II-4  
\(1049\)](#)

Measurements of Cosmic Ray Nuclei  
with Balloon-borne Emulsion Gamma-  
ray Telescope Experiments (GRAINE)  
and with HIMAC Heavy Ion Beam  
experiments

Atsushi Iyono<sup>1</sup>, Saya Yamamoto<sup>1</sup>, Akine  
Matsukawa<sup>1</sup>, Mitsuhiro Nakamura<sup>2</sup>, Osamu  
Satoh<sup>2</sup>, Kunihiro Morishima<sup>2</sup>, Satoru Takahashi<sup>3</sup>,  
Shigeki Aoki<sup>3</sup>, Hiroki Rokujo<sup>4</sup> and Misato Yabu<sup>3</sup>  
and GRAINE<sup>1,2,3,4,5,6</sup> collaboration

<sup>1</sup>Graduate School of Science, Okayama  
University of Science,

<sup>2</sup>Institute of Materials and systems for  
sustainability, Nagoya University,

<sup>3</sup>Graduate School of Human Development and  
Environment, Kobe University,

<sup>4</sup>Graduate School of Science, Nagoya University

<sup>5</sup>Aichi University of Education

<sup>6</sup>ISAS/JAXA

[A2-II-5  
\(1344\)](#)

Nuclear emulsion in space - plan for a  
new experiment on a sounding rocket  
and the International Space Station

Mugurel Balan<sup>2</sup>, Caludiu Cherciu<sup>2</sup>, Elena Firu<sup>2</sup>,  
Tsutomu Fukuda<sup>1</sup>, Naotaka Naganawa<sup>1</sup>, Liviu  
Petcu<sup>1</sup>, Hiroki Rokujo<sup>1</sup>, Osamu Sato<sup>1</sup>

<sup>1</sup>Nagoya University, Nagoya, Japan

<sup>2</sup>Institute of Space Science, Bucharest, Romania

[A2-II-6  
\(1357\)](#)

NEWSdm experiment ~ Directional  
Darkmatter search with super-fine  
grain emulsion detector ~

Atsuhiko Umemoto<sup>1</sup>, Tatsuhiko Naka<sup>2</sup>, Ryuta  
Kobayashi<sup>1</sup>, Takuya Shiraishi<sup>2</sup>

<sup>1</sup>Graduate school of science Nagoya University

<sup>2</sup>Graduate school of physics Toho University

[A2-II-7  
\(1214\)](#)

Recent results of a double hypernuclear  
search using nuclear emulsion

Masahiro Yoshimoto, Aung Nay Lin Nyaw Phyo  
Myat Lin, Ayumi Kasagi and Kazuma Nakazawa

for J-PARC E07 Collaboration Physics  
Department, Gifu University

[A2-II-8  
\(1215\)](#)

Characteristics of  $\Xi^-$  capture reaction at  
rest and Production of  $S = -2$   
Hypernuclei

Aung Nay Lin Nyaw<sup>1</sup>, Kazuma Nakazawa<sup>1</sup>,  
Masahiro Yoshimoto<sup>1</sup>, Ayumi Kasagi<sup>1</sup>, Phyo  
Myat Lin<sup>1</sup> and Junya Yoshida<sup>2</sup>

<sup>1</sup>Department of Physics, Gifu University

<sup>2</sup>ARSC, JAEA

[A2-II-9  
\(1216\)](#)

Development of Range-Energy  
Calibration Method with The Range of  
Alpha Particles for E07 Experiment,  
JPARC

Phyo Myat Lin<sup>1</sup>, Ayumi Kasagi<sup>1</sup>, Kazuma  
Nakazawa<sup>1</sup>, Masahiro Yoshimoto<sup>1</sup>, Aung Nay  
Lin Nyaw<sup>1</sup> and Junya Yoshida<sup>2</sup>

<sup>1</sup>Department of Physics, Gifu University,

<sup>2</sup>ARSC, JAEA

[A2-II-10  
\(1217\)](#)

High-resolution measurement using  
Spring-8 X-ray microscope for double  
hypernuclear analysis in J-PARC E07

Ayumi Kasagi<sup>1</sup>, Kazuma Nakazawa<sup>1</sup>, Masahiro  
Yoshimoto<sup>1</sup>, Aung Nay Lin Nyaw<sup>1</sup>, Phyo Myat  
Lin<sup>1</sup> and Junya Yoshida<sup>2</sup>

<sup>1</sup>Department of Physics, Gifu University,

<sup>2</sup>Advanced Science Research Center, JAEA

[A2-II-11  
\(1222\)](#)

Digital Archives for Nuclear Emulsion  
Data- Data in past experiments in  
Cosmic-ray and Accelerator physics

Koichi Kodama<sup>1</sup>, Takenori Kamiya<sup>1</sup>, Masakatsu  
Ichimura<sup>2</sup> and Mitsuhiro Nakamura<sup>3</sup>

<sup>1</sup>Aichi University of Education

<sup>2</sup>Hirosaki University

<sup>3</sup>Nagoya University

**A3-I: Nanomaterials I**  
(10:00-11:45, ES022)

**Chair: Minoru OSADA (Nagoya Univ.)**  
**Chun-Wei CHEN (Nanjing Univ.)**

[A3-I-1](#) [\(1267\)](#) Two-dimensional materials with novel functionality for photon-to-energy conversion

**Invite**

Chun-Wei Chen

*Department of Materials Science and Engineering,  
National Taiwan University*

[A3-I-2](#) [\(1295\)](#) Resistance Switch as nanoscale element

**Invite**

Kazuhito Tsukagoshi<sup>1</sup>, Yukiya Umeta<sup>1,2</sup>, Shushu Zheng<sup>1</sup>, Yasuhisa Naitoh<sup>3</sup>, Hiroshi Suga<sup>2</sup>, Xing Xu<sup>4</sup>

<sup>1</sup>WPI-MANA, NIMS

<sup>2</sup>Department of Technology, Chiba Institute of Technology

<sup>3</sup>Nanoelectronics Research Institute, Department of Electronics and Manufacturing, National Institute of Advanced Industrial Science and Technology (AIST)

<sup>4</sup>School of Materials Science and Engineering, Huazhong University of Science and Technology (HUST)

[A3-I-3](#) [\(1011\)](#) 2D Oxide Nanosheets for Electronic Applications

Minoru Osada<sup>1,2</sup>

<sup>1</sup>Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University

<sup>2</sup>International Center for Materials Nanoarchitectonics (WPI-MANA), National Institute for Materials Science

[A3-I-4](#) [\(1044\)](#) Chemical Vapor Deposition of 2D Transition Metal Dichalcogenides – Just Add Salts

Li Shisheng

*National Institute for Materials Science (NIMS)*

[A3-I-5](#) [\(1017\)](#) Controlled Synthesis of 2D Oxide Nanosheets

Yue Shi, Eisuke Yamamoto, Makoto Kobayashi, Minoru Osada

*IMaSS, Nagoya University*

**A3-II: Nanomaterials II**  
(14:00-17:00, ES022)

**Chair: Kazuhito TSUKAGOSHI (National Institute for Material Science)**  
**Xinran WANG (National Taiwan Univ.)**  
**Nobuyoshi MIYAMOTO (Fukuoka Institute of Technology)**

[A3-II-1](#) [\(1033\)](#) Two-dimensional Organic-Inorganic Hybrid Systems

**Invite**

Xinran Wang

*School of Electronic Science and Engineering,  
Nanjing University*

[A3-II-2](#) [\(1034\)](#) TBA

**Invite**

B. Ozyilmaz

[A3-II-3](#) [\(1034\)](#) Interfacial Effects and Physics of Molecular Crystalline Semiconductors under Two-Dimensional Limit

**Invite**

Yun Li

*School of Electronic Science and Engineering,  
Nanjing University*

[A3-II-4](#) [\(1305\)](#) Liquid crystalline nanosheet/polymer composites with highly regulated hierarchical structures

Nobuyoshi Miyamoto

*Department of Life, Environment and Applied Chemistry, Faculty of Engineering, Fukuoka Institute of Technology*

[A3-II-5](#) [\(1290\)](#) Smart Use of Nanoporous Silicas for Photocatalytic Reactions

Yusuke Ide

*International Center for Materials Nanoarchitectonics  
MANA National Institute for Materials Science(NIMS)*

[A3-II-6](#) [\(1315\)](#) Aerogels - Transparent, Low-density Solids for Energy Management

Kazuki Nakanishi<sup>1,2</sup>, Kazuyoshi Kanamori<sup>2</sup>, Ryota Ueoka<sup>2</sup> and Mamoru Aizawa<sup>3</sup>

<sup>1</sup>Division of Materials Research, Institute of Materials and Systems for Sustainability, Nagoya University

<sup>2</sup>Department of Chemistry, Graduate School of Science, Kyoto University

<sup>3</sup>Tiem Factory Incorporated

## Oral Presentations

[A3-II-7  
\(1263\)](#) Thermal Conduction in Magneli Phase Titanium Oxides with an Ordered Arrangement of Planar Faults in Nanoscale

Shunta Harada<sup>1,2</sup>, Naoki Kosaka<sup>2</sup>, Takashi Yagi<sup>3</sup>, Katsushi Tanaka<sup>4</sup>, Haruyuki Inui<sup>5</sup>, Miho Tagawa<sup>1,2</sup> and Toru Ujihara<sup>1,2,3</sup>

<sup>1</sup>*Institute of Materials and Systems for Sustainability, Nagoya University,*

<sup>2</sup>*Department of Materials Process Engineering, Nagoya University,*

<sup>3</sup>*National Institute of Advanced Industrial Science and Technology*

<sup>4</sup>*Department of Mechanical Engineering, Kobe University*

<sup>5</sup>*Department of Materials Science and Engineering, Kyoto University*

[A4-I-4  
\(1313\)](#) Capture and Oxidation of Gaseous Elemental Mercury in Flue Gas by De NO<sub>x</sub> catalyst

Ryo Yoshiie<sup>1</sup>, Yasuaki Ueki<sup>2</sup> and Ichiro Naruse<sup>2</sup>

<sup>1</sup>*Department of Mechanical Systems Engineering, Nagoya University*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A4-I-5  
\(1364\)](#) Efficient removal of Pb(II) and demulsification of oil-in-water emulsions by Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> powders with silane coupling agent modification

Yingchao Du<sup>1,2</sup>, Peiwei Han<sup>2</sup>, Peng Qian<sup>2</sup>, Yonggang Lu<sup>2</sup>, and Shufeng Ye<sup>2</sup>

<sup>1</sup>*Department of Chemical Engineering, University of Chinese Academy of Sciences*

<sup>2</sup>*State Key Laboratory of Multiphase Complex Systems, Institute of Process Engineering, Chinese Academy of Sciences*

### A4-I: Energy Conversion I (10:00-12:00, IB014)

**Chair: Yasuaki UEKI (Nagoya Univ.)**

[A4-I-1  
\(1152\)](#) Current Situation and Development of Gold Extraction by Chloridizing Volatilization Process

**Invite**

Shufeng Ye, Peiwei Han, Jian Ding and Peng Qian

*State Key Laboratory of Multiphase Complex Systems, Institute of Process Engineering, Chinese Academy of Sciences*

[A4-I-2  
\(1152\)](#) Catalytic Technology for Sustainable Green Aviation Biofuel Production

Y.H Taufiq-Yap<sup>1,2</sup>, N. Asikin-Mijan<sup>1</sup>, G. Abdulkareem-Alsultan<sup>1,2</sup>

<sup>1</sup>*Catalysis Science and Technology Research Centre (PutraCAT); Faculty of Science, Universiti Putra Malaysia*

<sup>2</sup>*Department of Chemistry, Faculty of Science, Universiti Putra Malaysia*

[A4-I-3  
\(1208\)](#) Effect of AAEMs on Pyrolysis and Gasification of Different Species of Wood

Yuya Sakurai<sup>1</sup>, Yuji Sakai<sup>2</sup> and Jun Kobayashi<sup>1</sup>

<sup>1</sup>*Department of Mechanical Engineering, Kogakuin University*

<sup>2</sup>*Department of Environmental Chemistry and Chemical Engineering, Kogakuin University*

[A4-I-6  
\(1374\)](#) Research and Development of Rotating Detonation Engine System for the Sounding Rocket S520-31 Flight Experiment

Jiro Kasahara<sup>1,2</sup>, Akira Kawasaki<sup>1,2</sup>, Ken Matsuoka<sup>2</sup>, Akiko Matsuo<sup>3</sup>, Ikkoh Funaki<sup>4</sup>, Daisuke Nakata<sup>5</sup> and Masaharu Uchiumi<sup>5</sup>

<sup>1</sup>*Institute of Material and Systems for Sustainability, Nagoya University*

<sup>2</sup>*Departments of Aerospace Engineering, Nagoya University*

<sup>3</sup>*Keio University*

<sup>4</sup>*ISAS, Japan Aerospace Exploration Agency*

<sup>5</sup>*Muroran Institute of Technology*

### A4-II: Energy Conversion II (14:00-15:15, IB014)

**Chair: Yasuaki UEKI (Nagoya Univ.)**

[A4-II-1  
\(1362\)](#) Investigation of Hydrogen Production from Water Hyacinth thorough Sub-Critical Hydrothermal Gasification

**Invite**

Somrat Kerdsuwan<sup>1</sup> and Krongkaew Laohalidanon<sup>1</sup>

<sup>1</sup>*The Waste Incineration Research Center, Department of Mechanical and Aerospace Engineering, Science and Technology Research Center (STRJ), King Mongkut's University of Technology North Bangkok, Thailand*

[A4-II-2](#)  
[\(1071\)](#) Nickel Recovery by Chlorination-volatilization Method  
Peiwei Han and Shufeng Ye  
*State Key Laboratory of Multiphase Complex Systems, Institute of Process Engineering, Chinese Academy of Sciences*

[A4-II-3](#)  
[\(1045\)](#) Characteristics and Kinetics of Biomass Char Gasification in Steam, CO<sub>2</sub>, and their Mixture  
Xi Zeng<sup>1</sup>, Hui Zhang<sup>2</sup>, Yasuaki Ueki<sup>1</sup>, Ryo Yoshiie<sup>2</sup>, Ichiro Naruse<sup>1</sup>  
<sup>1</sup>*Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University*  
<sup>2</sup>*Department of Mechanical Systems Engineering, Nagoya University*

[A4-II-4](#)  
[\(1177\)](#) CO<sub>2</sub> CO Conversion with Oxygen Carrier using Fixed Bed Flow Reactor System  
Kenji Kamiya, Nobusuke Kobayashi, Ryota Yoshimi, Akira Suami and Yoshinori Itaya  
*Graduate School of Engineering, Gifu University*

**A5: Transportation**  
(14:00-15:45, ES024)

**Chair: Tomio MIWA (Nagoya Univ.)**

[A5-1](#)  
[\(1048\)](#) Deep learning based prediction model and empirical analysis for spatiotemporal demand of online ride hailing  
Zhiju Chen, Kai Liu and Xinchao Peng  
*School of Transportation & Logistic, Dalian University of Technology*

[A5-2](#)  
[\(1012\)](#) The Relocation Problem in Dynamic Shared Autonomous Taxi System  
Zhiguang Liu<sup>1</sup>, Tomio Miwa<sup>2</sup>  
<sup>1</sup>*Department of Civil Engineering, Nagoya University*  
<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A5-3](#)  
[\(1043\)](#) Location of Electric Vehicle Charging Stations with Elastic Demands and Path Distance Constraints  
Hong Gao, Kai Liu and Xinchao Peng  
*School of Transportation & Logistic, Dalian University of Technology*

[A5-4](#)  
[\(1153\)](#) Model measuring on Option Value of Public Transport Service in Aging Society  
Xun ZHENG<sup>1</sup>, Tomio MIWA<sup>1,2</sup>  
<sup>1</sup>*Department of Civil Engineering, Nagoya University,*  
<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A5-5](#)  
[\(1084\)](#) The public acceptance analysis of level 3 autonomous driving vehicles based on binomial logit model  
Xiyue Zhang and Kai Liu  
*School of Transportation and Logistics, Dalian University of Technology*

[A5-6](#)  
[\(1036\)](#) Study on social value evaluation of supporting bath on disaster using the contingent valuation Method  
N. Kitagawa<sup>1</sup>, T. Yamamoto<sup>2</sup>  
<sup>1</sup>*Disaster Mitigation Research Center, Nagoya University,*  
<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A5-7](#)  
[\(1082\)](#) GNSS elevation data processing for roadway grade measurement based on Kalman filter algorithm  
Xinchao Peng and Kai Liu  
*School of Transportation & Logistic, Dalian University of Technology*

## Oral Presentations

### A6- I : Information & Communication I (14:00-16:15, IB011)

**Chair: Hiraku OKADA (Nagoya Univ.)**

[A6-I-1  
\(1005\)](#) An Experiment of Meteor Burst Communications in Equatorial Region  
Tadahiro Wada<sup>1</sup>, Hiroki Wadaguchi<sup>1</sup>, Kaiji Mukumoto<sup>2</sup>, I Wayan Mustika<sup>3</sup>, Linawati<sup>4</sup>, Hiraku Okada<sup>5</sup>

<sup>1</sup>Graduate School of Integrated Science and Technology, Shizuoka University  
<sup>2</sup>Technical Division, Shizuoka University  
<sup>3</sup>Faculty of Engineering, Gadjah Mada University  
<sup>4</sup>Faculty of Engineering, Udayana University  
<sup>5</sup>Institute of Materials and Systems for Sustainability, Nagoya University

[A6-I-2  
\(1112\)](#) Proposal of Antenna Pattern Multiplexing to Reduce Required Received Signal Power  
Masato Saito

Department of Engineering, University of the Ryukyus

[A6-I-3  
\(1164\)](#) A Study on LED Transmitter of Image Sensor Communication for Improving Data Transmission Rate

Shintaro Arai

Dept. of Electrical and Electronic Engineering, Okayama University of Science

[A6-I-4  
\(1077\)](#) Data signal modulation scheme based on perceptually uniform color space for image sensor-based visible light communication

Taito Sasaki<sup>1</sup>, Kentaro Kobayashi<sup>2</sup>, Hiraku Okada<sup>2</sup> and Masaaki Katayama

<sup>1</sup>Dept. of Information and Communication Engineering, Nagoya University,  
<sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University

[A6-I-5  
\(1007\)](#) Calibration Method for an Integrated Range and Visible Light Communication System using Stereo Cameras

Ruiyi HUANG<sup>1</sup>, Masayuki KINOSHITA<sup>2</sup>, Takaya YAMAZATO<sup>1</sup>, Hiraku OKADA<sup>1</sup>, Toshiaki FUJII<sup>1</sup>, Shintaro ARAI<sup>3</sup>, Tomohiro YENDO<sup>4</sup> and Koji KAMAKURA<sup>2</sup>

<sup>1</sup>Nagoya University  
<sup>2</sup>Chiba Institute of Technology,  
<sup>3</sup>Okayama University of Science,  
<sup>4</sup>Nagaoka University of Technology

[A6-I-6  
\(1122\)](#) Signal detection scheme for online map images

Ryota Ono<sup>1</sup>, Yuki Mori<sup>2</sup>, Katsuhiro Naito<sup>1</sup>

<sup>1</sup>Faculty of Information Science, Aichi Institute of Technology,  
<sup>2</sup>Business Administration and Computer Science Course, Aichi Institute of Technology

[A6-I-7  
\(1078\)](#) Designing of packet processing in kernel space for mobile transparency protocol

Shuheji Isomura<sup>1</sup>, Ryota Murate<sup>2</sup>, Kohei Tanaka and Katsuhiro Naito<sup>2</sup>

<sup>1</sup>Graduate School of Business Administration and Computer Science, Aichi Institute of Technology  
<sup>2</sup>Faculty of Information Science, Aichi Institute of Technology

[A6-I-8  
\(1088\)](#) Evaluation of indoor positioning technology using a smartphone and ultrasonic signal

Shotaro Osaki<sup>1</sup>, Katsuhiro Naito<sup>2</sup>

<sup>1</sup>Graduate School of Business Administration and Computer Science, Aichi Institute of Technology,  
<sup>2</sup>Department of Information Science, Aichi Institute of Technology

### A8-I: Power Electronics 1 (15:30-16:45, IB014)

**Chair: Masayoshi YAMAMOTO  
(Nagoya Univ.)**

[A8-I-1  
\(1038\)](#) The Impedance Analysis of DC Brush Motor Considering Rotation Angle Dependence

K. Katagiri<sup>1</sup>, T Ogawa<sup>1</sup>, M Yamamoto<sup>2</sup> and J Imaoka<sup>2</sup>

<sup>1</sup>Advanced Technology R&D Center, Mitsubishi Electric Corporation  
<sup>2</sup>Department of Electrical Engineering, Nagoya University

[A8-I-2  
\(1099\)](#) Searching Method for Worst Combination of Component Parameters using Circuit Simulator with GA

Yasumichi Omoto

OMRON Automotive Electronics Co. Ltd.

