# **Abstract and Information**



May 26 - 28, 2022 Suzukakedai Campus Tokyo Institute of Technology Yokohama, Japan









# 12th International Symposium on Organic Molecular Electronics (ISOME 2022)

May 26 - 28, 2022 Suzukakedai Campus, Tokyo Institute of Technology Yokohama, Japan

### Organized by

Technical Committee on Organic Molecular Electronics, Electronics Society of The Institute of Electronics, Information, and Communication Engineers (IEICE) **Sponsored by** 

- Electronics Society of The Institute of Electronics, Information, and Communication Engineers (IEICE)
- Daiko Foundation
- · The Murata Science Foundation

### In cooperation with

- · Technical Committee on Dielectric and Electrical Insulation Materials, The Institute of Electrical Engineers of Japan (IEEJ)
- · The Japan Society of Applied Physics (JSAP)
- · Laboratory for Materials & Structures, Institute of Innovative Research, Tokyo Institute of Technology

### **Preface**

I am very happy to welcome you to the 12th International Symposium on Organic Molecular Electronics (ISOME2022) being held from May 26 to 28, 2022 at Tokyo Institute of Technology, Suzukakedai Campus in Yokohama, Japan. For COVID-19, ISOME2022 is held in the hybrid meeting, however, we hope to welcome many of you on site. ISOME2022 is The ISOME is organized by the Technical Committee on Organic Molecular Electronics (OME), the Electronics Society (ES) of Institute of Electronics, Information and Communication Engineers (IEICE). This is the 12th in a series of the biennial conference that began in Nagoya University in 2000, continued in Riken (Saitama), Kyoto University (Kyoto), Saitama University (Saitama), University of Hyogo (Hyogo), Chiba University (Chiba), NTT Musashino R&D Center (Tokyo), Tokyo University of Agriculture and Technology (TUAT, Tokyo), Niigata University (Niigata), Sun Messe Tosu (Saga), Aichi Institute of Technology (Aichi), and this Tokyo Institute of Technology (Kanagawa).

On behalf of the organizing committee, I would like to express our sincere thanks to three plenary lecturers of Prof. Hiroaki Usui (TUAT), Prof. Gyoujin Cho (SKKU), and Prof. Ali Javey (UC Berkeley) and nine invited speakers. This symposium has been the most important international conference of IEICE in the field of organic electronics, and has formed landmarks along the developments at academic and the technological progresses in this field. Although the size of symposium is moderate, the active discussions among the leading scientists from diverse background nourish innovative and interdisciplinary concepts that can lead to breakthrough inaccessible by the conventional technology. We strongly believe that this symposium enhances your researches for upcoming years and provides you with invaluable experiences. We also hope that research interchange advances more and more through this symposium. Authors at ISOME 2022 are encouraged to submit original contributed papers on the significant part of their work to the Special Section on "Recent Progress in Organic Molecular Electronics" in the IEICE Transactions on Electronics, to be published in June 2023.

This symposium is sponsored by IEICE, The Murata Science Foundation, and Daiko Foundation, is in corporation with The Japan Society of Applied Physics (JSAP), Technical Committee on Dielectric and Electrical Insulation Materials, The Institute of Electrical Engineers of Japan (IEEJ), and Laboratory for Materials & Structures (MSL), Institute of Innovative Research (IIR), Tokyo Institute of Technology. I would like to express my sincere appreciation to all the committee members. The organizing committee expresses sincere thanks to all the participants who we owe the success of this symposium. Finally, we hope you enjoy the symposium and take full opportunity to explore Yokohama City.

May 26, 2022 Chair: Yutaka Majima Tokyo Institute of Technology

### **ISOME2022 Organizing Committee**

**Chair** Yutaka Majima (Tokyo Tech)

Vice Chairs Toshiki Yamada (NICT)

Eiji Itoh (Shinshu Univ.)

Members Takashi Amemiya (Yokohama Nat. Univ.)

Yusuke Aoki (Mie Univ.)

Takeshi Fukuda (Sekisui Chemical CO., LTD)

Morihiro Saito (Seikei Univ.) Masatoshi Sakai (Chiba Univ.) Koichi Sakaguchi (Saga Univ.)

Toshihiro Shimada (Hokkaido Univ.)

Hidenobu Shiroishi (Tokyo Nat. Col. Technol.)

Okihiro Sugihara (Utsunomiya Univ.)

Yasushi Sobajima (Gifu Univ.)

Yoko Tatewaki (Tokyo Univ. Agricul. & Technol.)

Kazuya Tada (Univ. of Hyogo) Yumi Tanaka (Tokyo Univ. of Sci.)

Yuko Ueno (Chuo Univ.)

**Advisors** Mitsumasa Iwamoto (Tokyo Tech)

Keizo Kato (Niigata Univ.) Kazuhiro Kudo (Chiba Univ.) Tohru Maruno (NTT-AT CR)

Naoki Matsuda (AIST)

Tatsuo Mori (Aichi Inst. Technol.) Yutaka Ohmori (Osaka Univ.) Mitsuyoshi Onoda (Univ. Hyogo)

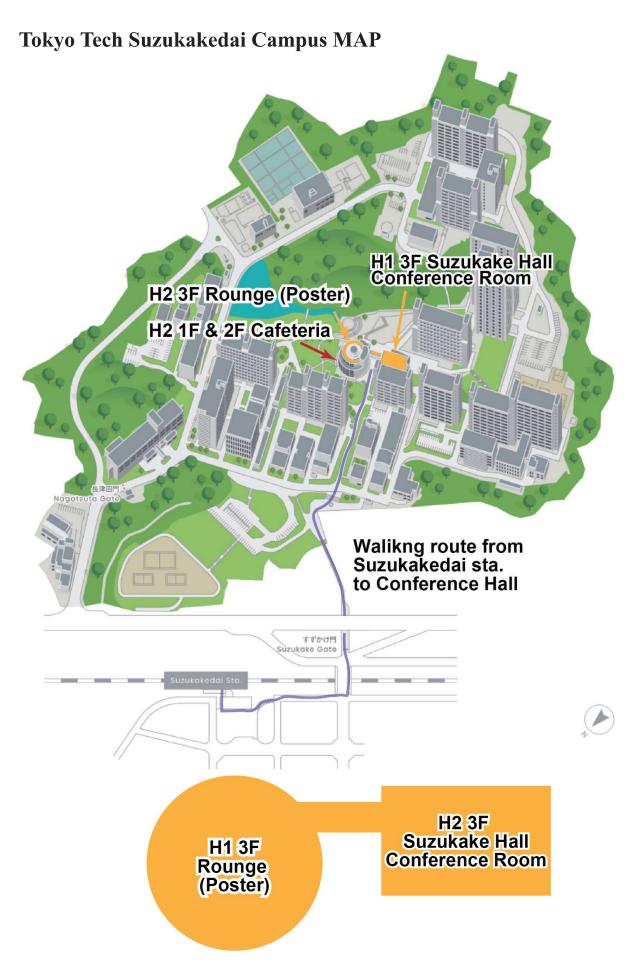
Hiroyuki Sasabe (Chitose Inst. Sci. & Technol.) Hiroaki Usui (Tokyo Univ. Agricul. & Technol.) Katsumi Yoshino (Shimane Inst. Indus. Technol.)

Secretariat Toshihiko Kaji (Tokyo Univ. Agricul. & Technol.)

Hirotake Kajii (Osaka Univ.)

Yoshiyuki Seike (Aichi Inst. Technol.)

Akira Baba (Niigata Univ.) Dai Taguchi (Tokyo Tech)



Conference Room and Poster Room, H1 and H2 Bldgs.

### **General Information**

### **Scopes and Topics**

The symposium covers various aspects of organic materials that are related to electronic applications, including insulators, semiconductors, conductors, optic materials, magnetic materials, and biomaterials. Their applications extend to such fields as transistors, memories, displays, photovoltaics, optical devices, energy devices, sensors, actuators, and bioelectronics. The topics related to basic physics and chemistry, material development, process technologies, devices and applications are covered in this symposium. The ISOME 2022 aims to bring up new buds on the research of these issues.