[A8-I-3  
\(1157\)](#) A Study of Inverter Layout Including GaN-HEMTs and GaN-Diodes

Takashi Sawada<sup>1</sup>, Yu Hsin Wu<sup>2</sup>, Toshihiro Iwaki<sup>2</sup>, and Masayoshi Yamamoto<sup>1</sup>

<sup>1</sup>*Institute of Materials and Systems for Sustainability, Nagoya University,*

<sup>2</sup>*Department of Electrical Engineering, Nagoya University,*

[A8-I-4  
\(1358\)](#) Reliability Improvement of Power Control Unit of Hybrid Electric Vehicle by means of Z-source Network

Thilak Senanayake, Jun Imaoka, Masayoshi Yamamoto

*Power Electronics Laboratory, Nagoya University,*

[A8-I-5  
\(1158\)](#) Modeling of SiC UMOS chip and its application to Power Module

Hiroyuki Sakairi, Yohei Nakamura, Naotaka Kuroda, Maiko Hatano, Takukazu Otsuka and Ken Nakahara

*Research and Development Center Rohm co., Ltd.*

[A9-I-3  
\(1063\)](#) Evaluating the transformation of rainfall using TOPMODEL in Mid-sized Equatorial Catchment

Emmanuel OKIRIA<sup>1</sup>, Hiromu OKAZAWA<sup>2</sup>, Yuri YAMAZAKI<sup>2</sup>, Yukimitsu KOBAYASHI<sup>1</sup> and Shinji SUZUKI<sup>2</sup>

<sup>1</sup>*Graduate School of Agriculture, Tokyo University of Agriculture*

<sup>2</sup>*Faculty of Regional Environment Science, Tokyo University of Agriculture*

[A9-I-4  
\(1006\)](#) Assessing the Recycle of Urban Forest Management Wastes Using the Resources Time Foot Print Analysis

N. KAWAGUCHI<sup>1</sup>, K. HAYASHI<sup>1</sup> and M. FUJII<sup>2</sup>

<sup>1</sup>*IMaSS, Nagoya University,*

<sup>2</sup>*National Institute for Environmental Studies*

[A9-I-5  
\(1149\)](#) Estimating Stem Volume of Coniferous Tree Species from a UAV-SfM Derived Canopy Model: An Application of the Pipe Model Theory

Takashi Machimura<sup>1</sup>, Ayana Fujimoto<sup>1</sup>, Kiichiro Hayashi<sup>2</sup>, Satoru Sugita<sup>3</sup>, Hiroaki Takagi<sup>2</sup> and Takanori Matsui<sup>1</sup>

<sup>1</sup>*Graduate School of Engineering, Osaka University,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

<sup>3</sup>*Chubu Institute for Advanced Studies, Chubu University*

**A9-I: Eco System Analysis and Others I**  
(10:00-12:00, IB013)

**Chair: Kiichiro Hayashi (Nagoya Univ.)**

[A9-I-1  
\(1352\)](#) Multi-scale Remote Sensing for the Early Stage of Disaster Management

**Invite**

Satoru Sugita<sup>1</sup>, Hiroshi Inoue<sup>2</sup>, Yuji Asahi<sup>3</sup> and Hiromichi Fukui<sup>1</sup>

<sup>1</sup>*International Digital Earth Applied Science Research Center, Chubu University*

<sup>2</sup>*National Research Institute for Earth Science and Disaster Resilience*

<sup>3</sup>*Falcon Corporation, Ltd.*

[A9-I-2  
\(1103\)](#) Accuracy verification of UAV-SfM survey of terrace paddy fields

Yuri Yamazaki<sup>1</sup>, Kunming Li<sup>2</sup> and Hiromu Okazawa<sup>1</sup>

<sup>1</sup>*Department of Regional Environment Science, Tokyo University of Agriculture*

<sup>2</sup>*Graduate School of Agriculture, Tokyo university of Agriculture*

[A9-I-6  
\(1142\)](#) Accuracy verification of UAV-SfM survey of terrace paddy fields

Yuri Yamazaki<sup>1</sup>, Kunming Li<sup>2</sup> and Hiromu Okazawa<sup>1</sup>

<sup>1</sup>*Department of Regional Environment Science, Tokyo University of Agriculture*

<sup>2</sup>*Graduate School of Agriculture, Tokyo university of Agriculture*

[A9-I-7  
\(1131\)](#) Estimation of Carbon Stock for Coniferous and Broad-Leaved Forests by Comparing UAV and LIDAR methods

H. Takagi<sup>1</sup>, K. Hayashi<sup>1</sup>, T. Machimura<sup>2</sup> and S. Sugita<sup>3</sup>

<sup>1</sup>*Department of Civil Engineering, Nagoya University*

<sup>2</sup>*Graduate School of Engineering, Osaka University*

<sup>3</sup>*Chubu Institute for Advanced Studies, Chubu University*

Oral Presentations

**A9- II : Eco System Analysis and Others II**  
(14:00-16:45, IB013)

**Chair: Natsuko HAMAMURA (Kyusyu Univ.)**  
**Naoko YOSHIDA (Nagoya Institute of Technology)**  
**Nobusuke KOBAYASHI (Gifu Univ.)**

[A9-II-1](#)  
[Invite](#)

Energy Reduction in Sewage Wastewater Treatment by Applying Microbial Fuel Cell

Naoko Yoshida

*Department of Civil Engineering, Nagoya Institute of Technology*

[A9-II-2](#)  
[\(1089\)](#)

Polyphasic Characterization of Solid-phase Humin functioning as External Electron Mediator for Anaerobic Microorganisms

Pham Minh Duyen and Arata Katayama

*Institute of Materials and Systems for Sustainability, Nagoya University, Japan*

[A9-II-3](#)  
[\(1072\)](#)

Microbial Biotransformation of Toxic Metalloids and Its Bioremediation Potentials

Natsuko Hamamura<sup>1,2</sup>, Tomotaka Okubo<sup>1</sup> and Satoshi Mitsunobu<sup>3</sup>

<sup>1</sup>*Department of Biology, Faculty of Science, Kyushu University,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University,*

<sup>3</sup>*Department of Bioresources, Faculty of Agriculture, Ehime University*

[A9-II-4](#)  
[\(1065\)](#)

Nitrogen fixing activity promoted by humin

Takanori Awata<sup>1</sup>, Jumpei Mitsushita<sup>2</sup>, Takuya Kasai<sup>2</sup>, Norihisa Matsuura<sup>3</sup> and Arata Katayama<sup>2</sup>

<sup>1</sup>*National Institute for Land and Infrastructure Management,*

<sup>2</sup>*Nagoya University,*

<sup>3</sup>*Kanazawa University*

[A9-II-5](#)  
[\(1070\)](#)

Extracellular electron transfer mechanisms in *Shewanella oneidensis*

Takuya Kasai<sup>1</sup>, Takehito Noto<sup>2</sup> and Arata Katayama<sup>1</sup>

<sup>1</sup>*Institute of Materials and Systems for Sustainability, Nagoya University,*

<sup>2</sup>*School of engineering, Nagoya University*

[A9-II-7](#)  
[\(1056\)](#)

Direct Vitrification of Used Nuclear Fuel Considering Future Resource Retrieval

Naoki Tsukiyama, Kayo Sawada and Youichi Enokida

*Department of Applied Energy, Graduate School of Engineering, Nagoya University*

[A9-II-8](#)  
[\(1166\)](#)

Construction of Composting Heat Utilization Process

Yoshinori Watanabe<sup>1,2</sup>, Nobusuke Kobayashi<sup>2</sup>, Yoshinori Itaya<sup>2</sup> and Yuto Kashiwaya<sup>2</sup>

<sup>1</sup>*Department of Mechanical and System Engineering, Aichi University of Technology*

<sup>2</sup>*Environmental and Renewable Energy S systems, Gifu University*

[A9-II-9](#)  
[\(1066\)](#)

Operating Temperature for the Vitrification of Radioactive Wastes with Lead Borate Glass

Takumi Shimakura, Kayo Sawada and Youichi Enokida

*Department of Applied Energy, Graduate School of Engineering, Nagoya University,*

[A9-II-10](#)  
[\(1196\)](#)

Effect of Electrolytes on the Stability of Surfactant Free W/O Eulsions

S.Ito, Y Kojima and M Ueda

*Institute of Materials and Systems for Sustainability Nagoya University*

## Sunday, November 3

### A1-III: Advanced Measurements III

(10:00-12:00, IB015)

Chair: Eiji IKENAGA (Nagoya Univ.)

[A1-III-1  
\(1185\)](#)

Time series analysis of depth profiles in multi-layered stack-film interfaces studied by nearambient-pressure hard x-ray angle-resolved photoemission spectroscopy

Satoshi Toyoda<sup>1</sup>, Tomoki Yamamoto<sup>2</sup>, Masashi Yoshimura<sup>3</sup>, Hirosuke Sumida<sup>4</sup>, Susumu Mineoi<sup>4</sup>, Masatake Machida<sup>5</sup>, Akitaka Yoshigoe<sup>6</sup>, Akira Yoshikawa<sup>7</sup>, Satoru Suzuki<sup>2</sup>, Kazushi Yokoyama<sup>2</sup>

<sup>1</sup>New Industry creation Hatchery Center, Tohoku University

<sup>2</sup>Synchrotron Radiation Nanotechnology Center, University of Hyogo

<sup>3</sup>Spring-8 Service Co., Ltd.

<sup>4</sup>Technical Research Center, Mazda Motor Corporation

<sup>5</sup>Scientia Omicron, Inc.

<sup>6</sup>Materials Sciences Research Center, Japan Atomic Energy Agency

<sup>7</sup>Institute for Materials Research, Tohoku University

[A1-III-2  
\(1345\)](#)

Saturation of Activated Sb Atom in Heavily Sb-Doped Ge Epitaxial Thin Films

J. Jeon<sup>1</sup>, S. Shibayama<sup>1</sup>, S. Zaima<sup>2</sup>, and O. Nakatsuka<sup>1,3</sup>

<sup>1</sup>Graduate School of Engineering, Nagoya University,

<sup>2</sup>Graduate School of Science and Technology, Meijo University,

<sup>3</sup>Institute of Materials and Systems for Sustainability, Nagoya University

[A1-III-3  
\(1340\)](#)

Operand Study of Multiple Stacked Si Quantum Dots by Hard X-ray Photoelectron Spectroscopy

Mitsuhisa Ikeda<sup>1</sup>, Akio Ohta<sup>2</sup>, Makihara Katsunori<sup>2</sup> and Seiichi Miyazaki<sup>2</sup>

<sup>1</sup>DII Collaborative Graduate Program for Accelerating Innovation in Future Electronics, Nagoya University

<sup>2</sup>Department of Electronics, Nagoya University

[A1-III-4  
\(1411\)](#)

Designing Functional Materials via Atomic-resolution Microscopy and Spectroscopy

[Invite](#)

Stephen J. Pennycook<sup>1,2,3,4</sup>, Xiaoxu Zhao<sup>1</sup>, Jiong Lu<sup>5</sup>, Wenjie Zang<sup>1</sup>, Haijun Wu<sup>1</sup>, Changjian Li, A. Ariando<sup>4</sup>, T. Venkatesan<sup>4</sup> and John Wang<sup>1,2</sup>

<sup>1</sup>Department of Materials Science and Engineering, National University of Singapore

<sup>2</sup>NUS Graduate School for Integrative Sciences and Engineering, Centre for Life Sciences

<sup>3</sup>Centre for Advanced 2D Materials, National University of Singapore

<sup>4</sup>NUSNNI-Nanocore, National University of Singapore

<sup>5</sup>Department of Chemistry, National University of Singapore

[A1-III-5  
\(1102\)](#)

Analyzing 3D Distributions of Au/Pt Nanoparticles by Focal Series of Aberration Corrected TEM Images

Jun Yamasaki<sup>1,2</sup>, Masaki Kano<sup>3</sup>, Koh Saitoh<sup>2</sup>, Kenta Yoshida<sup>4</sup>, Keita Kobayashi<sup>5</sup> and Nobuo Tanaka<sup>2</sup>

<sup>1</sup>Research Center for Ultra High Voltage Electron Microscopy, Osaka University

<sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University

<sup>3</sup>Department of Electronic Engineering, Osaka University

<sup>4</sup>Institute for Materials Research, Tohoku University

<sup>5</sup>National Institute of Advanced Industrial Science and Technology

[A1-III-6  
\(1271\)](#)

High-brightness pulsed electron microscopy toward advanced measurement of time-evolution in nano-materials

Makoto Kuwahara<sup>1,2</sup>, Rina Yokoi<sup>2</sup>, Lila Mizuno<sup>2</sup>, Wataru Nagata<sup>2</sup>, Yuya Yoshida<sup>2</sup>, Takafumi Ishida<sup>1,2</sup>, Toru Ujihara<sup>1,2</sup> and Koh Saitoh<sup>1,2</sup>

<sup>1</sup>Institute of Materials and Systems for Sustainability, Nagoya University

<sup>2</sup>Graduate School of Engineering, Nagoya University

**A2-III: Nuclear Emulsion Technology III**  
(10:00-12:00, IB Hall)

**Chair: Masahiro KOMATSU (Nagoya Univ.)  
Toshiyuki TOSHITO (Nagoya Proton  
Therapy Center)**

[A2-III-1](#)  
[\(1211\)](#) Single Photon Emission Computed  
Tomography System using Emulsion to  
visualize Irradiation Fields for Particle  
Therapy

T.Toshito<sup>1</sup>, M Kimura<sup>1</sup>, O Sato<sup>2</sup> and M Nakamura<sup>2</sup>

<sup>1</sup>Nagoya Proton Therapy Center

<sup>2</sup>Nagoya University

[A2-III-2](#)  
[\(1176\)](#) Secondary neutron measurements in  
proton therapy with nuclear emulsion

Mitsuhiro Kimura<sup>1,2</sup>, Toshiyuki Toshito<sup>1,2</sup>, Hiroyuki  
Ogino<sup>1,2</sup>, Yuta Shibamoto<sup>2</sup> Osamu Sato<sup>3</sup> and  
Mitsuhiro Nakamura<sup>3</sup>

<sup>1</sup>Nagoya Proton Therapy Center

<sup>2</sup>Nagoya City University

<sup>3</sup>Nagoya University

[A2-III-3](#)  
[\(1050\)](#) Application of Nuclear Emulsions for  
the Identification of Laser-accelerated  
Multi-MeV Protons

T. Asai<sup>1,2</sup>, M. Kanasaki<sup>1</sup>, S. Jinno<sup>3</sup>, N. Kitagawa<sup>4</sup>,  
N. Shutoh<sup>1</sup>, S. Kodaira<sup>5</sup>, T. Yamauchi<sup>1</sup>, K. Oda<sup>1</sup>,  
K. Morishima<sup>1</sup> and Y. Fukuda<sup>2</sup>

<sup>1</sup>Graduate school of Maritime sciences, Kobe  
University,

<sup>2</sup>Kansai Photon Science Institute, QST,

<sup>3</sup>School of Engineering, the University of Tokyo,

<sup>4</sup>Graduate School of Science, Nagoya University,

<sup>5</sup>National Institute of Radiological Sciences, QST

[A2-III-5](#)  
[\(1137\)](#) Upgrading of momentum measurement  
techniques in emulsion-based particle  
detectors

T. Matsuo<sup>1</sup>, K. Hirose<sup>1</sup>, A. Kono<sup>1</sup>, Y. Kosakai<sup>1</sup>, K.  
Mizuno<sup>1</sup>, Y. Morimoto<sup>1</sup>, S. Ogawa<sup>1</sup>, H. Oshima<sup>1</sup>,  
H. Shibuya<sup>1</sup>, H. Takagi<sup>1</sup>, C. Tsuruoka<sup>1</sup>, S. Mikado<sup>2</sup>,  
Y. Hanaoka<sup>2</sup>, T. Fukuda<sup>3</sup>, M. Nakamura<sup>4</sup> and O.  
Sato<sup>4</sup>

<sup>1</sup>Department of Physics, Faculty of Science, Toho  
University,

<sup>2</sup>College of Industrial Technology, Nihon  
University,

<sup>3</sup>Institute for Advanced Research

<sup>4</sup>Institute of Materials and Systems for  
Sustainability, Nagoya University

[A2-III-6](#)  
[\(1311\)](#) Study on the neutrino interactions in  
subGeV to GeV Energy range : NINJA.

Osamu Sato for NINJA collaboration

*Institute of Materials and Systems for  
Sustainability, Nagoya University*

[A2-III-7](#)  
[\(1334\)](#) The DsTau Experiment: Study of Tau  
Neutrino Production

Elena Firu

*on behalf of the DsTau Collaboration*

*Institute of Space Science, Bucharest*

[A2-III-8](#)  
[\(1221\)](#) Studying High Energy Neutrinos in the  
FASER experiment at the LHC

Tomoko Ariga

*on behalf of the FASER Collaboration*

*Kyushu University*

**A3-III: Nanomaterials III**  
(9:45-12:15, ES022)

**Chair: Yusuke IDE (Institute for Material  
Science)  
Eisuke YAMAMOTO (Nagoya Univ.)  
Makoto KOBAYASHI (Nagoya Univ.)**

[A3-III-1](#)  
[\(1289\)](#) Template syntheses of titania  
nanoparticle

[Invite](#)

Kasimanat (Guy) Vibulyaseak and Makoto Ogawa

*School of Energy Science and Engineering,  
Vidyasirimehi Institute of Science and Technology*

[A3-III-2](#)  
[\(1297\)](#) Hydrothermal Synthesis of Rutile-type  
Titania Nanocrystals with Controlled  
Morphologies

Makoto Kobayashi<sup>1</sup>, Hideki Kato<sup>2</sup>, Minoru Osada<sup>1</sup>  
and Masato Kakihana<sup>1</sup>

<sup>1</sup>Institute of Materials and Systems for  
Sustainability, Nagoya University,

<sup>2</sup>Institute of Multidisciplinary Research for  
Advanced Materials, Tohoku University

[A3-III-3  
\(1281\)](#)

DNA-guided crystallization of nanoparticles: optimization of crystallization conditions and structure analysis

Miho Tagawa<sup>1,2</sup>, Shoko Kojima<sup>2</sup>, Hayato Sumi<sup>2</sup>, Noboru Ohta<sup>3</sup>, Hiroshi Sekiguchi<sup>3</sup>, Shunta Harada<sup>1,2</sup> and Toru Ujihara<sup>1,2</sup>

<sup>1</sup>Center for Integrated Research of Future Electronics (CIRFE), Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University

<sup>2</sup>Graduate School of Engineering Nagoya University

<sup>3</sup>Japan Synchrotron Radiation Research Institute (JASRI)

[A3-III-4  
\(1039\)](#)

Tailored Fabrication of TiO<sub>2</sub>-TiN/Sn-SnO<sub>2</sub> Composite Films as High-Performance LIB Anode Materials

Song-Zhu S. Kure-Chu<sup>1</sup>, Takato Inoue<sup>1</sup>, Xuewen Chen<sup>1</sup>, Takehiko Hihara<sup>1</sup>, Song Peng<sup>2</sup>, Masazumi Okido<sup>2</sup> and Hitoshi Yashiro<sup>3</sup>

<sup>1</sup>Department of Materials Function and Design, Nagoya Institute of Technology

<sup>2</sup>Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University

<sup>3</sup>Department of Chemistry and Bio-Sciences, Iwate University

[A3-III-5  
\(1057\)](#)

Atomic and electronic structure analysis of resistive switching regions in rutile TiO<sub>2-x</sub> based four terminal memristive devices

Tsuyoshi Isaka<sup>1</sup>, Tetsuya Tohei<sup>1</sup>, Takuma Shimizu<sup>1</sup>, Shotaro Takeuchi<sup>1</sup>, Nobuyuki Ikarasi<sup>2</sup> and Akira Sakai<sup>1</sup>

<sup>1</sup>Graduate School of Engineering Science, Osaka University

<sup>2</sup>Institute of Materials and System for Sustainability, Nagoya University

[A3-III-6  
\(1024\)](#)

Computics Approach toward Clarification of Microscopic Mechanisms of Epitaxial Growth of Gallium Nitride

Kieu My Bui<sup>1</sup>, Mauro Boero<sup>1,2</sup>, Kenji Shiraishi<sup>1</sup> and Atsushi Oshiyama<sup>1</sup>

<sup>1</sup>Institute of Materials and Systems for Sustainability, Nagoya University

<sup>2</sup>University of Strasbourg and CNRS, Institut de Physique et Chimie des Matériaux de Strasbourg UMR 7504

[A3-III-7  
\(1061\)](#)

GaN Crystal Growth Multi Physics Simulation with Gas Phase Chemical Reaction

S. Sakakibara<sup>1</sup>, A. Kusaba<sup>2</sup>, M. Araidai<sup>3</sup>, N. Okamoto<sup>4</sup>, K. Yoshimatsu<sup>3</sup>, H. Watanabe<sup>3</sup>, S. Nitta<sup>3</sup>, Y. Kangawa<sup>5</sup>, K. Kakimoto<sup>5</sup>, K. Shiraishi<sup>3</sup>, H. Amano<sup>3</sup>

<sup>1</sup>Grad. Sch. Eng., Nagoya Univ. Univ.

<sup>2</sup>Computer Centre, Gakushuin Univ.

<sup>3</sup>IMaSS, Nagoya Univ.

<sup>4</sup>Aichi Institute Technology

<sup>5</sup>RIAM, Kyushu Univ.