### **Date and Venue**

Date: May 26 - May 28, 2022

Venue: Suzukakedai Campus, Tokyo Institute of Technology & Zoom (4259 Nagatsuta-cho, Midori-ku, Yokohama, Japan 226-8503)

### Registration

Registration fee is (regular)20,000JPY, (student)10,000JPY-

### **Submission to IEICE Transactions on Electronics**

The authors of accepted papers will also be requested to submit manuscripts for the special section of IEICE Transactions on Electronics by June 1, 2022. The special section is scheduled to appear in the issue published in June, 2023. The paper must be either Full Paper (standard 8 printed pages) or Brief Paper (up to 4 printed pages). The manuscript must be prepared according to Information for Authors, IEICE Transactions on Electronics.

### **Information for Presentation**

For Oral Presentation

Plenary Speakers: 40 minutes (including discussion) Invited Speakers: 25 minutes (including discussion) Oral Presentation: 15 minutes (including discussion)

For Poster Presentation

Short Presentation: 1 minute + Poster Session: 120 minutes

### Contact

Website https://www.ieice.org/~ome/ISOME/Welcome.html

Email info isome2022@nanoele.msl.titech.ac.jp

### **ISOME2022** Schedule

	May 26 (Thursday)	May 27 (Friday)	May 28 (Saturday)
	Registration (11:30-18:00)	Registration (9:00-16:30)	Registration (9:00-11:00)
		Plenary Lecture 1 (9:30-10:10)	Plenary Lecture 3 (9:30-10:10)
		PL-1 <i>A Javey</i>	PL-3 H Usui
		Session 4 (10:10-10:50)	Session 10 (10:10-10:50)
Morning		(Invited) IL-04 <i>J Kim</i> O-05 <i>Y Seike</i> break Session 5 (11:05-12:00)	(Invited) IL-09 S Yokokura O-14 R D Wulandari break Session 11 (11:05-11:50)
		(Invited) IL-05 T Matsushima O-06 M Sakai O-07 D Yin	O-15 K Tada O-16 A Tomioka O-17 T Yamada
		<b>Lunch</b> 12:00-13:00	Closing Ceremony (11:50-12:10) T Yamada
	Opening Remarks (13:00)	Plenary Lecture 2 (13:00-13:40)	
Afternoon	Y Majima  Session 1 (13:10-14:30)  (Invited) IL-01 C-L Liu O-01 T Kaji (Invited) IL-02 S Izawa O-02 H Kajii  break 14:30-14:45  Session 2 (14:45-15:40)  (Invited) IL-03 Y Tanaka O-03 Ichiro Imae O-04 D Taguchi  Break (ZOOM photo session) (15:40-15:55)	PL-2 G Cho  Session 6 (13:40-14:35) O-08 K Sakaguchi (Invited) IL-06 J Harada O-09 Z Sun  break 14:35-14:50  Session 7 (14:50-15:45) (Invited) IL-07 T Naito O-10 W Jaikeandee O-11 M Yang  Break 15:45-16:00  Session 8 (16:00-16:55) (Invited) IL-08 E D Głowacki O-12 R Nagamura	
Evening	Short presentation (16:00-16:50)	O-13 G Ohkatsu	
	Poster Session (17:00-19:00)		

# **ISOME 2022 Program**

### May 26 (Thursday)

**Registration 11:30-18:00** 

**Opening Remarks (13:00)** 

**13:00-13:10** Welcome Address

Conference Chair Yutaka Majima (Tokyo Institute of Technology, Japan)

Session 1 (13:10-14:30)

Chairperson: Tatsuo Mori (Aichi Inst. Technol.) Yoshiyuki Seike (Aichi Inst. Technol.)

13:10-13:35 IL-01 (Invited) Spray-Coating Process for Perovskite Solar Cells Application <a href="#">Cheng-Liang Liu</a>

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

13:35-13:50 O-01 Ambipolarity of organic photovoltaic cell materials

Toshihiko Kaji, and Ryota Tsuji

Department of Applied Physics, Tokyo University of Agriculture and Technology, Japan

13:50-14:15 IL-02 (Invited) Efficient Interfacial Upconversion Emission in Organic Semiconductor Devices

Seiichiro Izawa

Institute for Molecular Science, Japan

14:15-14:30 O-02 Ferroelectric Properties of Dielectric Film Mirrors Utilizing Poly(vinylidene fluoride) Derivatives and Their Applications of AC-driven Insulated Organic Electroluminescence Devices

<u>Hirotake Kajii</u>, Yuto Takayama, Masato Morifuji, and Masahiko Kondow Graduate School of Engineering, Osaka University, Japan

**Break** (14:30-14:45)

### Session 2 (14:45-15:40)

Chairperson: Dai Taguchi (Tokyo Tech) Hirotake Kajii (Osaka Univ.)

# 14:45-15:10 IL-03 (Invited) Electric generator by using chemical stimulation of electrocyte column

### Yo Tanaka

Laboratory for Integrated Biodevice, Center for Biosystems Dynamics Research (BDR), RIKEN, Japan

15:10-15:25 O-03 Thermoelectric properties of PEDOT:PSS modified with ionic liquids

<u>Ichiro Imae</u>, Hiroki Uehara, Keiichi Imato, and Yousuke Ooyama Department of Applied Chemistry, Graduate School of Advanced Science and Engineering, Hiroshima University, Japan

15:25-15:40 O-04 Activating dipolar-energy-based triboelectric power generation using pyromellitic dianhydride-4,4'-oxydianiline polyimide at elevated temperature

<u>Dai Taguchi</u>, Takaaki Manaka, and Mitsumasa Iwamoto *Tokyo Institute of Technology, Japan* 

Break (Zoom Photo Session) (15:40-15:55)

**Short Presentation** (16:00-16:50)

Chairperson: Toshihiko Kaji (Tokyo Univ. Agricul. & Technol.)

\*The order of short presentations will be announced after the presenters have confirmed how they will present (onsite or online).

Poster Session (17:00-19:00)

<sup>\*</sup>Please see the poster program on the later pages from P.12.

### May 27 (Friday)

**Registration 9:00-16:30** 

**Plenary Lecture 1** (9:30-10:10)

Chairperson: Yutaka Majima (Tokyo Tech)

9:30-10:10 PL-01 Making Semiconductor Monolayers Perfectly Bright

Ali Javev

Electrical Engineering and Computer Sciences, University of California, Berkeley, USA

**Session 4** (10:10-10:50)

Chairperson: Kazuya Tada (Univ. of Hyogo)

10:10-10:35 IL-04 (Invited) Advantages of using Amorphous Oxide Semiconductors for Organic Electronics

Junghwan Kim, and Hideo Hosono

Materials Research Center for Element Strategy, Tokyo Institute of Technology, Japan

10:35-10:50 O-05 Effects of Potassium Doping on the Active Layer of Inverse-structured Perovskite Solar Cells

Tatsuya Kato, Yusuke Ichino, Tatsuo Mori, and Yoshiyuki Seike

Graduate School of Engineering, Aichi Institute of Technology, Japan

Break (10:50-11:05)

**Session 5** (11:05-12:00)

Chairperson: Akira Baba (Niigata Univ.)

11:05-11:30 IL-05 (Invited) Optically pumped lasing from metal halide perovskite films Toshinori Matsushima, and Chihaya Adachi

International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Japan

11:30-11:45 O-06 Time-Resolved Observation of Organic Light Emitting Diode

by Extended Time Domain Reflectometry

Weisong Liao, Satoshi Kaino, Tomoaki Mashiko, Ryota Mukasa, Tomohiro Kobayashi, Masatoshi Sakai, and Kazuhiro Kudo

Department of Electrical and Electronic Engineering, Chiba University, Japan

11:45-12:00 O-07 (Student Oral) Single-molecule transistor based on carbon-bridged oligo(phenylenevinylene) (COPV2)

Dongbao Yin, Ruicong Yu, Fu Ishizuka, and Yutaka Majima

Laboratory for Materials and Structures, Tokyo Institute of Technology, Japan

Lunch (12:00-13:00)