[A3-III-8  
\(1079\)](#)

Synthesis of InGaN nanowires and nanostructures to achieve high indium content and high crystal quality for optoelectronic devices

Geoffrey Avit<sup>1</sup>, Yoann Robin<sup>1</sup>, Mohammed Zeghouane<sup>2</sup>, Léo Mostéfa<sup>1,3</sup>, Boris Michalska<sup>1,3</sup>, Yamina Andre<sup>2</sup>, Dominique Castelluci<sup>2</sup>, Agnès Trassoudaine<sup>2,3</sup> and Hiroshi Amano<sup>1</sup>

<sup>1</sup>Univ. of Nagoy

<sup>2</sup>Université Clermont Auvergne, CNRS, SIGMA Clermont, Institut Pascal

<sup>3</sup>IUT Mesures Physique, Université Clermont Auvergne

[A3-III-9  
\(1213\)](#)

Acceptor formation of Mg-ion implanted GaN by high-pressure N<sub>2</sub> annealing

Hideki Sakurai<sup>1,2,3</sup>, Shinji Yamada<sup>1,2,3</sup>, Akihiko Koura<sup>3</sup>, Tetsuo Narita<sup>4</sup>, Keita Kataoka<sup>4</sup>, Masahiro Horita<sup>1,2</sup>, Michal Boćkowski<sup>1,5</sup>, Jun Suda<sup>1,2</sup> and Tetsu Kachi<sup>1</sup>

<sup>1</sup>IMaSS, Nagoya University,

<sup>2</sup>Dept. of Electronics, Graduate School of Engineering, Nagoya University,

<sup>3</sup>ISET, ULVAC, Inc.,

<sup>4</sup>Toyota Central R&D Labs., Inc.,

<sup>5</sup>Institute of High Pressure Physics Polish Academy of Sciences

**A6-II: Information & Communication II**  
(10:00-11:15, IB011)

**Chair: Kentaro Kobayashi (Nagoya Univ.)**

[A6-II-1](#) [\(1022\)](#) A Study on Cross-layer Combination of Predictive Control and Error Correction Coding for Wireless Feedback Control

Kohei Kasai<sup>1</sup>, Kentaro Kobayashi<sup>2</sup>, Hiraku Okada<sup>2</sup> and Masaaki Katayama<sup>2</sup>

<sup>1</sup>*Dept. of Information and Communication Engineering, Nagoya University,*  
<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A6-II-2](#) [\(1081\)](#) A Study on Broadcast of Operation Information for IEEE802.15.4-Based Wireless Control of Multiple Machines

Yasuhiro Umemura<sup>1</sup>, Kentaro Kobayashi<sup>2</sup>, Hiraku Okada<sup>2</sup> and Masaaki Katayama<sup>2</sup>

<sup>1</sup>*Dept. of Information and Communication Engineering, Nagoya University,*  
<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A6-II-3](#) [\(1037\)](#) A Study on Flight Models in Wireless Relay Networks Using Drones for Large-Scale Disasters

Hiroki Yanai<sup>1</sup>, Hiraku Okada<sup>2</sup>, Kentaro Kobayashi<sup>2</sup> and Masaaki Katayama<sup>2</sup>

<sup>1</sup>*Dept. of Information and Communication Engineering, Nagoya University,*  
<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A6-II-4](#) [\(1227\)](#) A Study on Delay-Optimal Scheduling Policy for Ultra-Low Latency Vehicular Networking

Weiqi Sun and Shih-Chun Lin

*Department of Electrical and Computer Engineering, North Carolina State University*

[A6-II-5](#) [\(1228\)](#) A Study on User-Centric Virtual-Cell Design in Software-Defined Vehicular Networks

Weiqi Sun and Shih-Chun Lin

*Department of Electrical and Computer Engineering, North Carolina State University*

**A7: Electric Power System**  
(10:00-12:15, ES025)

**Chair: Masaki Imanaka (Nagoya Univ.)**

[A7-1](#) [\(1226\)](#) Implementation and Verification of Transmission Line Capacity Management System with PLC and IEDs

Kohei Ito<sup>1</sup>, Mutsumi Aoki<sup>2</sup>, Toru Amau<sup>2,3</sup>, Tetsuo Otani<sup>2,4</sup>, Tatsuya Ozawa<sup>5</sup>

<sup>1</sup>*Department of Electric and Mechanical Engineering, Nagoya Institute of Technology*  
<sup>2</sup>*Nagoya Institute of Technology*  
<sup>3</sup>*Chubu Electric Power Co., Inc.*  
<sup>4</sup>*CRIEPI*  
<sup>5</sup>*MEIRYO DENSHI*

[A7-2](#) [\(1265\)](#) Voltage Imbalance Suppression Effect using HVR by Multiple Node Voltage Estimation of Distribution System

Yoshiteru Saito<sup>1</sup>, Mutsumi Aoki<sup>1</sup>, Hirokazu Uenishi<sup>2</sup> and Yuki Kanazawa<sup>2</sup>

<sup>1</sup>*Department of Electric and Mechanical, Nagoya Institute of Technology*  
<sup>2</sup>*Chubu Electric Power Co., Inc.*

[A7-3](#) [\(1106\)](#) Effectiveness of Frequency and Voltage Regulation by Photovoltaic Generation Units in Microgrid

Masahide Hojo<sup>1</sup>, Hiroyuki Nakagawa<sup>1</sup>, Hibiki Kawaguchi<sup>1</sup>, Kenji Yamanaka<sup>1</sup>, Toshihisa Funabashi<sup>2</sup>, Masaki Imanaka<sup>3</sup> and Takeyoshi Kato<sup>3</sup>

<sup>1</sup>*Department of Electrical and Electronic Engineering, Tokushima University,*

<sup>2</sup>*Faculty of Engineering, University of the Ryukyus*

<sup>3</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A7-4](#) [\(1042\)](#) Contribution of Accuracy Improvement of Photovoltaic (PV) Power Output Forecasting on Design and Operation of Microgrid with Huge Capacity of PV and Battery Energy Storage

Guowei CHEN<sup>1</sup>, Masaki IMANAKA<sup>2</sup>, Muneaki KURIMOTO<sup>2</sup>, Shigeyuki SUGIMOTO<sup>2</sup>, Takeyoshi KATO<sup>2</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya University*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A7-5 \(1051\)](#) Feasibility study on mitigation of PV surplus power by demand response of waterworks pumps

Masaki Imanaka<sup>1</sup>, Muneaki Kurimoto<sup>1</sup>, Shigeyuki Sugimoto<sup>1</sup>, Takeyoshi Kato<sup>1</sup> and Jumpei Baba<sup>2</sup>

<sup>1</sup>*Institute of Material and Systems for Sustainability, Nagoya University,*  
<sup>2</sup>*Graduated School of Frontier Sciences, The University of Tokyo*

[A7-6 \(1067\)](#) Proposal for Coordinated Control of Heating Ventilation and Air Conditioning Loads and Battery Energy Storage System for Improved Performance of FastADR Response

R. Myovela<sup>1</sup>, M. Imanaka<sup>2</sup>, M. Kurimoto<sup>2</sup>, S. Sugimoto<sup>2</sup> and T. Kato<sup>2</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya University,*  
<sup>2</sup>*Institute of Material and Systems for Sustainability (IMaSS), Nagoya University*

[A7-7 \(1058\)](#) Experimental Study on Dual P-f Droop Control of Photovoltaic Power Generation for Grid Frequency Regulation

Noha Harag<sup>1</sup>, Yusaku Tamakoshi<sup>1</sup>, Masaki Imanaka<sup>1</sup>, Muneaki Kurimoto<sup>1</sup>, Shigeyuki Sugimoto<sup>1</sup>, Takeyoshi Kato<sup>1</sup>, Mutsumi Aoki<sup>2</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya University,*

<sup>2</sup>*Department of Electrical and Mechanical Engineering, Nagoya Institute of Technology,*

[A7-8 \(1304\)](#) Study on Influence of Difference in LFC Capacity Constraint in Unit Commitment Scheduling on Power Output Flexibility

Huidan Luo<sup>1</sup>, Ryota Azukisawa<sup>1</sup>, Masaki Imanaka<sup>2</sup>, Muneaki Kurimoto<sup>2</sup>, Shigeyuki Sugimoto<sup>2</sup>, Takeyoshi Kato<sup>2</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya University,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

**A8-II: Power Electronics II**  
(10:00-11:15, IB014)

**Chair: Masayoshi YAMAMOTO (Nagoya Univ.)**

[A8-II-1 \(1160\)](#) Dynamic On-State Resistance Measurement of GaN-HEMT by Double Pulse Test

Ryosuke Ishido, Tatsuya Yanagi, Yuta Okawauchi, and Ken Nakahara

*ROHM co., Ltd*

[A8-II-2 \(1243\)](#) (La,Li)TiO<sub>3</sub> Epitaxial Thin Films Grown by RF Magnetron Sputtering

T. Kawaguchi, M. Naka, K. Sugihara, N. Sakamoto, H. Suzuki<sup>1</sup> and N. Wakiya

*Department of Electronics and Materials Science, Shizuoka University*

[A8-II-3 \(1174\)](#) Device Voltage Imbalance Suppression Method of LLC Converter Applying MOSFET Series Connection

T. Kakisaka<sup>1</sup>, J. Imaoka<sup>1</sup> and M. Yamamoto<sup>1</sup> and Q. Piao<sup>2</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya University*

<sup>2</sup>*YANMAR CO., LTD*

[A8-II-4 \(1188\)](#) 12V Double-Ended Active-Clamp Forward Converter Realizing Large Output Current and Downsizing by Using Integrated Magnetic Components

Aoi Oyane<sup>1</sup>, Tatsuya Aoki<sup>1</sup>, Masayoshi Yamamoto<sup>1</sup>, Jun Imaoka<sup>1</sup>, Takashi Hyodo<sup>2</sup>, Yuki Ito<sup>2</sup> and Hironori Tauchi<sup>1,2</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya University,*

<sup>2</sup>*OMRON Corporation*

[A8-II-5 \(1338\)](#) A study on multi-phase of clock-less half-wave voltage resonant buck DC-DC converter

Yi Xiong<sup>1</sup>, Jun Imaoka<sup>1</sup> Masayoshi Yamamoto<sup>1</sup>, Yasunori Kobori<sup>2</sup> and Haruo Kobayashi<sup>2</sup>

<sup>1</sup>*Department of Engineering, Nagoya University,*

<sup>2</sup>*Department of Science and Engineering Gunma University*

# Poster Presentations

Saturday, November 2, 13:00 – 14:00 IB (Integrated Building)

## A1-P

[A1-P-1  
\(1002\)](#)

Fabrication of holograms for electron vortex generation by one-shot laser interference processing

Yuuki Uesugi<sup>1</sup>, Ryota Fukushima<sup>1</sup>, Koh Saitoh<sup>2</sup>, and Shunichi Sato<sup>1</sup>

<sup>1</sup>*Institute of Multidisciplinary Research for Advanced Materials, Tohoku University*

<sup>2</sup>*Advanced Measurement Technology Center, Institute of Materials and Systems for Sustainability, Nagoya University*

[A1-P-2  
\(1025\)](#)

Study on nanostructured tungsten photocatalysts fabricated by helium plasma irradiation

Tomoko Yoshida<sup>1</sup>, Katsuyuki Komori<sup>2</sup>, Muneaki Yamamoto<sup>1</sup>, Chie Tsukada<sup>3</sup>, Satoshi Ogawa<sup>2</sup>, Shin Kajita<sup>4</sup>, Noriyasu Ohno<sup>2</sup> and Shinya Yagi<sup>4</sup>

<sup>1</sup>*Advanced Research Institute for Natural Science and Technology, Osaka City University*

<sup>2</sup>*Graduate School of Engineering, Nagoya University*

<sup>3</sup>*Synchrotron Radiation Research Center, Nagoya University*

<sup>4</sup>*Institute for Materials and Systems for Sustainability, Nagoya University*

[A1-P-3  
\(1086\)](#)

Image Reconstruction of High-Resolution STEM Image by Dictionary Learning and Evaluation of Atom Displacement

Sosuke Hattori<sup>1</sup>, Yuki Nomura<sup>1,2</sup> and Koh Saitoh<sup>1</sup>

<sup>1</sup>*Department of Applied Physics, Nagoya University*

<sup>2</sup>*Panasonic Corporation*

[A1-P-4  
\(1091\)](#)

Observation of Anisotropic Skyrmion Interactions Using Lorentz Transmission Electron Microscopy

T.Nagase<sup>1</sup>, M Komatsu<sup>2</sup>, Y. G So<sup>2</sup>, T Ishida<sup>1</sup>, H Yoshida<sup>3</sup>, Y Kawaguchi<sup>1</sup>, Y Tanaka<sup>1</sup>, K Saitoh<sup>1</sup>, N Ikarashi<sup>1</sup>, M Kuwahara<sup>1</sup> and M Nagao<sup>1</sup>

<sup>1</sup>*Graduate School of Engineering Nagoya University, Nagoya, Japan*

<sup>2</sup>*Graduate School of Engineering Science, Akita University, Akita, Japan,*

<sup>3</sup>*Department of Physics, Hokkaido University, Sapporo, Japan*

[A1-P-5  
\(1128\)](#)

How to Use Angular Fourier Transform for Orbital Angular Momentum Spectrum Mapping

Wei Li<sup>1,2</sup>, Koh Saitoh<sup>2</sup> and Masaya Uchida<sup>3</sup>

<sup>1</sup>*School of Information Science and Engineering, Dalian Polytechnic University*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

<sup>3</sup>*Advanced Science Research Laboratory, Saitama Institute of Technology, Fukaya*

[A1-P-6  
\(1129\)](#)

Development of Measurement Technique for Magnetization Distribution at Buried Interface in Spintronics Materials Using Hard X-ray Photoelectron Spectroscopy

Akira Yasui<sup>1</sup>, Eiji Ikenaga<sup>1,2</sup>

<sup>1</sup>*Japan Synchrotron Radiation Research Institute (JASRI),*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A1-P-7  
\(1186\)](#)

Generation and Application of Ultra-Fine Electron Bessel Beams using Ring-Shaped Apertures by an Aberration-Corrected Scanning Transmission Electron Microscope

Takafumi Ishida<sup>1</sup>, Takeshi Owaki<sup>2</sup>, Makoto Kuwahara<sup>1</sup> and Koh Saitoh<sup>1</sup>

<sup>1</sup>*Institute of Materials and Systems Sustainability, Nagoya University*

<sup>2</sup>*Department of Applied Physics, Nagoya University*

[A1-P-8  
\(1210\)](#)

Development of Compact and Simple Cs Corrector with Annular and Circular Electrodes for SEMs

Tadahiro Kawasaki<sup>1</sup>, Ryuji Yoshida<sup>1</sup>, Takeharu Kato<sup>1</sup>, Tsunenori Nomaguchi<sup>2</sup>, Shunichi Motomura<sup>2</sup>, Toshihide Agemura<sup>2</sup> and Takashi Ikuta<sup>3</sup>

<sup>1</sup>*Nanostructures research laboratory, Japan Fine Ceramics Center,*

<sup>2</sup>*Hitachi High-Technologies*

<sup>3</sup>*Osaka Electro-communication University*

[A1-P-9  
\(1270\)](#)

Analysis of ion atmosphere generated inside ETEM during electron beam irradiation

Kimitaka Higuchi<sup>1</sup>, Takumi Kawakami<sup>2</sup>, Sae Ohkawara<sup>2</sup>, Yuta Yamamoto<sup>1</sup>, Tomoharu Tokunaga<sup>2</sup>, Takahisa Yamamoto<sup>1,2</sup>

<sup>1</sup>*Institute of Materials and Systems Sustainability, Nagoya University*

<sup>2</sup>*Department of Engineering, Nagoya University*

[A1-P-10  
\(1277\)](#)

Direct Observation of Stacking Fault Expansion Process in 4H-SiC by In-situ Synchrotron X-ray Topography

F.Fujie<sup>1</sup>, S. Harada<sup>1,2</sup>, H. Suo<sup>3,4</sup>, T Kato<sup>4</sup> and T. Ujihara<sup>1,2,5</sup>

<sup>1</sup>*Department of Materials Process Engineering, Nagoya University*

<sup>2</sup>*Center for Integrated Research of Future Electronics (CIRFE) CIRFE, Institute of Materials and Systems for Sustainability (IMaSS) IMaSS, Nagoya University*

<sup>3</sup>*Showa Denko K.K.*

<sup>4</sup>*National Institute of Advanced Industrial Science and Technology (AIST)*

<sup>5</sup>*GaN Advanced Device Open Innovation Laboratory (GaN OIL), National Institute of Advanced Industrial Science and Technology (AIST)*

[A1-P-11  
\(1303\)](#)

Application of C face dislocation conversion technique to 2-inch SiC crystal growth

X. Liu<sup>1</sup>, C. Zhu<sup>1,2</sup>, S. Harada<sup>1,2</sup>, M. Tagawa<sup>1,2</sup> and T. Ujihara<sup>1,2,3</sup>

<sup>1</sup>*Department of Materials Science and Engineering, Nagoya University,*

<sup>2</sup>*Center for Integrated Research of Future Electronics (CIRFE), Institute of Materials and System for Sustainability (IMaSS), Nagoya University,*

<sup>3</sup>*GaN Advanced Device Open Innovation Laboratory (GaN-OIL), National Institute of Advanced Industrial Science and Technology (AIST),*

[A1-P-12  
\(1307\)](#)

Current Control of 3YSZ during Flash Sintering

Kimihiko TAGUCHI, Yudai YAMASHITA, Tomoharu TOKUNAGA and Takahisa YAMAMOTO

<sup>1</sup>*Department of Materials Design Innovation Engineering, Nagoya University*

[A1-P-13  
\(1308\)](#)

TEM/STEM Observation and EEL Analysis of BaTiO<sub>3</sub> Discharge Structure Generated during Flash Sintering

Seiya Takahashi, Tsuyoshi Kurachi, Tomoharu Tokunaga and Takahisa Yamamoto

*Department of Materials Design Innovation Engineering, Nagoya University*

[A1-P-14  
\(1314\)](#)

Interface of electrode-solid electrolyte composite of ASS-LIB fabricated by aerosol deposition analysed by STEM-EELS

Yuta Yamamoto<sup>1</sup>, Yasutoshi Iriyama<sup>2</sup> and Sunsuke Muto<sup>1</sup>

<sup>1</sup>*High Voltage Electron Microscope Laboratory, Nagoya University*

<sup>2</sup>*Department of Materials Design Innovation Engineering, Nagoya University*

## Poster Presentations

[A1-P-15](#) [\(1318\)](#) Fine structure of surface plasmon on Au triangular nanoprisms via STEM-EELS

L. Mizuno<sup>1</sup>, M. Kuwahara<sup>1,2</sup>, S. Kuwahara<sup>3</sup>, T. Ishida<sup>1,2</sup> and K. Saitoh<sup>1,2</sup>

<sup>1</sup>*Department of Applied Physics, Nagoya University*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

<sup>3</sup>*Department of Chemical, Toho University*

[A1-P-16](#) [\(1319\)](#) High-sensitive electron imaging sensor toward nano-second single shot imaging

Akira Shinozaki<sup>1</sup>, Kaho Fukuwa<sup>1</sup>, Takafumi Ishida<sup>2</sup>, Makoto Kuwahara<sup>2</sup>, Toshinobu Miyoshi<sup>3</sup> Yasuo Arai<sup>3</sup> and Koh Saitoh<sup>2</sup>

<sup>1</sup>*Graduate School of Engineering Nagoya University*

<sup>2</sup>*Institute of Materials and Systems Sustainability, Nagoya University,*

<sup>3</sup>*Institute of Particle and Nuclear Studies, High Energy Accelerator Research Organization (KEK)*

[A1-P-17](#) [\(1321\)](#) The evaluation of the structure of Ga<sub>2</sub>O<sub>3</sub> for photocatalytic CO<sub>2</sub> reduction to CO

Masato Akatsuka<sup>1</sup>, Tetsuo Tanabe<sup>2</sup>, Shinya Yagi<sup>3</sup> and Tomoko Yoshida<sup>2</sup>

<sup>1</sup>*Applied Chemistry and Bioengineering, Graduate School of Engineering, Osaka City University*

<sup>2</sup>*Advanced Research Institute for Natural Science and Technology, Osaka City University*

<sup>3</sup>*Institute of Materials and Systems for Sustainability Nagoya University*

[A1-P-18](#) [\(1322\)](#) Operando Measurement of Electrode Reactions in Solid Oxide Fuel Cells Using Environmental Electron Microscopy

Yuya Yoshida<sup>1</sup>, Takafumi Ishida<sup>1</sup>, Kimitaka Higuchi<sup>1</sup>, Koh Saitoh<sup>1</sup>, Masahiro Tomita<sup>2</sup> and Takayoshi Tanji<sup>1</sup>

<sup>1</sup>*Nagoya University*

<sup>2</sup>*Vacuum Device Inc.*

[A1-P-19](#) [\(1324\)](#) Observation of Manganese Nitride Thin Films by Electron Microscopy

Tomoya Suzuta, Yuuki Kawasaki, Kento Tanaka, Takafumi Ishida, Takafumi Hatano, Hiroshi Ikuta and Koh Saitoh

*Nagoya University*

[A1-P-20](#) [\(1326\)](#) Application of high-quality SiC solution growth to large size crystal

C. Zhu<sup>1</sup>, T. Endo<sup>2</sup>, T. Unno<sup>2</sup>, H. Koizumi<sup>1</sup>, S. Harada<sup>1,2</sup>, M. Tagawa<sup>1,2</sup>, and T. Ujihara<sup>1,2,3</sup>

<sup>1</sup>*Institute of Materials and System for Sustainability (IMaSS), Nagoya University,*

<sup>2</sup>*Department of Materials Science and Engineering, Nagoya University,*

<sup>3</sup>*GaN Advanced Device Open Innovation Laboratory (GaN-OIL), National Institute of Advanced Industrial*

*Science and Technology (AIST)*

[A1-P-21](#) [\(1339\)](#) Chemical state analysis of sulfur in vulcanized rubber using synchrotron radiation

Hitoshi Kawai<sup>1</sup>, Satoshi Ogawa<sup>1</sup>, Tsukada Chie<sup>2</sup>, Eiji Ikenaga<sup>1,3</sup> and Shinya Yagi<sup>1,3</sup>

<sup>1</sup>*Graduate School of Engineering, Nagoya University*

<sup>2</sup>*Synchrotron Radiation Research center, Nagoya University Japan*

<sup>3</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A1-P-22](#) [\(1349\)](#) Novel Transmission Electron Microscope Using High Brightness Pulsed Beam Emitted from NEA-Photocathode

R. Yokoi<sup>1</sup>, T. Ishida<sup>1,2</sup>, M. Kuwahara<sup>1,2</sup> and K. Saitoh<sup>1,2</sup>

<sup>1</sup>*Graduate School of Engineering, Nagoya University,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A1-P-23](#)  
[\(1354\)](#) Determination of Complex Dielectric Function of Oxide Film from Photoemission Measurements

Akio Ohta<sup>1,2</sup>, Mitsuhsa Ikeda<sup>1</sup>, Katsunori Makihara<sup>1</sup> and Seiichi Miyazaki<sup>1</sup>

<sup>1</sup>Graduate School of Engineering, Nagoya University,

<sup>2</sup>Institute for Advanced Research, Nagoya University

[A1-P-24](#)  
[\(1360\)](#) X-ray analysis of hydrogen storage nanoparticles

Satoshi Ogawa<sup>1</sup>, Chie Tsukada<sup>2</sup> and Shinya Yagi<sup>1,3</sup>

<sup>1</sup>Department of Energy Engineering, Graduate School of Engineering, Nagoya University

<sup>2</sup>Synchrotron radiation Research center, Nagoya University

<sup>3</sup>Institute of Materials and Systems for Sustainability, Nagoya University

**A4-P**

[A4-P-1](#)  
[\(1026\)](#) Glow discharge plasma mass spectrometry for direct analysis of saturated hydrocarbons

Yoko Nunome<sup>1</sup>, Kenji Kodama<sup>2</sup>, Yasuaki Ueki<sup>3</sup>, Ryo Yoshiie<sup>4</sup>, Kazuaki Wagatsuma<sup>5</sup> and Ichiro Naruse<sup>3</sup>

<sup>1</sup>Graduate School of Integrated Sciences for Life, Hiroshima University,

<sup>2</sup>X-ray Instrument Division, Rigaku Corporation,

<sup>3</sup>Institute of Materials and Systems for Sustainability, Nagoya University

<sup>4</sup>Graduate School of Engineering, Nagoya University

<sup>5</sup>Institute for Materials Research, Tohoku University

[A4-P-2](#)  
[\(1060\)](#) Modeling of Ash Particles Behaviors during Reaction of Cokes

Koki Teshima<sup>1</sup>, Yasuaki Ueki<sup>2</sup>, Ryo Yoshiie<sup>1</sup> and Ichiro Naruse<sup>2</sup>

<sup>1</sup>Department of Mechanical Systems Engineering, Nagoya University

<sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University

[A4-P-3](#)  
[\(1140\)](#) Control of Ash Deposition on the Surface of Heat Transfer Tubes in Pulverized Coal fired Boiler

Kyohei Tsukahara<sup>1</sup>, Ysuaki Ueki<sup>2</sup>, Ryo Yoshiie<sup>1</sup>, Ichiro Naruse<sup>1,2</sup>

<sup>1</sup> Department of Mechanical Systems Engineering, Nagoya University,

<sup>2</sup>Institute of Materials and Systems for Sustainability Nagoya University

[A4-P-4](#)  
[\(1155\)](#) Co-combustion Behaviors of Biomass with Pulverized Coal

Jun Nagata<sup>1</sup>, Yasuaki Ueki<sup>2</sup>, Ryo Yoshiie<sup>1</sup>, Ichiro Naruse<sup>2</sup>, Kimihito Narukawa<sup>3</sup> and Kazuhiko Morii<sup>3</sup>

<sup>1</sup>Institute of Materials and Systems for Sustainability, Nagoya University,

<sup>2</sup>Department of Mechanical Systems Engineering, Nagoya University,

<sup>3</sup>Chubu Electric Power Co., Inc.