Plenary Lecture 2 (13:00-13:40)

Chairperson: Yutaka Majima (Tokyo Tech)

13:00-13:40 PL-02 Green Foundry for Flexible Electronics and Bioelectronics Sajjan Parajuli<sup>1,3\*</sup>, Younsu Jung<sup>1,2,3</sup>, Sagar Shrestha<sup>1,3</sup>, Hao Yang<sup>1,3</sup>, Jinhwa Park<sup>1,3</sup>, Chan Yeop Ahn<sup>3,4</sup>, SoYoung Kim<sup>3,4</sup>, Taik-Min Lee<sup>3,5</sup>, Changwoo Lee<sup>3,6</sup>, Jinkee Lee<sup>3,7</sup>, and <u>Gyoujin Cho</u><sup>1,2,3</sup>

Session 6 (13:40-14:35)

Chairperson: Toshihiro Shimada (Hokkaido Univ.)

13:40-13:55 O-08 Fabrication of Printed Carbon Electrodes using Hydrophilic Graphite Oxide Ayaka Hirata, Sho Morita, Haruto Shibata, Daiki Matsuo, Asami Ohtake, and Koichi Sakaguchi

Department of chemistry and applied chemistry, Saga University, Japan

13:55-14:20 IL-06 (Invited) Development of Plastic/Ferroelectric Ionic Molecular Crystals Jun Harada

Department of Chemistry, Faculty of Science, Hokkaido University, Japan

14:20-14:35 O-09 (Student Oral) Demonstration of Ferroelectricity of YHO7 Thin Films through Piezoelectric Force Microscopy

Zhongzheng Sun, Shurong Miao, Hiroshi Funakubo, and Yutaka Majima Laboratory for Materials and Structures, Tokyo Institute of Technology, Japan

**Break** (14:35-14:50)

<sup>&</sup>lt;sup>1</sup>Department of Biophysics, Sungkyunkwan University, South Korea

<sup>&</sup>lt;sup>2</sup>Institute of Quantum Biophysics, Sungkyunkwan University, South Korea

<sup>&</sup>lt;sup>3</sup>Research Engineering Center for R2R Printed Flexible Computer and Department of Intelligent Precision Healthcare Convergence, Sungkyunkwan University, South Korea

<sup>&</sup>lt;sup>4</sup>College of Information and Communication Engineering, Sungkyunkwan University, South Korea

<sup>&</sup>lt;sup>5</sup>Department of Printed Electronics, Korea Institute of Machinery and Materials (KIMM), South Korea

<sup>&</sup>lt;sup>6</sup>Department of Mechanical Engineering, Konkuk University, South Korea

<sup>&</sup>lt;sup>7</sup>Department of Mechanical Engineering, Sungkyunkwan University, South Korea

Chairperson: Toshihiro Shimada (Hokkaido Univ.)

# 14:50-15:15 IL-07 (Invited) New materials for photon energy storage: unachieved technology of dreams

### Toshio Naito

Graduate School of Science and Engineering, Ehime University, Japan

15:15-15:30 O-10 (Student Oral) Fabrication of Dual-Mode Miniature Polymeric Surface Plasmon Resonance Sensor Chip

<u>Wisansaya Jaikeandee</u><sup>1</sup>, Supeera Nootchanat<sup>2</sup>, Chutiparn Lertvachirapaiboon<sup>1</sup>, Sanong ekgasit<sup>2</sup>, Kazunari Shinbo<sup>1</sup>, Keizo Kato<sup>1</sup>, and Akira Baba<sup>1</sup>

<sup>1</sup>Graduate School of Science and Technology and Faculty of Engineering, Niigata University, Japan

<sup>2</sup>Sensor Research Unit (SRU), Department of Chemistry, Faculty of Science, Chulalongkorn University, Thailand

15:30-15:45 O-11 (Student Oral) Hydrogen Gas Sensor using Palladium Nanowire Mingyue Yang, and Yutaka Majima

Institute of Innovative Research, Tokyo Institute of Technology, Japan

Break (15:45-16:00)

**Session 8** (16:00-16:55)

Chairperson: Toshihiko Kaji (Tokyo Univ. Agricul. & Technol.)