[A4-P-5](#)  
[\(1161\)](#) Characteristics of Exhaust Heat Recovery by Catalytic Reforming Using Mixture of Fuel and Exhaust Gases

Jun Kobayashi<sup>1</sup>, Hiroyuki Katsumata<sup>1</sup>, Hideki Murakami<sup>1</sup>, Naoki Kubo<sup>1</sup>, Hajime Iida<sup>2</sup> and Ichiro Naruse<sup>3</sup>

<sup>1</sup>Department of Mechanical Engineering, Kogakuin University,

<sup>2</sup> Department of Applied Chemistry, Kogakuin University

<sup>3</sup> Graduate School of Engineering, Nagoya University

## Poster Presentations

[A4-P-6  
\(1165\)](#)

Gasification Behaviors of Pulverized Coal Char with CO<sub>2</sub> and H<sub>2</sub>O at High Temperature

Yasuaki Ueki<sup>1</sup>, Ryo Yoshiie<sup>2</sup>, Ichiro Naruse<sup>1</sup> and Kaoru Nakano<sup>3</sup>

<sup>1</sup>*Institute of Materials and Systems for Sustainability, Nagoya University,*

<sup>2</sup>*Department of Mechanical Systems Engineering, Nagoya University,*

<sup>3</sup>*R&D Process Research Laboratories, NIPPON STEEL CORPORATION*

[A4-P-7  
\(1170\)](#)

NO<sub>x</sub> formation behaviors in char combustion of waste incineration process

Kazutaka Tsukamoto<sup>1</sup>, Ryo Yoshiie<sup>1</sup>, Ichiro Naruse<sup>2</sup>, Yasuaki Ueki<sup>2</sup>, Tomohiro Denda<sup>3</sup> and Taichi Usuki<sup>3</sup>

<sup>1</sup>*Nagoya University Graduate school of engineering*

<sup>2</sup>*Nagoya University Institute of materials and Systems for sustainability*

<sup>3</sup>*JFE Engineering Corporation*

[A4-P-8  
\(1175\)](#)

Degradation behavior of solid oxide fuel cells with trace hydrocarbons

Zhang Hui<sup>1</sup>, Ryo Yoshiie<sup>1</sup>, Yasuaki Ueki<sup>2</sup> and Ichiro Naruse<sup>2</sup>

<sup>1</sup>*Department of Mechanical Systems Engineering, Nagoya University,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A4-P-9  
\(1191\)](#)

Adhesion characteristics of Si compounds on the De-NO<sub>x</sub> catalyst surface

Kota Nakanishi<sup>1</sup>, Ryo Yoshiie<sup>1</sup>, Ichiro Naruse<sup>2</sup>, Yasuaki Ueki<sup>2</sup>, Takanori Oka<sup>3</sup>, Takuya yoshida<sup>3</sup>, Takeharu Tanaka<sup>3</sup> and Katsuya Akiyama<sup>3</sup>

<sup>1</sup>*Graduate School of Engineering, Nagoya University*

<sup>2</sup>*Institute of Materials and Systems for Sustainability*

<sup>3</sup>*Kobe Steel*

[A4-P-10  
\(1192\)](#)

Biomass Gasification in Oxygen-enriched Air with Packed Bed Gasifier

Masaya Oda<sup>1</sup>, Daisuke Shirato<sup>1</sup>, Ichiro Naruse<sup>2</sup>, Ryo Yoshiie<sup>1</sup> and Yasuaki Ueki<sup>2</sup>

<sup>1</sup>*Department of Mechanical Systems Engineering, Nagoya University,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A4-P-11  
\(1014\)](#)

Mixing of Two-Layer Density-Stratified Fluid by a Vortex Ring

Lile Cao<sup>1</sup>, Ryo Ito<sup>1</sup>, Tomohiro Degawa<sup>2</sup>, Tomomi Uchiyama<sup>2</sup>, Kotaro Takamura<sup>2</sup> and Yu Matsuda<sup>3</sup>

<sup>1</sup>*Graduate School of Informatics, Nagoya University, Japan*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University, Japan*

<sup>3</sup>*Faculty of Science and Engineering, Waseda University, Japan*

[A4-P-12  
\(1276\)](#)

Hybrid Wake Model for Aerodynamic Load Calculation of HAWT Rotor by Vortex Lattice Method

T. Hida<sup>1</sup>, Y Hasegawa<sup>1</sup>, T Ushijima<sup>1</sup> and J Ozaki<sup>2</sup>

<sup>1</sup>*Graduate School of Engineering, Nagoya Institute of Technology*

<sup>2</sup>*Nippon Steel Corporation*

[A4-P-13  
\(1132\)](#)

Study on Diffusion and Evaporation of Micro Mist Introduced in Duct Air Flow

Yuta Sato<sup>1</sup>, Yutaka Hasegawa<sup>1</sup>, Yoshihiro Kojima<sup>2</sup>, Tatsuo Ushijima<sup>1</sup>, Kazuki Nishiyama<sup>3</sup>

<sup>1</sup>*Department of Electrical and Mechanical Engineering, Graduate School of Nagoya Institute of Technology*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

<sup>3</sup>*MITSUBISHI MOTORS CORPORATION*

[A4-P-14  
\(1335\)](#) Study on Structural Load Reduction by Using Combined Control of Blade Pitch and Rotational Speed for HAWT

K.Kawase, H.Okazaki, Y.Hasegawa and T.Ushijima

*Department of Electrical and Mechanical Engineering, Nagoya Institute of Technology*

**A6-P**

[A6-P-1  
\(1015\)](#) A Comparison of TDMA and Synchronous CDMA for a PLC-based Multi-Machine Control System

Mitsuru Hasegawa<sup>1</sup>, Kentaro Kobayashi<sup>2</sup>, Hiraku Okada<sup>2</sup> and Masaaki Katayama<sup>2</sup>

<sup>1</sup>*Dept. of Information and Communication Engineering, Nagoya University,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A6-P-2  
\(1046\)](#) A Receiver Design for Indoor Data Collection Systems Using Optical Wireless CDMA

Shuto Ito<sup>1</sup>, Kentaro Kobayashi<sup>2</sup>, Hiraku Okada<sup>2</sup> and Masaaki Katayama<sup>2</sup>

<sup>1</sup>*Dept of Information and Communication Engineering, Nagoya University*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A6-P-3  
\(1120\)](#) A Study on Application of Machine Learning to Transmission Rate Selection in Wireless Mesh Networks

Soki WATANABE<sup>1</sup>, Hiraku OKADA<sup>2</sup>, kentaro KOBAYASHI<sup>2</sup> and Masaaki KATAYAMA<sup>2</sup>

<sup>1</sup>*Department of Information and Communication Engineering, Nagoya University*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

**A8-P**

Chair:

Minoru OSADA (Nagoya Univ.)

[A8-P-1  
\(1096\)](#) Experimental Evaluation of Balancing Capacitors for Multi-Stage FET Bidirectional Converter

Yuki Ishikura<sup>1,2</sup>, Jun Imaoka<sup>2</sup>, Mostafa Noah<sup>2</sup> and Masayoshi Yamamoto<sup>3</sup>

<sup>1</sup>*Murata Manufacturing Co., Ltd.,*

<sup>2</sup>*Department of Electrical Engineering, Graduate school of Engineering, Nagoya University,*

<sup>3</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

[A8-P-2  
\(1159\)](#) Comparison of High Frequency Characteristic on PCB Air-core Inductors

K. Matsuta<sup>1</sup>, F. Hattori<sup>1</sup>, A. Yamaguchi<sup>2</sup>, H. Umegami<sup>2</sup> and M. Ishitobi<sup>1</sup>

<sup>1</sup>*National Institute of Technology, Nara College,*

<sup>2</sup>*ROHM Co.,Ltd*

[A8-P-3  
\(1212\)](#) Lower Magnetic Field Intensity Operation Realized by Using Coupled Inductors in Multiphase Boost Converter

Tatsuya Aoki<sup>1</sup>, Koichiro Ito<sup>1</sup>, Jun Imaoka<sup>1</sup>, Masayoshi Yamamoto<sup>2</sup> and Kosuke Yoshimoto<sup>3</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya University,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University,*

<sup>3</sup>*Daido Steel Co., Ltd. CORPRATEARCH & DEVELOPMENT CENTER*

[A8-P-4  
\(1320\)](#) Current Source Gate Drive Circuit with Voltage Source to Stable Driving for SiC-MOSFETs

Shinya Shirai<sup>1</sup>, Yuta Okawauchi<sup>2</sup>, Ken Nakahara<sup>2</sup>, Toshihiro Iwaki<sup>1</sup> Masayoshi Yamamoto<sup>1</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya University*

<sup>2</sup>*ROHM Co., Ltd.*

## Saturday, November 2, 17:00 – 18:00 ES Building

### A3-P

[A3-P-1  
\(1004\)](#)

"Manipulation" of Acetaminophen Crystallization and Discovery of Two- Step Dissolution Process by Plasmonic Optical Tweezers

Hiromasa Niinomi<sup>1</sup>, Teruki Sugiyama<sup>2,3,4</sup>, Miho Tagawa<sup>5</sup>, Toru Ujihara<sup>5</sup>, Katsuhiko Miyamoto<sup>6,7</sup>, Takashige Omatsu<sup>6,7</sup>, Jun Nozawa<sup>1</sup>, Junpei Okada<sup>1</sup> and Satoshi Uda<sup>1</sup>

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[A3-P-2  
\(1008\)](#)

Unique Photofunctions of Metal Nanoparticle / Layered Semiconductor Hybrids

Tatsuto YUI

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[A3-P-3  
\(1016\)](#)

Magnetic anisotropy of Bi-substituted yttrium iron garnet films prepared by MOD method

Takayuki Ishibashi<sup>1</sup>, Gengjian Lou<sup>1</sup>, Jion Yamakita<sup>1</sup>, Masami Nishikawa<sup>1</sup>, Takeshi Kato<sup>2</sup> and Satoshi Iwata<sup>3</sup>

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[A3-P-4  
\(1020\)](#)

Theoretical Study about the Leakage Current due to the Dislocation of Mg Segregation in GaN

Takashi Nakano<sup>1</sup>, Yosuke Harashima<sup>2</sup>, Kenta Chokawa<sup>2</sup>, Masaaki Araidai<sup>2,1</sup>, Kenji Shiraishi<sup>2,1</sup>, Atsushi Oshiyama<sup>2,1</sup>, Akira Kusaba<sup>3</sup>, Yoshihiro Kangawa<sup>4,2</sup>, Atsushi Tanaka<sup>2</sup>, Yoshio Honda<sup>2,1</sup> and Hiroshi Amano<sup>2,1</sup>

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<sup>3</sup>*Computer Centre, Gakushuin University,*

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[A3-P-5  
\(1030\)](#)

Approach to Promote CO<sub>2</sub> Reduction with H<sub>2</sub> and H<sub>2</sub>O over Pd/TiO<sub>2</sub>

Akira Nishimura, Tadaki Inoe, Yoshito Sakakibara, Masafumi Hirota, Akira Koshio and Fumio Kokai

*Graduate School of Engineering, Mie University*

[A3-P-6  
\(1032\)](#)

Improvement of thermoelectric properties of Si<sub>1-x-y</sub>Ge<sub>x</sub>Sn<sub>y</sub> thin films by ion implantation and rapid thermal annealing

Ying Peng<sup>1,2</sup>, Lei Miao<sup>2</sup>, Masashi Kurosawa<sup>1,3</sup> and Osamu Nakatsuka<sup>1</sup>

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[A3-P-7  
\(1035\)](#)

Preparation of Various Manganese Dioxide Composites and Their Desulfurization Performance

Xing Li<sup>1,2</sup>, Lintao Chen<sup>1,2</sup>, Yugo Osaka<sup>3</sup>, Hongyu Huang<sup>1,2</sup>, Lisheng Deng<sup>1,2</sup>

<sup>1</sup>*Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences,*

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- [A3-P-8 \(1040\)](#) Formation of Ohmic Contact at Ni/SiC Interface with the Assistance of Femtosecond-Laser-Induced Modifications  
T. Okada<sup>1</sup>, T. Tomita<sup>1</sup>, Y. Fuchikami<sup>2</sup>, Y. Mizuo<sup>2</sup>, H. Hisazawa<sup>1</sup> and Y. Tanaka<sup>3</sup>  
<sup>1</sup>*Division of Science and Technology, Tokushima University*  
<sup>2</sup>*Graduate Student, Graduate School of Advanced Technology and Science, Tokushima University*  
<sup>3</sup>*Faculty of Engineering and Design, Kagawa University*
- [A3-P-9 \(1052\)](#) Voltage Control of Spin Hall Switching in Perpendicularly Magnetized MgO/Co/Pt Trilayers  
K. Kunishima<sup>1</sup>, X. Zhou<sup>1</sup>, D. Oshima<sup>2</sup>, T. Kato<sup>1</sup>, Iwata<sup>2</sup>  
<sup>1</sup>*Department of Electronics, Nagoya University*  
<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*
- [A3-P-10 \(1059\)](#) Structured Spinel Oxide Positive Electrodes of Magnesium Rechargeable Batteries  
K. Sone<sup>1</sup>, K. Ishii<sup>1</sup>, R. Ise<sup>1</sup>, S. Yagi<sup>2</sup>, T. Mandai<sup>3</sup>, Y. Oaki<sup>1</sup>, H. Imai<sup>1</sup>  
<sup>1</sup>*Keio University*  
<sup>2</sup>*The University of Tokyo*  
<sup>3</sup>*National Institute for Materials Science*
- [A3-P-11 \(1062\)](#) Study of the Origins of Carbon Impurities on Gallium Nitride MOVPE from a Gas Phase Reaction Perspective  
Yuto Okawachi<sup>1</sup>, Kenta Chokawa<sup>1</sup>, Masaaki Araidai<sup>2</sup>, Akira Kusaba<sup>4</sup>, Yoshihiro Kangawa<sup>3,2</sup>, Koichi Kakimoto<sup>3</sup>, Zheng Ye<sup>1</sup>, Yoshio Honda<sup>2,1</sup>, Shugo Nitta<sup>2,1</sup>, Hiroshi Amano<sup>2,1</sup> and Kenji Shiraishi<sup>2,1</sup>  
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<sup>2</sup>*IMaSS, Nagoya Univ.*  
<sup>4</sup>*Computer Center, Gakushuin Univ.*
- [A3-P-12 \(1069\)](#) Suppression of Hysteresis in Flexible Carbon Nanotube Thin-film Transistors  
Y. Shimasaki<sup>1</sup>, J. Hirotani<sup>1</sup>, S. Kishimoto<sup>1</sup>, Y. Ohno<sup>1,2</sup>  
<sup>1</sup>*Dept. of Electronics, Nagoya Univ.*  
<sup>2</sup>*Inst. of Material and Systems for Sustainability, Nagoya Univ.*
- [A3-P-13 \(1073\)](#) Effect of Incident Ion Energy on the Growth of Nano-Tendrils Bundles under Impurity-Seeded Helium Plasma Exposure  
R. R. Zhang<sup>1</sup>, D. Hwangbo<sup>1</sup>, S. Kajita<sup>2</sup>, H. Tanaka<sup>1</sup> and N. Ohno<sup>1</sup>  
<sup>1</sup>*Graduate School of Engineering, Nagoya University*  
<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*
- [A3-P-14 \(1075\)](#) Synthesis of Titanium Dioxide Photo catalysts using Supermicroporous Silica  
Y. Ono<sup>1</sup>, Watanabe<sup>2</sup>, Somekawa<sup>2</sup>, Oaki<sup>1</sup>, Imai<sup>1</sup>  
<sup>1</sup>*School of Integrated Design Engineering, Keio University*  
<sup>2</sup>*Tokyo Metropolitan Industrial Technology Research Institute*
- [A3-P-15 \(1076\)](#) Fabrication of Binary Magnetic Nanocube Arrays for Coercivity Enhancement  
K. Sawano, M. Shimizu, M. Takasaki, Y. Oaki, T. Sato and H. Imai  
*School of Integrated Design Engineering, Keio University*
- [A3-P-16 \(1087\)](#) Layer-by-layer Manipulation for Ordered Arrays of BaTiO<sub>3</sub> and Fe<sub>3</sub>O<sub>4</sub> Nanocubes  
M. Shimizu, R. Matsumoto, K. Sawano, M. Takasaki, Y. Oaki, T. Sato and H. Imai  
*School of Integrated Design Engineering, Keio University*
- [A3-P-17 \(1098\)](#) Effect of inorganic solid electrolyte on lithium dendrite formation  
Aogu Soma, Daisuke Mori, Mitsuhiro Matsumoto, Sou Taminato, Nobuyuki Imanishi  
*Department of chemistry for materials, Mie University,*
- [A3-P-18 \(1105\)](#) Feature Vector Approach for Machine Learning of Molecules  
Koji Yasuda<sup>1,2</sup> and Mitsunori Kaneshige<sup>1</sup>  
<sup>1</sup>*Graduate School of Informatics, Nagoya University,*  
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## Poster Presentations

- [A3-P-19](#)  
[\(1111\)](#) Preparation and Magneto-optical Characterization of MOD Derived  $R_{0.5}Bi_{1.5}Fe_4GaO_{12}$  ( $R = Sm, Gd$  and  $Yb$ ) Garnet Thin Films on Glass Substrate  
Takao Nishi<sup>1</sup>, Hikaru Enpuku<sup>1</sup>, Shion Iwata<sup>1</sup>, Masami Kawahara<sup>2</sup>, Takeshi Kato<sup>3</sup>, Satoshi Iwata<sup>3</sup>, Masami Nishikawa<sup>4</sup> and Takayuki Ishibashi<sup>4</sup>  
<sup>1</sup>Kobe City College of Technology,  
<sup>2</sup>Kojundo Chemical Laboratory Co., Ltd,  
<sup>3</sup>Nagoya University  
<sup>4</sup>Nagaoka University of Technology
- [A3-P-20](#)  
[\(1114\)](#) Synthesis and Photochromic Properties of 2D Tungsten Oxide Polymorphs  
Ryosuke Narukawa<sup>1</sup>, Eisuke Yamamoto<sup>1,2</sup>, Makoto Kobayashi<sup>1,2</sup> and Minoru Osada<sup>1,2</sup>  
<sup>1</sup>Graduate School of Engineering, Nagoya University,  
<sup>2</sup>Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University
- [A3-P-21](#)  
[\(1115\)](#) Topotactic Synthesis of Ferroelectric  $BaTiO_3$  Nanosheets  
Kazuki Hagiwara<sup>1</sup>, Eisuke Yamamoto<sup>1,2</sup>, Makoto Kobayashi<sup>1,2</sup> and Minoru Osada<sup>1,2</sup>  
<sup>1</sup>Department of Materials Chemistry, Nagoya University  
<sup>2</sup>Institute of Materials and Systems for Sustainability IMaSS Nagoya University
- [A3-P-22](#)  
[\(1118\)](#) Using Tilting-deceleration Method to Improve Magnetic Contrast Observed by Scanning Electron Microscope  
Hideo-Morishita<sup>1,2</sup>, Teruo Kohashi<sup>1</sup> and Hiroyuki Yamamoto<sup>1</sup>  
<sup>1</sup>Hitachi Ltd. R&D Group  
<sup>2</sup>Nagoya University
- [A3-P-23](#)  
[\(1119\)](#) Model development of MOCVD growth for realizing high-Sn-content  $Ge_{1-x}Sn_x$  epitaxial layer ~ What physical properties are required for precursors? ~  
Yuki Miki<sup>1</sup>, Shigehisa Shibayama<sup>1</sup>, Shigeaki Zaima and Osamu Nakatsuka<sup>1,3</sup>  
<sup>1</sup>Graduate School of Engineering, Nagoya University,  
<sup>2</sup>Graduate School of Science and Technology, Meiji University  
<sup>3</sup>IMaSS, Nagoya University
- [A3-P-24](#)  
[\(1121\)](#) Large-scale Fiberform Nanostructures in the Co-deposition Environment of Helium Plasma and Mo/Re Ions  
T. Okuyama<sup>1</sup>, S. Kajita<sup>2</sup>, T. Nojima<sup>1</sup>, N. Yoshida<sup>3</sup>, Y. Yamamoto<sup>2</sup>, H. Tanaka<sup>1</sup> and N. Ohno<sup>1</sup>  
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<sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University  
<sup>3</sup>Research Institute for Applied Mechanics, Kyushu University
- [A3-P-25](#)  
[\(1125\)](#) Preparation of Pt-based oxide nanosheets exfoliation of layer materials ( $Li_2PtO_3$ ) and investigation of exfoliation process  
Asami Funatsu and Sae Hanamura  
Department of Chemistry, Kumamoto University
- [A3-P-26](#)  
[\(1126\)](#) Effect of surface layer on charge state control of diamond NV centers  
A.Osaki<sup>1</sup>, H. Uchiyama<sup>1</sup>, M. Inaba, S. Kishimoto<sup>1</sup> and Y. Ohno<sup>1,2</sup>  
<sup>1</sup>Department of Electronics, Nagoya University  
<sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University
- [A3-P-27](#)  
[\(1133\)](#) Magnetic Properties at Room Temperature of  $Co_{3-x}Ni_xO_4$  ( $0 \leq x \leq 1.28$ ) Particles Synthesized from  $Co_{1-y}Ni_y(OH)_2$  Precursors  
Kensuke Hayashi, Keisuke Yamada and Mutsuhiro Shima  
Electronics and Information Systems Engineering Division, Graduate School of Engineering, Gifu University
- [A3-P-28](#)  
[\(1162\)](#) Photocatalytic Decomposition of Ethylene by  $TiO_2$  Thin Films Formed Using Helium Plasma  
K. Miyaguchi<sup>1</sup>, S. Kajita<sup>2</sup>, Y. Tomita<sup>1</sup>, K. Asai<sup>1</sup>, H. Tanaka<sup>1</sup>, N. Ohno<sup>1</sup>  
<sup>1</sup>Graduate School of Engineering, Nagoya University,  
<sup>2</sup>IMaSS (Institute of Materials and Systems for Sustainability), Nagoya University

- [A3-P-29 \(1171\)](#) **Optoelectronic Property of GeSn and GeSiSn Heterostructure**  
Masahiro Fukuda<sup>1</sup>, Mitsuo Sakashita<sup>1</sup>, Shigehisa Shibayama<sup>1</sup>, Masashi Kurosawa<sup>1</sup>, Sigeaki Zaima<sup>1,2</sup> and Osamu Nakatsuka<sup>1,3</sup>  
<sup>1</sup>Graduate School of Engineering, Nagoya University  
<sup>2</sup>Graduate School of Science and Technology, Meijo University  
<sup>3</sup>Institute of Materials and Systems for Sustainability, Nagoya University
- [A3-P-30 \(1179\)](#) **Enhancement in electrochemical activity of carbon nanotube electrodes of voltage generator based on streaming potential**  
Y. Ando<sup>1</sup>, R. Nishi<sup>1</sup>, S. Kishimoto<sup>1</sup> and Y. Ohno<sup>1,2</sup>  
<sup>1</sup>Department of Electronics, Nagoya University  
<sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University
- [A3-P-31 \(1180\)](#) **Improvement of Activity of Rh-doped SrTiO<sub>3</sub> Photocatalyst Aiming at Enhancement of Efficiency of Z-scheme Water Splitting**  
H. P. Duong<sup>1</sup>, T. Mashiyama<sup>1</sup>, M. Kobayashi<sup>2</sup>, A. Iwase<sup>3</sup>, A. Kudo<sup>4</sup>, M. Kakihana<sup>1</sup> and H. Kato<sup>1</sup>  
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<sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University  
<sup>3</sup>School of Science and Technology, Meiji University  
<sup>4</sup>Faculty of Science, Tokyo University of Science
- [A3-P-32 \(1181\)](#) **Ruddlesden-Popper Phase Oxyhydroxides as Oxygen Electrocatalysts for Aqueous Lithium-Oxygen Rechargeable Batteries**  
H. Sonoki, T. Mizoguchi, D. Mori, S. Taminato, Y. Takeda and N. Imanishi  
Graduate School of Engineering, Mie University
- [A3-P-33 \(1195\)](#) **Effect of Filler Material on Dielectric Breakdown Strength of Epoxy Nanocomposite**  
Chiharu Kato<sup>1</sup>, Muneaki Kurimoto<sup>2</sup>, Takeyoshi Kato<sup>2</sup>, Masaki Imanaka<sup>2</sup>, Shigeyuki Sugimoto<sup>2</sup> and Yasuo Suzuoki<sup>3</sup>  
<sup>1</sup>Department of Electrical Engineering, Nagoya University,  
<sup>2</sup>Institute of Material and Systems for Sustainability, Nagoya University,  
<sup>3</sup>Aichi Institute of Technology
- [A3-P-34 \(1198\)](#) **Development of in-situ cyclic metal layer oxidation to form abrupt Al<sub>2</sub>O<sub>3/4</sub>H-SiC interface**  
T. Doi<sup>1,2</sup>, S. Shibayama<sup>1</sup>, W. Takeuchi<sup>1,3</sup>, M. Sakashita<sup>1</sup>, N. Taoka<sup>1</sup>, M. Shimizu<sup>2</sup> and O. Nakatsuka<sup>1</sup>  
<sup>1</sup>Grad. Sch. of Engineering, Nagoya Univ.,  
<sup>2</sup>AIST-NU GaN-OIL  
<sup>3</sup>Aichi Institute of Technology
- [A3-P-35 \(1201\)](#) **Discharge Resistance of Epoxy TiO<sub>2</sub> Nanocomposite Exposed to Closed Void Discharges**  
Kentaro Tatsumi<sup>1</sup>, Kazuma Tagawa<sup>1</sup>, Chiharu Kato<sup>1</sup>, Takeyoshi Kato<sup>1</sup>, Muneaki Kurimoto<sup>1</sup>, Shigeyoshi Yoshida<sup>2</sup>, Takahiro Umemoto<sup>2</sup>, Takahiro Mabuchi<sup>2</sup> and Hirota Muto<sup>2</sup>  
<sup>1</sup>Nagoya University  
<sup>2</sup>Mitsubishi Electric
- [A3-P-36 \(1205\)](#) **Suppression of Electrical Tree Growth in Nanocomposite Gel for Power Module**  
Naoya Hisada<sup>1</sup>, Muneaki Kurimoto<sup>2</sup>, Masaki Imanaka<sup>2</sup>, Takeyoshi Kato<sup>2</sup>, Shigeyuki-Sugimoto<sup>2</sup> and Hirota Muto<sup>2</sup>  
<sup>1</sup>Department of Electrical Engineering, Nagoya University  
<sup>2</sup>Institute of Material and Systems for Sustainability, Nagoya University,
- [A3-P-37 \(1209\)](#) **Theoretical Investigation of Self-organization Behavior of Si<sub>0.5</sub>Sn<sub>0.5</sub> Nanoparticles**  
Yuki Nagae<sup>1</sup>, Masashi Kurosawa<sup>1,2</sup> and Osamu Nakatsuka<sup>1,3</sup>  
<sup>1</sup>Graduate School of Engineering, Nagoya University,  
<sup>2</sup>Institute for Advanced Research, Nagoya University,  
<sup>3</sup>Institute of Materials and Systems for Sustainability, Nagoya University

## Poster Presentations

- [A3-P-38 \(1230\)](#) Structural analysis of MoS<sub>2</sub> films fabricated by radiofrequency sputtering using high-angle annular dark field scanning transmission electron microscopy
- Ryunosuke Otsuki<sup>1</sup>, Yuta Suzuki<sup>1</sup>, Takuro Sakamoto<sup>2</sup>, Takanori Shirokura<sup>2</sup>, Iriya Muneta<sup>2</sup>, Masahiro Nagao<sup>3</sup>, Hitoshi Wakabayashi<sup>2</sup> and Nobuyuki Ikarashi<sup>3</sup>
- <sup>1</sup>Department of Electronics, Nagoya University  
<sup>2</sup>Tokyo Institute of Technology  
<sup>3</sup>Institute of Materials and Systems for Sustainability, Nagoya University
- [A3-P-39 \(1264\)](#) Change in thermal conductivity of amorphous WO<sub>3</sub> films by lithium intercalation
- Ryota Kobayashi<sup>1</sup>, Tong Shen<sup>1</sup>, Ayano Nakamura<sup>1</sup>, Shunta Harada<sup>1,2</sup>, Miho Tagawa<sup>1,2</sup> and Toru Ujihara<sup>1,2,3</sup>
- <sup>1</sup>Department of Materials Process Engineering, Nagoya University,  
<sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University,  
<sup>3</sup>National Institute of Advanced Industrial Science and Technology
- [A3-P-40 \(1272\)](#) Structural stability analysis of DNA-guided nanoparticle superlattice by direct dehydration
- Hayato Sumi<sup>1</sup>, Noboru Ohta<sup>2</sup>, Hiroshi Sekiguchi<sup>2</sup>, Shunta Harada<sup>1,3</sup>, Toru Ujihara<sup>1,3</sup>, Miho Tagawa<sup>1,3</sup>
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<sup>2</sup>Japan Synchrotron Radiation Research Institute (JASRI)  
<sup>3</sup>Center for Integrated Research of Future Electronics (CIRFE), Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University
- [A3-P-41 \(1278\)](#) Magnetization Reversal in Ni/Cu/Ni Cylindrical Nanowires
- Mayu Kikuchi<sup>1</sup>, Keisuke Yamada<sup>1</sup>, Yoshinobu Nakatani<sup>2</sup> and Mitsuhiro Shima<sup>1</sup>
- <sup>1</sup>Department of Materials Science and Processing, Graduate School of Natural Science and Technology, Gifu University  
<sup>2</sup>Graduate School of Informatics and Engineering, The University of Electro Communications
- [A3-P-42 \(1279\)](#) 1 nm-thick ZnO Nanosheets Grown at the Water-air Interface
- Yoshinori Morita<sup>1</sup>, Eisuke Yamamoto<sup>2</sup>, Makoto Kobayashi<sup>2</sup> and Minoru Osada<sup>2</sup>
- <sup>1</sup>Graduate school of engineering, Nagoya University,  
<sup>2</sup>IMaSS, Nagoya University
- [A3-P-43 \(1288\)](#) Fabrication of L1<sub>0</sub>-FeNi by pulsed laser deposition system
- Masato Kotsugi<sup>1</sup>, Masahiro Saito<sup>1</sup>, Yuta Suzuki<sup>1</sup>, Masaki Mizuguchi<sup>2</sup>, Tomoyuki Koganezawa<sup>3</sup>, Toshio Miyamachi<sup>4</sup>, Fumio Komori<sup>4</sup>, Koki Takanashi<sup>2</sup>
- <sup>1</sup>Tokyo University of Science,  
<sup>2</sup>Tohoku University,  
<sup>3</sup>Japan Synchrotron Radiation Research Institute,  
<sup>4</sup>The University of Tokyo, ISSP
- [A3-P-44 \(1291\)](#) Real-time visualization for temperature and fluid flow by using numerical simulation and neural network
- Goki Hatasa<sup>1</sup>, Yosuke Tsunookar<sup>1</sup>, Can Zhu<sup>1</sup>, Shunta Harada<sup>1,2</sup>, Miho Tagawa<sup>1,2</sup> and Toru Ujihara<sup>1,2,3</sup>
- <sup>1</sup>Department of Materials Process Engineering, Nagoya University  
<sup>2</sup>Center for Integrated Research of Future Electronics (CIRFE), Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University  
<sup>3</sup>GaN Advanced Device Open Innovation Laboratory (GaN-OIL), National Institute of Advanced Industrial Science and Technology (AIST)
- [A3-P-45 \(1294\)](#) Behavior of dislocations in GaN epitaxial layer propagating from substrate
- Sho Inotsume<sup>1,2</sup>, Nobuhiko Kokubo<sup>1,2</sup>, Hisashi Yamada<sup>2</sup>, Shoishi Onda<sup>1</sup>, Jun Kojima<sup>1</sup>, Junji Ohara<sup>1,2</sup>, Shunta Harada<sup>1</sup>, Miho Tagawa<sup>1</sup> Toru Ujihara<sup>1,2</sup>
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<sup>2</sup>AIST GaN OIL  
<sup>1</sup>Current affiliation: Hitachi, Ltd.,  
<sup>2</sup>Current affiliation: DENSO,

- [A3-P-46 \(1296\)](#) Relationship between crystal orientation of Cu collectors and cycling stability of Li metal anodes  
Kohei Ishikawa<sup>1</sup>, Shunta Harada<sup>1,2</sup>, Miho Tagawa<sup>1,2</sup> and Toru Ujihara<sup>1,2</sup>  
<sup>1</sup>Department of Materials Science and Engineering, Nagoya University  
<sup>2</sup>Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University
- [A3-P-47 \(1302\)](#) SPM-based characterization of 2D nanosheets  
Shu Hamagami<sup>1</sup>, Eisuke Yamamoto<sup>1</sup>, Makoto Kobayashi<sup>1</sup> and Minoru Osada<sup>1,2</sup>  
<sup>1</sup>Institute of Materials and Systems for Sustainability (IMaSS), Nagoya University  
<sup>2</sup>International Center for Materials Nanoarchitectonics (WPI MANA), National Institute for Materials Science
- [A3-P-48 \(1325\)](#) Estimation of Physical Properties Using Machine Learning for Accurate Numerical Modeling of Crystal Growth  
K. Ando<sup>1</sup>, H. Lin<sup>1</sup>, Y. Tsunooka<sup>1,2</sup>, T. Narumi<sup>3</sup>, C. Zhu<sup>1,4</sup>, K. Kutsukake<sup>5</sup>, S. Harada<sup>1,4</sup>, K. Matsui<sup>5</sup>, I. Takeuchi<sup>5,6</sup>, Y. Koyama<sup>7</sup>, Y. Kawajiri<sup>1</sup>, M. Tagawa<sup>1,4</sup>, T. Ujihara<sup>1,2,3,4</sup>  
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<sup>2</sup>GaN Advanced Device Open Innovation Laboratory (Ga N OIL), National Institute of Advanced Industrial Science and Technology (AIST)  
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<sup>5</sup>RIKEN Center for Advanced Intelligence Project (AIP)  
<sup>6</sup>Department of Computer Science, Nagoya Institute of Technology  
<sup>7</sup>Research and Services Division of Materials Data and Integrated System (MaDIS), National Institute for Materials Science (NIMS)
- [A3-P-49 \(1327\)](#) Impact of Boron Doping into Si Quantum Dots with Ge Core on Their Photoluminescence Properties  
Shuntaro Fujimori, Mitsuhisa Ikeda, Akio Ohta, Katsunori Makihara and Seiichi Miyazaki  
Graduate School of Engineering, Nagoya University
- [A3-P-50 \(1337\)](#) Wet-chemical Synthesis of Non-layer 2D Ceria and Their Ion-conductivity  
Eisuke Yamamoto, Makoto Kabayashi and Minoru Osada  
IMaSS, Nagoya University
- [A3-P-51 \(1343\)](#) In situ observation of chemical state of Rh in Rh-doped titanate nanosheet by ESR at extremely low temperature during photo-induced hydrogen evolution reaction  
Takuya Fujimura<sup>1</sup>, Jun Kumagai<sup>2</sup> and Ryo Sasai<sup>1</sup>  
<sup>1</sup>Graduate School of Natural Science and Technology, Shimane University  
<sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University
- [A3-P-52 \(1347\)](#) Detailed study of radical formation step in photocatalysis  
Jun Kumagi<sup>1</sup>, Hiroyuki Sahashi<sup>2</sup>, Tomoko Yoshida<sup>3</sup> and Hiaso Yoshida<sup>4</sup>  
<sup>1</sup>Institute of Materials and Systems for Sustainability, Nagoya University  
<sup>2</sup>Graduate School of Engineering, Nagoya University  
<sup>3</sup>The OCU Advanced Research Institute for Natural Science and Technology, Osaka City University  
<sup>4</sup>Graduate School of Human and Environmental Studies, Kyoto University/ESICB, Kyoto University
- [A3-P-53 \(1351\)](#) Photocatalytic Carbon Dioxide Reduction over Gallium Oxide with Silver Co-Catalyst  
M. Yamamoto, T. Tanabe and T. Yoshida  
Advanced Research Institute for Natural Science and Technology, Osaka City University
- [A3-P-54 \(1359\)](#) Formation of Atomically Flat (La<sub>0.3</sub>Sr<sub>0.7</sub>)(Al<sub>0.65</sub>Ta<sub>0.35</sub>)O<sub>3</sub> (001) Surface by Ultrapure Water  
Y. Tokuda<sup>1</sup>, T. Irimoto<sup>1</sup>, N. Nishikawa<sup>1</sup>, S. Kobayashi<sup>2</sup>, T. Tokunaga<sup>1</sup> and T. Yamamoto<sup>1,2</sup>  
<sup>1</sup>Department of Materials Design Innovation Engineering, Nagoya University  
<sup>2</sup>Nanostructures Research Laboratory, Japan Fine Ceramics Center

## Poster Presentations

[A3-P-55](#) Bidirectional Deep Neural Network for  
[\(1406\)](#) Accurate Silicon Color Design

Li Gao<sup>1</sup>, Xiaozhong Li<sup>2</sup>, Dianjing Liu<sup>3</sup>, Lianhui Wang<sup>1</sup>,  
Zongfu Yu<sup>3</sup>

<sup>1</sup>*School of Materials Science and Engineering Nanjing  
University of Posts and Telecommunications*

<sup>2</sup>*School of Electronic and Optical Engineering, Nanjing  
University of Science and Technology*

<sup>3</sup>*School of Electrical and Computer Engineering,  
University of Wisconsin Madison*

## A7-P

[A7-P-1](#) Model for Calculating Electric Vehicle  
[\(1064\)](#) Energy Consumption in Various Areas  
based on Publicly Available Data Sets

Helindu Cumaratunga<sup>1</sup>, Masaki Imanaka<sup>2</sup>, Muneaki  
Kurimoto<sup>2</sup>, Shigeyuki Sugimoto<sup>2</sup> and Takeyoshi  
Kato<sup>2</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya  
University*

<sup>2</sup>*Institute of Materials and Systems for Sustainability,  
Nagoya University*

[A7-P-2](#) Space Charge Observation of Laminate  
[\(1095\)](#) Elastomer Sheets with Different  
Laminating Directions

Shinichi Mitsumoto<sup>1</sup>, Muneaki Kurimoto<sup>2</sup>, Masumi  
Fukuma<sup>3</sup> and Masayuki Fujii<sup>4</sup>

<sup>1</sup>*National Institute of Technology, Toyota College*

<sup>2</sup>*Nagoya University*

<sup>3</sup>*National Institute of Technology, Matsue College*

<sup>4</sup>*National Institute of Technology, Toyota College*

[A7-P-3](#) An Energy Management Scheme for a DC  
[\(1097\)](#) Smart Apartment with Electric Vehicles

Hidehito Matayoshi<sup>1</sup>, Tomonobu Senju<sup>2</sup> and  
Takeyoshi Kato<sup>3</sup>

<sup>1</sup>*Graduate School of Engineering and Science,  
University of the Ryukyus*

<sup>2</sup>*Faculty of Engineering, University of the Ryukyus*

<sup>3</sup>*Institute of Materials and Systems for Sustainability  
(IMaSS), Nagoya University*

[A7-P-4](#) Development of Irradiance Forecasting  
[\(1108\)](#) Method by Combination of Multiple  
Numerical Weather Prediction Models

Fumichika Uno<sup>1</sup>, Shota Funami<sup>2</sup>, Masaki Imanaka<sup>2</sup>,  
Muneaki Kurimoto<sup>2</sup>, Shigeyuki Sugimoto<sup>2</sup> and  
Takeyoshi Kato<sup>2</sup>

<sup>1</sup>*National Institute of Advanced Science and  
Technology,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability,  
Nagoya University*

[A7-P-5](#) Modeling of Residual Load Profile of  
[\(1110\)](#) Various Distribution Networks for  
Various Future Scenarios on Demand-side

Yasuyuki Kunii<sup>1</sup>, Junzou Takemura<sup>1</sup>, Masaki  
Imanaka<sup>2</sup>, Muneaki Kurimoto<sup>2</sup>, Shigeyuki Sugimoto<sup>2</sup>  
and Takeyoshi Kato<sup>2</sup>

<sup>1</sup>*Chubu Electric Power Co., Inc.,*

<sup>2</sup>*Institute of Materials and Systems for Sustainability,  
Nagoya University*

[A7-P-6](#) Coordinated Control of HVAC Loads and  
[\(1130\)](#) BESS for Improved FastADR Response -  
Sensitivity Analysis on Available HVAC  
Loads -

J. Zhu<sup>1</sup>, R. Myovela<sup>1</sup>, M. Imanaka<sup>2</sup>, M. Kurimoto<sup>2</sup>,  
S. Sugimoto<sup>2</sup> and T. Kato<sup>2</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya  
University.*

<sup>2</sup>*Institute of Materials and Systems for Sustainability  
(IMaSS), Nagoya University.*

[A7-P-7](#) A Method for Effective Control of LFC  
[\(1167\)](#) Generator in Consideration of Power  
Output Response to EDC

Masaru Saida<sup>1</sup>, Masaki Imanaka<sup>1</sup>, Muneaki  
Kurimoto<sup>1</sup>, Shigeyuki Sugimoto<sup>1</sup>, Takeyoshi Kato<sup>1</sup>,  
Kouichiro Hata<sup>2</sup>, Yoshiki Nakachi<sup>2</sup> and S. C. Verma<sup>2</sup>

<sup>1</sup>*Nagoya University Institute of Materials and  
Systems for Sustainability,*

<sup>2</sup>*Chubu Electric Power Co., Inc.*

[A7-P-8  
\(1090\)](#) Experimental Study on Wireless Power Transfer System with Double Primary Coils

Kenji Yamanaka, Naoki Sakamoto and Masahide Hojo

*Department of Electrical and Electronic Engineering, Tokushima University*

[A7-P-9  
\(1136\)](#) Optimal Operation Plan and Optimum Capacity of Smart City Assuming Annual

Yuta Susowake and Tomonobu Senjyu

*Department of Electrical and Electronics Engineering, University of the Ryukyus*

[A7-P-10  
\(1139\)](#) Examination of optimal placement and optimal capacity of storage battery considering uncertainty in the introduction of the photovoltaic system.