# 16:00-16:25 IL-08 (Invited) Molecular semiconductor thin films for optical stimulation of the nervous system

### Eric Daniel Głowacki

Bioelectronics Materials and Devices Laboratory, CEITEC, Brno University of Technology, Czech Republic

16:25-16:40 O-12 (Student Oral) Effect of water droplet dynamics on the output of a droplet-based electricity generator

Ryota Naganuma and Yusuke Aoki

Graduate School of Engineering, Mie University, Japan

16:40-16:55 O-13 (Student Oral) Fabrication of metal nanopore based on electro-less gold plating

Genki Ohkatsu<sup>1</sup>, He Zhikai<sup>1</sup>, Akihiro Matsutani<sup>2</sup>, and Yutaka Majima<sup>1</sup>

<sup>1</sup>Laboratory for Materials and Structures, Tokyo Institute of Technology, Japan

<sup>&</sup>lt;sup>2</sup>Open Facility Center, Tokyo Institute of Technology, Japan

### May 28 (Saturday)

Registration 9:00-11:00

Plenary Lecture 3 (9:30-10:10)

Chairperson: Toshiki Yamada (NICT)

9:30-10:10 PL-03 Vapor Deposition of Organic Thin Films Involving Chemical Reactions Hiroaki Usui

Institute of Engineering, Tokyo University of Agriculture and Technology, Japan

Session 10 (10:10-10:50)

Chairperson: Koichi Sakaguchi (Saga Univ.)

10:10-10:35 IL-09 (Invited) Fabrication of single crystals of novel organic semiconductors by naphthalene flux method and novel organic devices using interfacial polarization Seiya Yokokura<sup>1</sup>, Hirohiko Tanoguchi<sup>2</sup>, Takuma Yuki<sup>2</sup>, Taro Nagahama<sup>1</sup>, and Toshihiro Shimada<sup>1</sup>

<sup>1</sup>Division of Applied Chemistry, Faculty of Engineering, Hokkaido University, Japan

<sup>2</sup>Graduate School of Chemical Sciences and Engineering, Hokkaido University, Japan

10:35-10:50 O-14 (Student Oral) Contact Resistance at Interface of Au and PbS Colloidal Quantum Dots Assemblies

Retno D. Wulandari<sup>1,2</sup>, Ricky D. Septianto<sup>2</sup>, Yutaka Majima<sup>1</sup>, Yoshihiro Iwasa<sup>2,3</sup>, and Satria Z. Bisri<sup>1,2</sup>

<sup>1</sup>Laboratory for Materials and Structures, Tokyo Institute of Technology, Japan

<sup>2</sup>RIKEN Center for Emergent Matter Science, Japan

<sup>3</sup>Quantum Phase Electronic Center and Department of Applied Physics, The University of Tokyo, Japan

**Break** (10:50-11:05)

Session 11 (11:05-11:50)

Chairperson: Eiji Itoh (Shinshu Univ.)

11:05-11:20 O-15 Toward long and strong electroactive supercoiled polymer artificial muscles: Fabrication with constant-load springs

Kazuya Tada

Department of Electrical Materials and Engineering, University of Hyogo, Japan

11:20-11:35 O-16 Flow-assisted Homogeneous Laser Processing and Nanoparticle Fabrication from Dispersed Droplets of  $\pi$ -conjugated Organic Dyes

Akihiko Tomioka, Shoma Arai, Tatsuya Okada, and Yusuke Tate

Graduate School of Engineering, Osaka Electro-Communication University, Japan

11:35-11:50 O-17 Fabrication of free-standing films of poled EO polymers and laminated films and its applications to terahertz wave detection

<u>Toshiki Yamada</u><sup>1</sup>, Takahiro Kaji<sup>1</sup>, Chiyumi Yamada<sup>1</sup>, Akira Otomo<sup>1</sup>, Tomoya Nakanishi<sup>2</sup>, Hideyuki Tsunemori<sup>2</sup>, and Shigeki Fujimaru<sup>2</sup>