Hiroki Aoyagi, Tomonobu Senjyu

*Department of Electrical and Electronics Engineering, University of the ryukyus*

[A7-P-11  
\(1141\)](#) Output smoothing of Torsional oscillation damping control for PMSG wind power generator under strong wind

K. Takahashi<sup>1</sup> and T. Senjyu<sup>2</sup>

<sup>1</sup>*Graduate School of Engineering and Science, University of the Ryukyus*

<sup>2</sup>*Faculty of Engineering, University of the Ryukyus*

[A7-P-12  
\(1148\)](#) Optimal Operation of Transmission System Considering Large Storage Battery

Ryota Isomura and Tomonobu Senjyu

*The Graduate School of Science and Engineering, University of the Ryukyus,*

[A7-P-13  
\(1168\)](#) Battery Compensation Considering Load Fluctuation in Large-scale Power System

Kazuki Oya and Tomonobu Senjyu

*Department of Electrical and Electronics Engineering, University of the Ryukyus*

[A7-P-14  
\(1178\)](#) A study of an annual simulation method for equipment capacity optimization considering the optimal operation.

Makoto Sugimura and Tomonobu Senjyu

*Department of Electrical and Electronics Engineering, University of the Ryukyus*

[A7-P-15  
\(1197\)](#) Influence of Lamination Direction on AC Breakdown Characteristics of Insulation Materials

Taro Hatano<sup>1</sup>, Ryoya Seo<sup>1</sup>, Masaki Imanaka<sup>1</sup>, Shigeyuki Sugimoto<sup>1</sup>, Takeyoshi Kato<sup>1</sup>, Muneaki Kurimoto<sup>1</sup>, Yuya Manabe<sup>2</sup> and Yasuo Suzuoki<sup>3</sup>

<sup>1</sup>*Nagoya University*

<sup>2</sup>*Chubu Electric Power Co., Inc.,*

<sup>3</sup>*Aichi Institute of Technology*

[A7-P-16  
\(1202\)](#) Permittivity Characteristics of TiO<sub>2</sub> Silicone Elastomer Composites for Energy Conversion

R. Fujihara<sup>1</sup>, M. Kurimoto<sup>1</sup>, K. Naya<sup>1</sup>, T. Kato<sup>1</sup>, M. Imanaka<sup>1</sup>, S. Sugimoto<sup>1</sup> and Y. Suzuoki<sup>2</sup>

<sup>1</sup>*Nagoya University*

<sup>2</sup>*Aichi Institute of University*

[A7-P-17  
\(1203\)](#) A Basic Study for Partial Discharge Characteristic of Oil-immersed Polypropylene Film Capacitor

Y. Takemoto<sup>1</sup>, K. Tatsumi<sup>1</sup>, T. Kato<sup>1</sup>, M. Kurimoto<sup>1</sup>, F. Komori<sup>2</sup>, Y. Suzuoki<sup>2</sup>, Y. Sasatani<sup>4</sup>, Y. Sano<sup>4</sup>, S. Hamada<sup>4</sup> and S. Ogura<sup>4</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya University*

<sup>2</sup>*NIT, Toba College*

<sup>3</sup>*Aichi Institute of Technology*

<sup>4</sup>*NISSIN ELECTRIC CO., LTD*

[A7-P-18  
\(1206\)](#) A Study on Effective Timing of Unit Commitment Scheduling in Consideration of Update Photovoltaic Power Output Forecasting

Ryota Azukisawa<sup>1</sup>, Masaki Imanaka<sup>2</sup>, Muneaki Kurimoto<sup>2</sup>, Shigeyuki Sugimoto<sup>2</sup> and Takeyoshi Kato<sup>2</sup>

<sup>1</sup>*Department of Electrical Engineering, Nagoya University*

<sup>2</sup>*Institute of Material and Systems for Sustainability, Nagoya University*

## Poster Presentations

[A7-P-19](#) Frequency Suppression Method Using  
[\(1239\)](#) Inverter for Distributed PV Systems

Koki Kato<sup>1</sup>, Yuji Iwane<sup>1</sup>, Tadahiho Goda<sup>1</sup>, Kazuto Yukita<sup>1</sup>, Toshiro Matsumura<sup>1</sup>, Yasuyuki Goto<sup>1</sup> and Issarachai Ngamroo<sup>2</sup>

<sup>1</sup>*Department of Electrical and Electronic Engineering, Aichi Institute of Technology,*

<sup>2</sup>*King Mongkut's Institute of Technology Ladkrabang*

[A7-P-20](#) Performance Evaluation of GaN-MPPT by  
[\(1240\)](#) Transient Characteristics

Yusuke Kobayashi, Kazuto Yukita, Toshiro Matsumura and Yasuyuki Goto

*Department of Electric Engineering, Aichi Institute of Technology*

[A7-P-21](#) Performance Comparison of Various  
[\(1241\)](#) Voltage Control Functions in Photovoltaic Inverter

Yuji Iwane, Koki Kato, Tadahiho Goda, Kazuto Yukita, Toshiro Matsumura and Yasuyuki Goto

*Department of Electrical and Electronic Engineering, Aichi Institute of Technology*

[A7-P-22](#) Voltage-Frequency Control in  
[\(1247\)](#) Photovoltaic Generator Introduction System

Goken Fukuyama, Yuji Iwane, Koki Kato, Tadahiho Goda, Kazuto Yukita, Toshiro Matsumura and Yasuyuki Goto

*Department of Electrical Engineering, Aichi Institute of Technology*

[A7-P-23](#) Dependence of Critical Electric Field  
[\(1259\)](#) Strength in High Temperature CO<sub>2</sub> gas of 2,000 K on Contamination of PTFE Vapor

Toshiya YOKOI<sup>1</sup>, Akihiro TSUSAKA<sup>1</sup>, Toshiro MATSUMURA<sup>1</sup>, Kazuto YUKITA<sup>1</sup>, Yasuyuki GOTO<sup>1</sup> and Yasunobu YOKOMIZU<sup>2</sup>

<sup>1</sup>*Aichi Institute of Technology,*

<sup>2</sup>*Nagoya University*

[A7-P-24](#) Arcing Time of Disconnection Fault in  
[\(1262\)](#) Low-Voltage PV Systems

Akihiro Tsusaka<sup>1</sup>, Toshiya Yokoi<sup>2</sup>, Toshiro Matsumura<sup>1</sup>, Kazuto Yukita<sup>1</sup>, Yasuyuki Goto<sup>1</sup>, Atsushi Miyamoto<sup>2</sup> and Hiroyuki Ito<sup>2</sup>

<sup>1</sup>*Aichi Institute of Technology*

<sup>2</sup>*Dept. of Technology Research, Nitto Kogyo Corporation*

[A7-P-25](#) One-hour-ahead Price Prediction Model  
[\(1292\)](#) by Using LSTM Neural Network on Electricity Power Whole-sale Market

Tomohisa Yamada, Shun Matsukawa and Chuzo Ninagawa

*Graduate School of Engineering, Gifu University*

## Saturday, November 2, 17:00 – 18:00 IB (Integrated Building)

### A2-P

#### [A2-P-1 \(1083\)](#)

Measurement of Laser-accelerated Protons using Several Types of Track Detectors

Masato Kanasaki<sup>1</sup>, Satoshi Jinno<sup>2</sup>, Kunihiro Morishima<sup>3</sup>, Satoshi Kodaira<sup>4</sup>, Takafumi Asai<sup>1,5</sup>, Keita Sakamoto<sup>1</sup>, Kazuki Shimizu<sup>1</sup>, Keiji Oda<sup>1</sup>, Tomoya Yamauchi<sup>1</sup> and Yuji Fukuda<sup>5</sup>

<sup>1</sup>Graduate School of Maritime Sciences, Kobe University

<sup>2</sup>School of Engineering, The University of Tokyo,

<sup>3</sup>Graduate School of Science, Nagoya University,

<sup>4</sup>National Institute of Radiological Sciences, National Institutes for Quantum and Radiological Science and Technology (QST)

<sup>5</sup>Kansai Photon Science Institute, National Institutes for Quantum and Radiological Science and Technology (QST)

#### [A2-P-2 \(1151\)](#)

GRAINE2018 : the flight data of multistage shifter in 2018 balloon experiment

Shota Matsuda<sup>1</sup>, Shigeki Aoki<sup>1</sup>, Satoru Takahashi<sup>1</sup>, Takafumi Nakamura<sup>1</sup>, Motoya Nakamura<sup>1</sup>, Tomomi Yamamoto<sup>1</sup>, Miyuki Oda<sup>1</sup>, Hiroki Rokujo<sup>2</sup>, Yuya Nakamura<sup>2</sup>, Masahiro Komiyama<sup>2</sup>

and GRAINE collaboration<sup>1,2,3,4,5</sup>

<sup>1</sup>Kobe University

<sup>2</sup>Nagoya University

<sup>3</sup>Okayama University of Science

<sup>4</sup>Aichi University of Education

<sup>5</sup>ISAS/JAXA

#### [A2-P-3 \(1154\)](#)

A development of next generation multi-stage shifter for GRAINE scientific observation

Miyuki Oda<sup>1</sup>, Shigeki Aoki<sup>1</sup>, Satoru Takahashi<sup>1</sup>, Tomomi Yamamoto<sup>1</sup> and GRAINE collaboration<sup>1,2,3,4,5</sup>

<sup>1</sup>Kobe University

<sup>2</sup>Nagoya University

<sup>3</sup>Okayama University of Science

<sup>4</sup>Aichi University of Education

<sup>5</sup>ISAS/JAXA

#### [A2-P-4 \(1183\)](#)

Physical Process of Dna Strand Breakage Induced by Ionizing Radiations

Kentaro Fujii<sup>1</sup>, M A. Hérve du Penhoat<sup>2</sup>, M. F. Politis<sup>3</sup>

<sup>1</sup>National Institutes for Quantum and Radiological Sciences and Technology

<sup>2</sup>IMPMC, Sorbonne Universités

<sup>3</sup>Université Evryval d Essonne

#### [A2-P-5 \(1218\)](#)

GRAINE 2018: Performance evaluation of converter by analyzing gamma ray from hadronic interaction

Yuya Nakamura<sup>1</sup>, Hiroki Rokujo<sup>1</sup>, Masahiro Komiyama<sup>1</sup>, Saya Yamamoto<sup>2</sup>, Shigeki Aoki<sup>3</sup>, Satoru Takahashi<sup>3</sup>, Takafumi Nakamura<sup>3</sup>, Motoya Nakamura<sup>3</sup>, Shota Matsuda<sup>3</sup> and GRAINE collaboration<sup>1,2,3,4,5</sup>

<sup>1</sup>Nagoya University

<sup>2</sup>Okayama University of Science

<sup>3</sup>Kobe University,

<sup>4</sup>Aichi University of Education

<sup>5</sup>ISAS/JAXA

#### [A2-P-6 \(1219\)](#)

Development of emulsion shifter for neutrino experiment

Hiroaki Kawahara<sup>1</sup> and NINJA Collaboration<sup>1,2,3,4,5,6,7</sup>

<sup>1</sup>Department of Science, Nagoya University

<sup>2</sup>Nihon University

<sup>3</sup>Toho University

<sup>4</sup>Kobe University

<sup>5</sup>Yokohama National University

<sup>6</sup>Kyoto University

<sup>7</sup>The University of Tokyo

## Poster Presentations

[A2-P-7  
\(1224\)](#) High-Speed Tracking Machine for sub- $\mu$ m Tracks: PTS

Ryuta Kobayashi and NEWSdm collaboration

*Graduate school of Science, Nagoya University*

[A2-P-8  
\(1231\)](#) Development of the cylindrical pressurized vessel gondola realizing large observed for GRAINE scientific observation

Masahiro.Komiyama<sup>1</sup>, Hiroki Rokujo<sup>1</sup>, Yuya Nakamura<sup>1</sup> Shigeki Aoki<sup>2</sup>, Satoru Takahashi<sup>2</sup>, Takafumi.Nakamura<sup>2</sup>, Motoya Nakamura<sup>2</sup>, Shota Matsuda<sup>2</sup>, Tomomi Yamamoto<sup>2</sup>, Miyuki Oda<sup>2</sup> and GRAINE collaboration<sup>1, 2, 3, 4, 5</sup>

<sup>1</sup>Nagoya University

<sup>2</sup>Kobe University

<sup>3</sup>Aichi University of Education,

<sup>4</sup>ISAS/JAXA

<sup>5</sup>Okayama University of Science

[A2-P-9  
\(1232\)](#) NINJA Experiment: Analysis of water target ECC and preparation for physics run

Yosuke Suzuki<sup>1</sup>, TsutomuFukuda<sup>1,2</sup>, Tomoki Takao<sup>1</sup>, Takahiro Odagawa<sup>3</sup> and Ayami Hiramoto<sup>3</sup>

<sup>1</sup>Graduate school of science, Nagoya University,

<sup>2</sup>Institute for advanced research, NagoyaUniversity

<sup>3</sup>Graduate school of science, KyotoUniversity,

[A2-P-10  
\(1249\)](#) Study of Low Energy Muon Flux for Cosmic ray Imaging with Nuclear Emulsion

Kotaro Hikata, Kunihiro Morishima, Akira Nishio, Mitsuaki Kuno, Yuta Manabe, Ami Sakakibara, Nobuko Kitagawa

*Nagoya University*

[A2-P-11  
\(1253\)](#) Development of an Easy Cloud Chamber which can Observe Elementary Particles and Research of its Usefulness for Education

H. Hayashi

*Nagoya University*

[A2-P-12  
\(1261\)](#) Development of desensitized nuclear emulsion films for exploring the composition of cosmic ray nuclei

Saya Yamamoto<sup>1</sup>, Shigeki Aoki<sup>2</sup>, Atsushi Iyono<sup>1</sup>, Keita Ozaki<sup>2</sup>, Satoshi Kodaira<sup>3</sup>, Masahiro Komiyama<sup>4</sup>, Yuya Nakamura<sup>4</sup>, Akine Matsukawa<sup>1</sup>, Misato Yabu<sup>2</sup> and Hiroki Rokujo<sup>4</sup>

<sup>1</sup>Graduate School of Science, Okayama University of Science

<sup>2</sup>Graduate School of Human Development and Environment, Kobe University

<sup>3</sup>National Institute of Radiological Sciences

<sup>4</sup>Graduate School of Science, Nagoya University

[A2-P-13  
\(1266\)](#) Status of emulsion film production for NINJA physics run

T. Takao<sup>1</sup>, T. Fukuda<sup>1</sup> and M. Nakamura<sup>1,2</sup>

<sup>1</sup>Graduate School of Science, Nagoya University

<sup>2</sup> Institute of Materials and Systems for Sustainability, Nagoya University

[A2-P-14  
\(1273\)](#) Developing of Analysis System for Measurement Of Underground Environmental Sub-Mev Neutrons With Nuclear Emulsion

Inori Todoroki

[A2-P-15  
\(1274\)](#) Simulation for SUSY particles researches with International Linear Collider

Mayuko Naiki

*Graduate school of science, NagoyaUniversity*

[A2-P-16  
\(1312\)](#) Constructing of Emulsion Film Pouring System

Kou Sugimura, Hiroki Rokujo, Mitsuhiro Nakamura and Naotaka Naganawa

*Nagoya University*

[A2-P-17  
\(1317\)](#) Development of a new noise evaluation method for nuclear emulsion

Noboru nakano, Hiroki Rokujo, Masahiro Komiyama, Yuya Nakamura, Toshiyuki Nakano

*Graduate School of Science, Nagoya University*

[A2-P-18](#)  
[\(1323\)](#)

The Effect of Rock-derived Radiation on Nuclear Emulsion

Ami SAKAKIBARA and Mitsuhiro NAKAMURA

*Nagoya University*

[A2-P-19](#)  
[\(1346\)](#)

Development of High Spatial Resolution Ultracold Neutron Detector Using Fine-grained Nuclear Emulsion and Research on Gravity with It

N. Muto<sup>1</sup>, T. Ariga<sup>2,3</sup>, S. Awano<sup>1</sup>, G. Ichikawa<sup>1</sup>, A. Umemoto<sup>1</sup>, S. Kawasaki<sup>4</sup>, H. Kawahara<sup>1</sup>, M. Kitaguchi<sup>5</sup>, H. Shimizu<sup>1</sup>, S. Tasaki<sup>6</sup>, N. Naganawa<sup>7</sup>, S. Tada<sup>1</sup>, M. Hino<sup>8</sup>, K. Hirota<sup>9</sup> and K. Mishima<sup>4</sup>

<sup>1</sup>*Department of Physics, Nagoya University*

<sup>2</sup>*Faculty of Arts and Science, Kyushu University*

<sup>3</sup>*Laboratory for High Energy Physics, University of Bern*

<sup>4</sup>*High Energy Accelerator Research Organization*

<sup>5</sup>*Center for Experimental Studies, KMI, Nagoya University*

<sup>6</sup>*Department of Nuclear Engineering, Kyoto University*

<sup>7</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

<sup>8</sup>*Institute for Integrated Radiation and Nuclear Science, Kyoto University*

<sup>9</sup>*Research Center for Nuclear Physics, Osaka University*

[A2-P-20](#)  
[\(1350\)](#)

Development of High Position Accuracy Nuclear Emulsion

Yuta Manabe, Kunihiko Morishima, Akira Nishio, Mitsuaki Kuno, Kotaro Higata, Ami Sakakibara and Nobuko Kitagawa

*Nagoya University*

[A2-P-21](#)  
[\(1355\)](#)

Observation of the flux of cosmic ray muon on the ground with CES

Nobuko Kitagawa<sup>1</sup>, Kunihiko Morishima<sup>2</sup>, Akira Nishio<sup>2</sup>, Mitsuaki Kuno<sup>2</sup>, Yuta Manabe<sup>2</sup>, Kotaro Higata<sup>2</sup> and Ami Sakakibara<sup>2</sup>

<sup>1</sup>*Institute of Materials and System for Sustainability, Nagoya University,*

<sup>2</sup>*Department of Graduate School of Science, Nagoya University,*

## A9-P

[A9-P-1](#)  
[\(1009\)](#)

Effects of Titanium Surface Wettability on Osteoblast Behavior

S. Okano<sup>1</sup>, K. Nisogi<sup>1</sup>, S. Kobayashi<sup>1</sup>, K. Kuroda<sup>2</sup> and T. Okamoto<sup>3</sup>

<sup>1</sup>*Department of Materials Science and Biotechnology, Ehime University*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

<sup>3</sup>*Faculty of Education, Ehime University*

[A9-P-2](#)  
[\(1013\)](#)

Simulations of the Flow and Performance of a Hydraulic Savonius Turbine by the Vortex in Cell Method

Qiang Gu<sup>1</sup>, Haotian Wang<sup>1</sup>, Tomohiro Degawa<sup>2</sup>, Tomomi Uchiyama<sup>2</sup>, Kotaro Takamura<sup>2</sup>, Shouichiro Iio<sup>3</sup>, Toshihiko Ikeda<sup>3</sup> and Tomoko Okayama<sup>4</sup>

<sup>1</sup>*Graduate School of Informatics, Nagoya University*

<sup>2</sup>*Institute of Materials and Systems for Sustainability, Nagoya University*

<sup>3</sup>*Faculty of Engineering, Shinshu University*

<sup>4</sup>*Faculty of Human Studies, Taisho University*

[A9-P-3](#)  
[\(1068\)](#)

Acceleration of Biological Nitrogen Fixation Using Humin as External Electron Mediator

Sujan Dey<sup>1</sup>, Takuya Kasai<sup>1,2</sup>, Jumpei Mitsushita<sup>1</sup>, Takanori Awata<sup>3</sup>, Arata Katayama<sup>1,2</sup>

<sup>1</sup>*Department of Civil and Environmental Engineering, Nagoya University*

<sup>2</sup>*Institute of Materials and System of Sustainability, Nagoya University*

<sup>3</sup>*National Institute for Land and Infrastructure Management*

[A9-P-4](#)  
[\(1107\)](#)

Selective recovery of indium via continuous counter-current foam separation from sulfuric acid solutions

Kinoshita Takehiko<sup>1,2</sup>, Ishigaki Yuzo<sup>1</sup>, Kamimoto Yuki<sup>2</sup>, Kitagawa Shinya<sup>3</sup> and Ichino Ryoichi<sup>2</sup>

<sup>1</sup>*Nagoya Municipal Industrial Research Institute,*

<sup>2</sup>*Nagoya University*

<sup>3</sup>*Nagoya Institute of Technology*

## Poster Presentations

[A9-P-5](#) Influence of Tip Leakage Flow on Small  
[\(1113\)](#) Propeller Turbine Performance

Koki Yoshida<sup>1</sup>, Haruyuki Murakoshi<sup>1</sup> and Shouchiro Iio<sup>2</sup>

<sup>1</sup>Graduate School of Science and Technology, Shinshu University

<sup>2</sup>Department of Mechanical Systems Engineering, Shinshu University

[A9-P-6](#) Biodegradation potential of four different  
[\(1123\)](#) pollutants in downstream of Yahagi river

Yajie YU<sup>1</sup>, Kai UCHIDA<sup>1</sup>, Takanori AWATA<sup>2</sup>, Takuya KASAI<sup>1</sup> and Arata KATAYAMA<sup>1</sup>

<sup>1</sup>Department of Civil Engineering, Nagoya University,

<sup>2</sup>National Institute for Land and Infrastructure Management

[A9-P-7](#) Extracellular Electron Transfer Function of  
[\(1124\)](#) Soil Humins: Potential Origins

Mirai YAMAURA<sup>1</sup>, YAMAURA<sup>1</sup>, Minh Duyen PHAM<sup>2</sup>, Takuya KASAI<sup>1,2</sup> and Arata KATAYAMA<sup>1,2</sup>

<sup>1</sup>Graduate school of Engineering, Nagoya University

<sup>2</sup>IMaSS, Nagoya University

[A9-P-8](#) Nanocarbon Electrocatalysts for  
[\(1127\)](#) Environmental Purification Devices using Microbes

Yasushi Miyata<sup>1</sup> and Arata Katayama<sup>2</sup>

<sup>1</sup>Nagoya Municipal Industrial Research Institute

<sup>2</sup>Institute of Materials and Systems for Sustainability, Nagoya University

[A9-P-9](#) Noise Characteristics of Cavitating Jet  
[\(1145\)](#) through a Rectangular Orifice with Various Aspect Ratio

A. Watanabe<sup>1</sup>, F. Yoshida<sup>2</sup>, S. Iio<sup>3</sup>, T. Uchiyama<sup>4</sup> and K. Takamura<sup>4</sup>

<sup>1</sup>Graduate School of Science and Technology, Shinshu University

<sup>2</sup>KYB CO., Ltd.

<sup>3</sup>Faculty of Engineering, Shinshu University

<sup>4</sup>Institute of Materials and Systems for Sustainability, Nagoya University

[A9-P-10](#) Application of Combination Treatment of  
[\(1146\)](#) Ultrasound/Ultraviolet in the Presence of Photocatalyst for the Decomposition of o-Chlorophenol in an Aqueous Solution

K. Usui, T. Ito and Y. Kojima

*Institute of Materials and Systems for Sustainability, Nagoya University*

[A9-P-11](#) Estimating the Introduction Potential of  
[\(1156\)](#) Residential Solar Power Generation: Case in Nagoya City, Japan

T. Matsumoto<sup>1</sup>, K. Hayashi<sup>2</sup>, N. Kawaguchi<sup>2</sup>, T. Yamada<sup>3</sup> and Y. Tomino<sup>3</sup>

<sup>1</sup>Department of Civil Engineering, Nagoya University

<sup>2</sup>IMaSS, Nagoya University

<sup>3</sup>Chubu Electric Power Co., Inc.

[A9-P-12](#) Effect of Extraction Conditions on the  
[\(1199\)](#) Property of Chitin and Chitosan from Crab Shells

Andi Muhammad Anshar<sup>1,2</sup>, Sengo Kobayashi<sup>1</sup> and Satoshi Okano<sup>1</sup>

<sup>1</sup>Department of Materials Science and Biotechnology, Ehime University

<sup>2</sup>Department of Chemistry, Mathematics and Natural Science Faculty, Hasanuddin University

[A9-P-13](#)  
[\(1225\)](#)

Selection of salinity sensitive wavebands from laboratory derived hyperspectral data

T. Qian<sup>1</sup>, A. Tsunekawa<sup>2</sup>, F. Peng<sup>2</sup>, T. Masunaga<sup>3</sup>, T. Wang<sup>4</sup>, R. Li<sup>5</sup> and F. Minoru<sup>1</sup>

<sup>1</sup>Center for Social and Environmental Systems Research, National Institute for Environmental Studies

<sup>2</sup>Arid Land Research Center, Tottori University

<sup>3</sup>Life and Environmental Science, Shimane University

<sup>4</sup>Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences

<sup>5</sup>Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

[A9-P-14](#)  
[\(1245\)](#)

Carbon-dioxide Fixation by Humin-Dependent Mixed Consortium Exercises Humin's Alternate Functionality in Electron Transfer

Mahasweta Laskar<sup>1</sup>, Takanori Awata<sup>2</sup>, Takuya Kasai<sup>1,3</sup> and Arata Katayama<sup>1,3</sup>

<sup>1</sup>Department of Civil & Environmental Engineering, Nagoya University,

<sup>2</sup>National Institute for Land and Infrastructure Management

<sup>3</sup>Institute of Materials and Systems for Sustainability, Nagoya University

[A9-P-15](#)  
[\(1282\)](#)

Study on Power Factor Required to Suppress Voltage Rise When Connecting a Large-Capacity PV Device to Medium Voltage Distribution Line End

Masumi Tsukamoto<sup>1</sup>, Toshiro Matsumura<sup>1</sup>, Kazuto Yukita<sup>1</sup>, Yasuyuki Goto<sup>1</sup>, Yasunobu Yokomizu<sup>2</sup>, Daisuke Iioka<sup>3</sup>, Hirotaka Shimizu<sup>4</sup>, Hideki Iwatsuki<sup>5</sup>, Hirokazu Uenishi<sup>5</sup>, Hiroyuki Ishikawa<sup>5</sup>, Yuto Mineta<sup>5</sup> and Yuuki Kanazawa<sup>5</sup>

<sup>1</sup>Aichi Institute of Technology

<sup>2</sup>Nagoya University

<sup>3</sup>Tohoku University

<sup>4</sup>Polytechnic University

<sup>5</sup>Chubu Electric Power Co., Inc.

[A9-P-16](#)  
[\(1298\)](#)

Influence of Flow Field on Crystal Growth with Flux Method

Y. Funatsumaru, S. Iio, N. Zettsu and K. Teshima

Faculty of Engineering, Shinshu University, Japan

[A9-P-17](#)  
[\(1316\)](#)

A study on the spatial distribution of the building's power demand

N. KAWAGUCHI and K. HAYASHI

IMaSS, Nagoya University,

[A9-P-18](#)  
[\(1341\)](#)

Resources Time Footprint of Potential Small Hydro-power Capacity in China

X. Huang<sup>1</sup>, K. Hayashi<sup>1</sup>, M. Fujii<sup>2</sup> and N. Kawaguchi<sup>1</sup>

<sup>1</sup>Nagoya University

<sup>2</sup>National Institute for Environmental Studies

[A9-P-19](#)  
[\(1342\)](#)

Convolutional Neural Networks for Tree Species Classification

Y. Huang<sup>1</sup> and K. Hayashi<sup>2</sup>

<sup>1</sup>Department of Civil Engineering, Nagoya University

<sup>2</sup>IMASS, Nagoya University

# Joint Symposia

## Joint Symposium 1

### **Nagoya University and National University of Singapore (NU-NUS): Cyber/Physical System in Energy-Efficient Smart Cities —From Materials Design, Alternative Energy Technologies to Intelligent Systems and Operations**

#### **Oral Presentation (S1-I)**

Saturday, November 2, 10:00 – 12:15 (ES Hall)

Chair: Yoshiaki KAWAJIRI (Nagoya Univ.)

#### Opning Remaks

Teo Kie Leong (National University of Singapore)

[S1-I-1:](#) (1401) Invite

Computational Approaches to Understand the Role of Grain Boundary Phase on Magnetic Property of NdFeB Hard Magnets

Toshiyuki Koyama and Yuhki Tsukada

*Department of Materials Design Innovation Engineering, Nagoya University*

[S1-I-2:](#) Invite

3D Structures by Ceramics Robocasting

Jun Ding

*Department of Materials Science & Engineering, National University of Singapore*

[S1-I-3:](#) (1417) Invite

Materials and System Design for Next Generation Wearables, Prosthetics and Robotics Systems

Benjamin C.K. Tee

*Department of Electrical and Computer Engineering, National University of Singapore*

[S1-I-4:](#) (1376) Invite

Metal/polymer joining via open-cell porous layer synthesized by combustion reactions

Asuka Suzuki and Makoto Kobayashi

*Department of Materials Process Engineering, Nagoya University*

[S1-I-5:](#) (1365) Invite

PEDOT:PSS for Transparent Electrode and Thermoelectric Conversion

Jianyong Ouyang

*Department of Materials Science and Engineering, National University of Singapore*

## Oral Presentation (S1-II)

Saturday, November 2, 10:00 – 12:00 (ES024)

Chair: Toshiyuki YAMAMOTO (Nagoya Univ.)

### Opning Remarks

Takyuki Morikawa (Nagoya University)

[S1-II-1:](#) (1405) Invite

Autonomous Vehicles-Based Mobility-on-Demand in Singapore: User Behavior, Transport/Urban Planning and Implementation

Ghim Ping Ong

*Department of Civil and Environmental Engineering, National University of Singapore*

## Joint Symposia

### [S1-II-2:](#) (1368) Invite

#### Intersection Priority Management to Reduce Urban Congestion using Link Transmission Model

Ruotian Tang, Ryo Kanamori and Toshiyuki Yamamoto  
*Graduate School of Civil Engineering, Nagoya University,*  
*Institute of Innovation for Future Society, Nagoya University,*  
*Institute of Materials and Systems for Sustainability, Nagoya University*

### [S1-II-3:](#) (1408) Invite

#### Privacy Issues in Intelligent Transportation Systems

Biplab Sikdar  
*Department of Electrical and Computer Engineering, National University of Singapore*

### [S1-II-4:](#) (1370) Invite

#### Exploring the Application of Lane based Charging System by a Meso Simulator Platform

Yanyan LI, Toshiyuki Yamamoto, Takayuki Morikawa and Mingya ng Hao  
*Institute of Materials and Systems for Sustainability, Nagoya University*  
  
*Institutes of Innovation for Future Society, Nagoya University*

## Oral Presentation (S1-III)

### “Special Session by Center for Integrated Research of Future Electronics”

Saturday, November 2, 14:00 – 15:20 (ES Hall)

Chair: Toru UJIHARA (Nagoya Univ.)

[S1-III-1:](#) (1413) Invite

Highly-Stretchable, Low-Voltage Integrated Circuits Based on Carbon Nanotube Thin Films

Yutaka Ohno

*Institute of Materials and Systems for Sustainability, Nagoya University*

[S1-III-2:](#) (1404) Invite

Highly conducting p-type transparent LnCuOS (Ln=La and Nd) films and diodes

Hao GONG and Nengduo Zhang

*Department of Materials and Engineering, National University of Singapore*

[S1-III-3:](#) (1415) Invite

Theoretical Studies on Atomic and Electronic Structures of Threading Screw Dislocations in GaN

Kenji Shiraishi

*Institute of Materials and Systems for Sustainability, Nagoya University*

*Graduate School of Engineering, Nagoya University*

[S1-III-4:](#) (1418) Invite

Expanding the Range of Chalcogenide, Oxides and Phosphide Catalyst for Clean Energy Applications

Shu Hearn Yu, Ng Zhen Quan Cavin and Daniel H.C. Chua

*Department of Materials Science and Engineering, National University of Singapore*

## **Oral Presentation (S1-IV)** **Special Session by Center for Integrated Research of Future Electronics**

Saturday, November 2, 15:50 – 17:00 (ES Hall)

Chair: Toru UJIHARA (Nagoya Univ.)

Yoshiaki KAWAJIRI (Nagoya Univ.)

[S1-IV-1:](#) (1023) Invite

An universal approach to produce the passivation materials of c-Si substrate by alcoholic solute PEDOT:PSS

Van Hoang NGUYEN, Yasuyoshi KUROKAWA and Noritaka USAMI

*Graduate School of Engineering, Nagoya University*

[S1-IV-2:](#) (1369) Invite

Growth of epitaxial graphene by thermal decomposition of carbides

Wataru Norimatsu

*Department of Materials Science and Engineering, Nagoya University*

[S1-IV-3:](#) (1416) Invite

High Throughput Prediction of Ion Transport Across Battery Materials

Stefan Adams

*Department of Materials Science and Engineering, National University of Singapore*

**Closing Remarks**

**Prof. Hiroshi Amano (Nagoya University)**

## Oral Presentation (S1-V)

Sunday, November 3, 9:50 – 11:50 (ES Hall)

Chair: Seiichi TAKAMI (Nagoya Univ.)

[S1-V-1:](#) (1409) Invite

High-throughput Screening of Electrodes, Electrolytes and Coating Materials for Rechargeable Batteries

Sai G. Gautam and Pieremanuele Canepa

*Department of Mechanical and Aerospace Engineering, Princeton University, New Jersey, USA*

*Department of Materials Science and Engineering, The National University of Singapore*

[S1-V-2:](#) (1402) Invite

Chemical Reaction Engineering for Carbon Recycle

Koyo Norinaga, Wei Zhang, Cheolyong Choi, Keiichi Yanase, Tran Khuyen and Hirochi Machida

*Department of Chemical Systems Engineering, Nagoya University*

*Institute of Materials Innovation (i-MI), Nagoya University*

[S1-V-3:](#) (1414) Invite

Single Atom Catalysis for New Energy, Clean Water and Healthy Environment

John Wang

*Department of Materials Science and Engineering, National University of Singapore*

[S1-V-4:](#) (1366) Invite

Medical Application of Functional Magnetic Nanoparticles

Akira Ito

*Department of Materials Science and Engineering, School of Engineering, Nagoya University*

[S1-V-5:](#) (1419) Invite

Strain Stabilized Nickel hydroxide Nanoribbons for Efficient Water Splitting

Xiaopeng Wang, Haijun Wu, Stephen Pennycook and Junmin. Xue

*Department of Materials Science and Engineering, National University of Singapore*

## Poster Presentations (S1-P)

Saturday, November 2, 13:00 – 14:00 (ES entrance hall)

[S1-P-1:](#) (1367) Invite

International comparison of aggressive driving behavior: A comparative analysis among three Asian nations; Japan, China and Vietnam.

Blawal HUSSAIN, Hitomi SATO, Shiyu XIONG, Tomio MIWA, Ngoc T. NGUYEN and Takayuki MORIKAWA

*Graduate School of Environmental Studies, Nagoya University*

*Institutes of Innovation for Future Society, Nagoya University*

*Graduate School of Engineering, Nagoya University*

*Institute of Materials and Systems for Sustainability, Nagoya University*

*Faculty of Environmental Science, University of Science, Vietnam National University*

[S1-P-2:](#) (1371) Invite

Ultrasonic Assisted Fabrication of Metal Nanoparticles by Laser Ablation in Liquid

Xin Hu, Mardiansyah Mardis, Wahyudiono, Noriharu Takada, Hideki Kanda and Motonobu Goto

*Department of Materials Process Engineering, Nagoya University*

[S1-P-3:](#) (1372) Invite

The effects of environmentalism and attitude towards physical activity on travel behaviors

T. YEN, T. YAMAMOTO and H. SATO

*Morikawa & Yamamoto T & Miwa Lab., Nagoya University*

*Institute of Materials and Systems for Sustainability, Nagoya University*

*Institute of Innovation for Future Society, Nagoya University*

[S1-P-4:](#) (1373) Invite

Appearance Based Localization

Y. Bai and MH. Ang Jr

*Department of Mechanical Engineering, National University of Singapore*

[S1-P-5:](#) (1375) Invite

Causal relationship between urban rail investment and residential behavior in Nagoya city

Lisha Wang, Meilan Jiang, Tomio Miwa, Eleni Bardaka and Takayuki Morikawa

*Department of Civil Engineering, Nagoya University,*

*Institute of Innovation for Future Society, Nagoya University*

*Institute of Materials and Systems for Sustainability, Nagoya University*

*Department of Civil, Construction, and Environmental Engineering, North Carolina State University,*

*Institute of Innovation for Future Society, Nagoya University*

[S1-P-6:](#) (1377) Invite

Exploratory Analysis of the Relationship between Kinematic Indicators and Driving Behaviour

M.Zhou and H.C. Chin

*Department of Civil & Environmental Engineering, National University of Singapore*

[S1-P-7:](#) (1378) Invite

Spatial-Temporal Inference of Urban Traffic Emissions Based on Taxi Trajectories and Multi-Source Urban Data

Jielun Liu, Ke Han, Xiqun (Michael) Chen and Ghim Ping Ong

*Department of Civil & Environmental Engineering, National University of Singapore*

*Center for Transport Studies, Department of Civil and Environmental Engineering, Imperial College London*

*College of Civil Engineering and Architecture, Zhejiang University*

[S1-P-8:](#) (1379) Invite

Metallization of 3D Printed Polymers for Application as a Fully Functional Water Splitting System

Xinran Su, Xinwei Li and Jun Ding

*Department of Materials Science & Engineering, National University of Singapore*

[S1-P-9:](#) (1380) Invite

Bicycle Station Planning with Stochastic Demand

CAI Yutong, ONG Ghim Ping and MENG Qiang

*Department of Civil and Environmental Engineering, National University of Singapore*

[S1-P-10:](#) (1381) Invite

Exploring tour-based mode choice and travel distance considering intra-household interaction

Shasha Liu, Toshiyuki Yamamoto and Enjian Yao

*Institute of Materials and Systems for Sustainability, Nagoya University*

*School of Traffic and Transportation, Beijing Jiaotong University*

[S1-P-11:](#) (1384) Invite

Enhancing Water Harvesting through the Cascading Effect [1]

Barbara T.W. Ang, Jiong Zhang, Gabriel J.J. Lin, Hao Wang, Wee Siang Vincent Lee and Junmin Xue

*Department of Materials Science & Engineering, National University of Singapore,*

*Department of Mechanical Engineering, National University of Singapore*

[S1-P-12:](#) (1385) Invite

Designing Autonomous Vehicle Incentive Program with Uncertain Vehicle Purchase Price

Shukai Chen, Hua Wang and Qiang Meng

*Department of Civil and Environmental Engineering, National University of Singapore*

*School of Economics and Management, Tongji University*

[S1-P-13:](#) (1386) Invite

A statistic approach for Characterization of daily travel distance

Jiahang He and Toshiyuki Yamamoto

*Department of Civil Engineering, Nagoya University*

*Institute of Materials and Systems for Sustainability, Nagoya University*

[S1-P-14:](#) (1388) Invite

Enlarged Inter-layer Spacing in Cobalt Manganese Layered Double Hydroxide Guiding Transformation to Layered Structure for High Supercapacitance

X. Liu, L. Zhang, X. Gao, C. Guan, Y. Hu and J. Wang

*Department of Materials Science and Engineering, National University of Singapore*

*Department of Physics and Electronic Engineering, Changshu Institute of Technology*

*Institute of Flexible Electronics, Northwestern Polytechnical University*

[S1-P-15:](#) (1389) Invite

Future Implications of Shared Autonomous Vehicles

Mingyang Hao and Toshiyuki Yamamoto

*Department of Civil Engineering, Nagoya University,*

*Institute of Materials and Systems for Sustainability, Nagoya University*

[S1-P-16:](#) (1390) Invite

Examination on the influence area of Transit-Oriented Development in New Delhi, India

Sangeetha Ann, Meilan Jiang and Toshiyuki Yamamoto

*Department of Civil Engineering, Nagoya University*

*Institute of Innovation for Future Society, Nagoya University*

*Institute of Materials and Systems for Sustainability, Nagoya University*

[S1-P-17:](#) (1391) Invite

Detecting Selective Modification in V2V Communication

Nalam Venkata Abhishek, Teng Joon Lim, Biplab Sikdar and Ben Liang

*Department of Electrical and Computer Engineering, National University of Singapore*

*Department of Electrical and Computer Engineering, University of Toronto*

[S1-P-18:](#) (1392) Invite

Quantitative Measurement of Sub-nanometer In Fluctuations in InGaN Quantum Well

T. P. MISHRA, G. J. SYARANAMUAL, L. JONES, J. Y. CHUNG, Z. LI, S. A. GOODMAN, S. J. CHUA, E. A. FITZGERALD, P. CANEPA, S. GRADECAK and S. J. PENNYCOOK

*Department of Materials Science and Engineering, National University of Singapore*

*Singapore-MIT Alliance for Research and Technology,*

*School of Physics/CRANN, Trinity College Dublin*

*Department of Materials Science and Engineering, Massachusetts Institute of Technology*

*Department of Electrical and Computer Engineering, National University of Singapore*

[S1-P-19:](#) (1393) Invite

Flash sintering of yttria stabilized zirconia

K. Itakura, T. Tokunaga and T. Yamamoto

*Department of Materials Design Innovation Engineering, Nagoya University*

[S1-P-20:](#) (1394) Invite

Compressive Behavior of Lattice Structured AlSi10Mg Alloys with Various Unit Cells Fabricated by Selective Laser Melting

Xiaoyang Liu, Keito Sekizawa, Asuka Suzuki, Naoki Takata and Makoto Kobashi

*Department of Materials Process Engineering, Nagoya University*

[S1-P-21:](#) (1395) Invite

Shared Autonomous Vehicle System at Suburban Residential Area Combined with Park and Ride

Yefang Zhou, Yanyan Li, Mingyang Hao and Toshiyuki Yamamoto

*Graduate School of Engineering, Nagoya University*

*Institute of Materials and Systems for Sustainability, Nagoya University*

[S1-P-22:](#) (1396) Invite

PEDOT:PSS/ Crystalline Si Hybrid Solar Cells Employing Tapered Nanostructures

Yuqing Li, Nguyen Van Hoang and Usami Noritaka

*Department of Materials Science and Engineering, Nagoya University*

[S1-P-23:](#) (1397) Invite

20.7% Highly Reproducible Inverted Planar Perovskite Solar Cells with Enhanced Fill Factor and Eliminated Hysteresis

Liu Xixia, Cheng Yuanhang, Ouyang Jianyong, and Gong Hao

*Department of Materials Science & Engineering, National University of Singapore*

*Solar Energy Research Institute of Singapore (SERIS), National University of Singapore*

[S1-P-24:](#) (1398) Invite

A Path-based Equilibrium Model for Ridesharing Matching

Yuanyuan Li, Yang Liu and Jun Xie

*Department of Industrial Systems Engineering and Management, National University of Singapore,*

*Department of Civil and Environmental Engineering, National University of Singapore,*

*School of Transportation and Logistics, Southwest Jiaotong University*

[S1-P-25:](#) (1399) Invite

Modeling isotherms for pressure swing adsorption process using ELM-11

Yuya Takakura, Tomoyuki Yajima and Yoshiaki Kawajiri

*Department of Materials Process Engineering, Nagoya University*

*Department of Chemical & Biomolecular Engineering, Georgia Institute of Technology*

[S1-P-26:](#) (1400) Invite

Spatial Spillover of Demand in Customized Bus Service

J Wang, T Yamamoto and K Liu

*Department of Civil Engineering, Nagoya University,*

*Institute of Materials and Systems for Sustainability, Nagoya University*

*School of Transportation and Logistics, Dalian University of Technology*

[S1-P-27:](#) (1403) Invite

SenSearch: Predictive Sensor Search Engine for User-designable Performance of Micro-pyramidal E-skin

Haicheng Yao, Weidong Yang, Zhuangjian Liu and Benjamin C.K. Tee

*Department of Materials Science and Engineering, National University of Singapore,*

*Institute for Health Innovation & Technology, National University of Singapore,*

*Institute of High Performance Computing, Agency for Science, Technology and Research (A\*STAR),*

*Institute of Microelectronics, Agency for Science, Technology and Research (A\*STAR)*

[S1-P-28:](#) (1407) Invite

Online Maximum Likelihood State Tracking via Stochastic Gradient Descent for Mapless Localisation

Li Zhikai and Marcelo H. Ang

*Department of Mechanical Engineering, National University of Singapore*

[S1-P-29:](#) (1410) Invite

Information Provision and Congestion Pricing in Risky Road Networks with Heterogeneous Travelers

Yang Liu and Zhenyu Yang

*Department of Civil and Environmental Engineering, National University of Singapore,*

*Department of Industrial Systems Engineering and Management, National University of Singapore*

[S1-P-30:](#) (1412) Invite

One-step Solvothermal Synthesis of  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> Nanocrystals

K. Takezawa and S. Takami

*Graduate School of Engineering, Nagoya University*

## Joint Symposium 2

# International Symposium on Creation of Life Innovation Materials for Interdisciplinary and International Researcher Development Satellite (iLIM-s)

## Oral Presentations (S2-I)

Saturday, November 2, 11:00 – 12:00 (ES021)

Chair: Masakuni OZAWA (Nagoya Univ.)

Takao HANAWA (Tokyo Dental Univ.)

[S2-I-1:](#) (1269) Invite

Wet-chemical synthesis of non-layer 2D materials and its applications

Eisuke Yamamoto, Makoto Kabayashi and Minoru Osada

*IMaSS, Nagoya University*

[S2-I-2:](#) (1329) Invite

Point Arc Remote Plasma Chemical Vapor Deposition for High Quality Single Crystal Diamond Selective Growth

W. Fei, M. Inaba, H. Hoshino, I. Tsuyusaki, S. Kawai, M. Iwataki and H. Kawarada

*School of Science and Engineering, Waseda University,*

*Institute of Materials and Systems for Sustainability, Nagoya University*

*Kagami Memorial Laboratory for Materials Science and Technology, Waseda University*

[S2-I-3:](#) (1260) Invite

Development of advanced control technology of plasma-MIG process and application to dissimilar joining

Seong Min HONG, Shinichi TASHIRO, Mamat Bin SARIZAM, Manabu TANAKA and Yuichiro KOIMUZMI

*Osaka University*

*University Malaysia Kelantan*

Joint Symposia

[S2-I-4:](#) (1258) Invite

Prediction of Material Properties from First Principles and Machine Learning

Akira Takahashi, Yu Kumagai, Jun Miyamoto and Fumiyasu Oba

*Tokyo Institute of Technology*

## Oral Presentations (S2-II)

Saturday, November 2, 14:00 – 16:00 (ES021)

Chair: Yutaka MAJIMA (Tokyo Institute on Technology)  
Yuichi SETSUHARA (Osaka Univ.)  
Hiroshi KAWARADA (Waseda Univ.)  
Hidemi KATO (Tohoku Univ.)

[S2-II-1:](#) (1018) Invite

Comparison of Antibacterial Property of Ag, Cu, Zn and Ga Incorporated to Ti Surface

Masaya Shimabukuro, Yusuke Tsutsumi, Kosuke Nozaki, Peng Chen and Takao Hanawa  
*Tokyo Medical and Dental University, Graduate School of Medical and Dental Sciences,  
Tokyo Medical and Dental University, Institute of Biomaterials and Bioengineering  
Research Center for Structural Materials, National Institute for Materials Science*

[S2-II-2:](#) (1251) Invite

The effect of cryogenic thermal cyclic processing on the mechanical properties of TiNi based crystalline/amorphous alloy

Jing Jiang, Hidemi Kato and Dmitri V. Louzguine  
*Institute for Materials Research, Tohoku University  
Advanced Institute for Materials Research, Tohoku University*

[S2-II-3:](#) (1233) Invite

Catalytic Property of Composite Catalysts derived from ZrPd-based Metallic Glass

Masatomo Hattori, Naoya Katsuragawa, Atsuhiko Masuda, Shinichi Yamaura, Hidemi Kato, and Masakuni Ozawa  
*Institute of Material and Systems for Sustainability, Nagoya University  
Department of Materials Science and Engineering, Graduate School of Engineering, Nagoya University,  
Polytechnic University  
Institute for Materials Research, Tohoku University*

[S2-II-4:](#) (1284) Invite

Evolution of porous structure and unique orientation relationships during liquid metal dealloying from FCC precursor to BCC ligament

Soo-Hyun Joo and Hidemi Kato  
*Institute for Materials Research, Tohoku University*

## Joint Symposia

### [S2-II-5:](#) (1306) Invite

Functional thin film deposition using plasma-assisted reactive process

Kosuke Takenaka, Hiroyuki Hirayama, Yuichi Setsuhara, Keisuke Ide and Toshio Kamiya

*Joining and Welding Research Institute, Osaka University,*

*Laboratory for Materials and Structures, Tokyo Institute of Technology*

### [S2-II-6:](#) (1027) Invite

Regulation of Stem Cell Behaviors by Titanium with Multiscaled Topography Surface Design using Femtosecond Laser

P. Chen and T. Hanawa

*Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University*

### [S2-II-7:](#) (1328) Invite

High Power Density Silicon Thermoelectric Generator - Optimum Design Toward Large-scale Integration

Motohiro Tomita, Kaito Oda, Takashi Matsukawa, Takeo Matsuki and Takanobu Watanabe

*Faculty of Science and Engineering, Waseda University*

*National Institute of Advanced Industrial Science and Technology (AIST)*

### [S2-II-8:](#) (1101) Invite

Kappa-alumina-type structured multiferroics

Shintaro Yasui, Tsukasa Katayama, Yosuke Hamasaki, Takahisa Shiraishi, Akihiro Akama, Takenori Kiguchi, Ayako Konishi, Hiroki Moriwake and Mitsuru Itoh

*Laboratory for Materials and Structures, Tokyo Institute of Technology*

*Department of Chemistry, University of Tokyo*

*Department of Applied Physics, National Defense Academy of Japan*

*Institute of Materials Research, Tohoku University*

*Nanostructures Research Laboratory, Japan Fine Ceramics Center*

## Poster Presentations (S2-P)

Saturday, November 2, 13:00 – 14:00 (ES entrance hall)

[S2-P-1:](#) (1001)

The effect of sulfonated polyrotaxane surfaces on hepatic responses

Yoshinori Arisaka and Nobuhiko Yui

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[S2-P-2:](#) (1010)

Development of an immunomodulatory biomaterial for cancer treatment

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*Department of Bioscience and Engineering, Shibaura Institute of Technology*

[S2-P-3:](#) (1019)

Optimization of Ag Concentration on Ti Surface for Realizing Dual Function

Masaya Shimabukuro, Yusuke Tsutsumi, Kosuke Nozaki, Peng Chen and Takao Hanawa

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[S2-P-4:](#) (1028)

Calcification Promotion of Preosteoblast by Titanium with Chessboard-patterned Nano Surface Topography Produced with Femtosecond Laser Irradiation

P. Chen, N. Shinohara, T. Shinonaga, M. Tsukamoto, Y. Tsutsumi and T. Hanawa

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*Faculty of Engineering, Okayama University*

*Tokyo Medical and Dental University (Present: National Institute for Materials Science)*

[S2-P-5:](#) (1029)

Mechanical Property Improvement of AuCuAl Biomedical Superelastic Alloys Containing  $\alpha$  Phase

A. Umise, K. Yamji, K. Goto, M. Tahara, H. Kanetaka, T. Hanawa and H. Hosoda

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[S2-P-6:](#) (1041)

Compositional Dependence of Spin Orbit Torques in SiN/GdFeCo/Ta films

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[S2-P-7:](#) (1053)

Electrodeposition of GaN Film in Aqueous Solution

Jaewook Kang, Kensuke Kuroda and Masazumi Okido

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[S2-P-8:](#) (1054)

Electrochemical behavior of the less noble metal salts in an aprotic polar solvent

Sangjae Kim, Kenta Kamebuchi, Kensuke Kuroda and Masazumi Okido

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[S2-P-9:](#) (1080)

Ibuprofen Adsorptivity of Surface Modified Titanium and Its Biological Response

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[S2-P-10:](#) (1085)

Surface Modification to Polyethylene for the Antifouling Application in Seawater

Futoshi Tanaka, Osamu Terakado, Chiharu Nakazono, Kensuke Kuroda and Masazumi Okido

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*Institute of Materials and Systems for Sustainability, Nagoya University*

[S2-P-11:](#) (1092)

Fractional analytical procedure for adsorbed proteins onto a material surface

Naofumi Ohtsu, Takuya Kawakami, Yusuke Konaka, and Kensuke Kuroda

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[S2-P-12:](#) (1093)

Formation of isothermal  $\alpha''$  phase in Ti-Mo base biomedical shape memory alloy

K. Hasunuma, A. Umise, M. Tahara, H. Kanetaka and H. Hosoda

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[S2-P-13:](#) (1094)

Effect of Bi addition on phase constitution and mechanical properties of Ti-Cr base shape memory alloy

Kenta Hayashi, Masaya Iwasaki, Akira Umise, Masaki Tahara, Hiroyasu Kanetaka and Hideki Hosoda

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[S2-P-14:](#) (1109)

Development of Novel Biomedical High Entropy Alloys

Weicheng Heng, Daixiu Wei, Hedimi Kota and Akihiko Chiba

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*Graduate School of Engineering, Tohoku University*

[S2-P-15:](#) (1117)

Surface Modification of Polymer Materials and Their Protein and Ion Adsorptivity

Chiharu Nakazono, Kensuke Kuroda, Masazumi Okido, Futoshi Tanaka and Osamu Terakado

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[S2-P-16:](#) (1138)

Fabrication of Hydrophilic Surface on Magnesium Alloy by Hydrothermal Technique to Improve Corrosion Resistance

L. Zhu, C. Peng, K. Kuroda and M. Okido

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*Institutes of Materials and Systems for Sustainability, Nagoya University*

[S2-P-17:](#) (1144)

Antibacterial Properties of Ti Surface Using Metallic Ions Adsorption

Ryota Kuroda, Kensuke Kuroda, Masazumi Okido, Kaho Yamaguchi and Naofumi Ohtsu

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[S2-P-18:](#) (1163)

Surface characteristics and Ni ion release behavior of anodized NiTi alloy surface using the mixed electrolyte comprising HNO<sub>3</sub> and H<sub>3</sub>PO<sub>4</sub>

Kako Yamasaki, Kodai Takiguchi, Shiori Komai and Naofumi Ohtsu

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[S2-P-19:](#) (1172)

Thermoelectric properties of silicon germanium wires with a composition gradient

M. Nakata, O. Nakatsuka, M. Tomita, T. Watanabe and M. kurosawa

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*Waseda University, IAR, Nagoya University, JST-PRESTO*

[S2-P-20:](#) (1173)

Infarct Region was Attenuated by Local Injection of Hydroxyapatite Electret in Murine Myocardial Infarction Model

R. Chiba, H. Komuro, K. Abe, M. Yamazoe, K. Ihara, Y. Soejima, M. Sawabe, T. Furukawa, A. Nagai and T. Sasano

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[S2-P-21:](#) (1182)

Crystal Growth and Magneto-transport Properties of  $\text{CrTi}_2\text{Te}_4$

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*Department of Applied Physics, Nagoya University*

[S2-P-22:](#) (1184)

Crystal Growth and Characterization of a Room-temperature Half-metal  $\text{Co}_2\text{TiSn}$

K. Koyanagi, M. Murase and T. Sasagawa

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[S2-P-23:](#) (1189)

The mechanism of cellular uptake of HAp nanoparticles for targeted gene delivery to cardiomyocytes

Hiroaki Komuro, Kosuke Nozaki, Masahiro Yamazoe, Tetsushi Furukawa, Tetsuo Sasano and Akiko Nagai

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*Medical Research Institute, Tokyo Medical and Dental University*

*School of Dentistry, Aichi Gakuin University*

[S2-P-24:](#) (1193)

Phase control of the plasma-nitrided SUS316 surface by  $\text{N}_2$  and  $\text{H}_2$  gas mixture ratio

Koyo Miura, Misao Yamane, Yohei Sakuraba and Naofumi Ohtsu

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*Hokkaido Research Organization*

[S2-P-25:](#) (1229)

Isotropic and Anisotropic Crystalline Growth of Magnetite Nanostructures in Polyols

Hiroya Abe, Shinya Yamanaka and Minoru Osada

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[S2-P-26:](#) (1234)

Deposition of ceria nanoparticle on single crystal substrate and nano device

Rintaro Kawai, Ryo Kashima, Masatomo Hattori and Masakuni Ozawa

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*IMaSS, Nagoya University*

[S2-P-27:](#) (1235)

Catalytic Property of Deposited Ceria-Zirconia Nanoparticle on Single Crystal Substrate

Hiroto Mikami, Takashi Hattori, Masatomo Hattori and Masakuni Ozawa

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[S2-P-28:](#) (1236)

Preparation and catalytic property of platinum-doped CeO<sub>2</sub>-ZrO<sub>2</sub> nanoparticle catalyst

Kosuke Imamura, Masatomo Hattori and Masakuni Ozawa

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[S2-P-29:](#) (1237)

Preparation and catalytic property of M (M= Fe, Mn) doped alumina composite catalyst

Yuhei Kondo, Masatomo Hattori and Masakuni Ozawa

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[S2-P-30:](#) (1238)

Preparation and catalytic property of Cu doped alumina Composite catalyst

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[S2-P-31:](#) (1244)

Removal of Antibiotics Using Magnetic BEA Zeolite Prepared by Dry-Gel Conversion

Takaaki Sakashita, Supinya Nijpanich, Masatake Hiraiwa, Takeshi Hagio, Yuki Kamimoto and Ryoichi Ichino

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*Global Research Institute for Mobility in Society, Institutes of Innovation for Future Society, Nagoya University*

[S2-P-32:](#) (1246)

Recovery of Phosphorus Using Magnetic Layered Double Hydroxide

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[S2-P-33:](#) (1250)

Low-temperature fabrication of phosphor thin-film and light emitting device using amorphous oxide semiconductor

Keisuke Ide, Naoto Watanabe, Takayoshi Katase, Hidenori Hiramatsu, Hideo Hosono and Toshio Kamiya

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*Materials Research Center for Element Strategy, Tokyo Institute of Technology*

*PRESTO, Japan Science and Technology Agency*

[S2-P-34:](#) (1252)

Thermal transport study on some metal insulator transition materials

Suguru Kitani, Kenta Hashimoto and Hitoshi Kawaji

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[S2-P-35:](#) (1254)

Synthesis of Tailor-Made Ceramic Nanocrystals by Organic Ligand-Assisted Hydrothermal Method towards Environmental and Energy Applications

Satoshi Ohara and Masakuni Ozawa

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*Institute of Materials and Systems for Sustainability, Nagoya University*

[S2-P-36:](#) (1255)

Collection and Dechlorination of Hexachlorobenzene in Water Using Cu/Fe Bimetal Particles Supported on Admicelles

Hiroaki Matsumiya and Hiroto Tanaka

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*Department of Chemical Systems Engineering, Graduate School of Engineering, Nagoya University*

[S2-P-37:](#) (1256)

Weld Toe Modification using Friction Stir Processing for Fatigue Strength Improvement of High-Strength Low-Alloy Steel Joints

Hajime Yamamoto, Yoshikazu Danno, Kazuhiro Ito, Yoshiki Mikami and Hidetoshi Fujii

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[S2-P-38:](#) (1257)

Functional epitaxial graphene grown by thermal decomposition of carbide materials

Wataru Norimatsu and Michiko Kusunoki

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[S2-P-39:](#) (1268)

Oxidation Behavior of Cr and Al-alloyed MoSiBTi<sub>2</sub>C alloys

Xi Nan, Tomotaka Hatakeyama and Kyosuke Yoshimi

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[S2-P-40:](#) (1275)

Preparation of nanoporous tungsten by liquid metal dealloying

Gerelmaa Khuchitbaatar and Hidemi Kato

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*Institute for Materials Research, Tohoku University*

[S2-P-41:](#) (1280)

High performance oxide thin-film transistors fabricated by a total nano-rheology printing (nRP) method

Phan Trong Tue, Kazuhiro Fukuda, Jinwang Li and Tatsuya Shimoda

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*School of Materials Science, Japan Advanced Institute of Science and Technology*

[S2-P-42:](#) (1299)

Gigantic Dielectric Responses in Perovskite Nanosheets

T. Sakuraba, E. Yamamoto, M. Kobayashi and M. Osada

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*IMaSS, Nagoya University*

[S2-P-43:](#) (1300)

Atomically Defined Templates for Growth of CeO<sub>2</sub> Nanosheets

Kohei Hayashi, Eisuke Yamamoto, Makoto Kobayashi and Minoru Osada

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*IMaSS, Nagoya University*

[S2-P-44:](#) (1309)

Formation of amorphous oxide thin films using plasma-assisted reactive sputter deposition

H. Hirayama, K. Takenaka and Y. Setsuhara

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[S2-P-45:](#) (1310)

Photoligation based RNA quantification system for high throughput and bias- less transcriptome analysis

M. Y okomori, M. Tagawa, S. Harada, T. Ujihara and A. Suyama

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*Department of Life Sciences, Graduate School of Arts and Sciences, The University of Tokyo*

[S2-P-46:](#) (1330)

Nitrogen-terminated Diamond Electrolyte Solution-Gate FET for pH Sensing in Both Acidic and Alkaline Solutions

Y.H. Chang, S. Falina, S. Kawai, Y. Iyama, M. Syamsul, Y. Shintani and H. Kwarada

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*Kagami Memorial Research Institute for Materials Science and Technology*

[S2-P-47:](#) (1331)

Diamond Cascode Application for p-FET Diamond n-FET GaN Half-Bridge Complementary Inverter

T. Bi, T. Kudo, A. Yamamoto, T. Yabe, K. Horikawa, T. Sasaki, A. Hiraiwa and H. Kwarada

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*Research Organization for Nano & Life Innovation, Waseda University*

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[S2-P-48:](#) (1336)

3.8 W/mm RF Power Density for ALD Al<sub>2</sub>O<sub>3</sub>-Based 2DHG Diamond MOSFETs for Complementary Power Circuit

Shoichiro Imanishi, Ken Kudara, Kiyotaka Horikawa, Atsushi Hiraiwa and Hiroshi Kwarada

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[S2-P-49:](#) (1361)

Preparation of silver/zirconia catalyst for effective soot oxidation

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## Joint Symposium 3

# Energy System Symposium on Emerging Technologies for Next Generation Electric Power Systems

### Oral Presentation (S3-I)

Saturday, November 2, 14:00 – 16:45 (ES025)

Chair: Muneaki KURIMOTO (Nagoya Univ.)

[S3-I-1:](#) Invite

Nano-Scale Evaluation of Functional Devices by In Situ Transmission Electron Microscopy

Kazuo Yamamoto, Yuki Nomura, Satoshi Anada and Tsukasa Hirayama

*Nanostructures Research Laboratory, Japan Fine Ceramics Center*

*Technology Innovation Division, Panasonic Corporation*

*Department of crystalline materials Science, Nagoya University*

*Institute of Materials and Systems for Sustainability, Nagoya University*

[S3-I-2:](#) Invite

Development of Nondestructive Evaluation of Electric Apparatus Using Terahertz Waves

Norikazu Fuse

*Electric Power Engineering Research Lab., Central Research Institute of Electric Power Industry*

[S3-I-3:](#) Invite

Perspectives on First Principles and Machine Learning Aided Dielectric Materials Design

Masahiro Sato, Akiko Kumada and Kunihiko Hidaka

*Research Center for Advanced Science and Technology, The University of Tokyo,*

*Department of Electrical Engineering and Information Systems, The University of Tokyo*

[S3-I-4:](#) Invite

Wind ramp forecasts ~ NEDO R&D project on grid integration of variable renewable energy “Mitigation technologies on output fluctuations of renewable energy generations in power grid”~

Chiyori T. Urabe and Kazuhiko Ogimoto

*Institute of Industrial Science, The University of Tokyo*

[S3-I-5:](#) Invite

TBA

Takashi IKEGAMI

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