<sup>1</sup>National Institute of Information and Communications Technology, Japan

### **Closing Ceremony**

11:50-11:55 Award Ceremony

11:55-12:00 Closing Remarks

Chair of the Technical Committee on Organic Molecular Electronics, IEICE <u>Toshiki Yamada</u>

National Institute of Information and Communications Technology, Japan

<sup>&</sup>lt;sup>2</sup>TEIJIN Ltd., Japan

### **Poster Session Program**

May 26 (Thursday) Evening

Registration 11:30-18:00

Short Presentation: 16:00-16:50

Chairperson: Toshihiko Kaji (Tokyo Univ. Agricul. & Technol.)

\*The order of short presentations will be announced after the presenters have confirmed how they will present (onsite or online).

**Poster Session:** 17:00-19:00

P-01 Microneedle of biodegradable polyacid anhydride with capillary open groove for reagent transfer

Kazuki Tidaisyo, Mizuki Hata, Kosuke Yasuda, and <u>Satomitsu Imai</u>
Department of Precision Machinery Engineering, College of Science and Technology,
Nihon University, Japan

P-02 (Student) Free-Standing Nanometer-Thick Covalent Organic Framework Films Prepared via Alternating Deposition Polymerization for CO<sub>2</sub>/N<sub>2</sub> Separation Masaki Kato<sup>1</sup>, Takashi Yanase<sup>2</sup>, Seiya Yokokura<sup>3</sup>, Taro Nagahama<sup>3</sup>, and Toshihiro Shimada<sup>3</sup>

Transmit Mate, Takashi Tahase, Selya Tokokura, Tato Magahama, and Toshini Oshi

P-03 (Student) Crystal growth of organic semiconductors and simulation study of their mechanical dynamics

Yang Xiaoran, Li Mingzhe, Seiya Yokora, Taro Nagahama, and Toshihiro Shimada Graduate School of Chemical Science and Engineering, Hokkaido University, Japan Division of Applied Chemistry, Faculty of Engineering, Hokkaido University, Japan

P-04 (Student) Single Crystal Growth and Band Structure Calculation of Aromatic Hydrocarbon Molecules with Five-membered ring structures Hirohiko Tanoguchi<sup>1</sup>, Takashi Yanase<sup>2</sup>, Seiya Yokokura<sup>3</sup>, Taro Nagahama<sup>3</sup>, and Toshihiro Shimada<sup>3</sup>

P-05 (Student) Single Crystal Growth of Nitrogen-Containing Aromatic Molecules <u>Takuma Yuki</u><sup>1</sup>, Takashi Yanase<sup>2</sup>, Seiya Yokokura<sup>1</sup>, Taro Nagahama<sup>1</sup> and Toshihiro Shimada<sup>1</sup> Graduate School of Chemical Sciences and Engineering and Division of Applied Chemistry, Faculty of Engineering, Hokkaido University, Japan

P-06 Photochemical stability of organic electro-optic polymer at 1310-nm wavelength <u>Yukihiro Tominari</u>, Toshiki Yamada, Takahiro Kaji, and and Akira Otomo *Advanced ICT Research Institute*, *National Institute of Information and Communications Technology*, *Japan* 

<sup>&</sup>lt;sup>1</sup>Graduate School of Chemical Sciences and Engineering, Hokkaido University, Japan

<sup>&</sup>lt;sup>2</sup>Department of Chemistry, Faculty of Science, Toho University, Japan

<sup>&</sup>lt;sup>3</sup>Division of Applied Chemistry, Faculty of Engineering, Hokkaido University, Japan

<sup>&</sup>lt;sup>1</sup>Graduate School of Chemical Sciences and Engineering, Hokkaido University, Japan

<sup>&</sup>lt;sup>2</sup>Department of Chemistry, Faculty of Science, Toho University, Japan

<sup>&</sup>lt;sup>3</sup>Division of Applied Chemistry, Faculty of Engineering, Hokkaido University, Japan

<sup>&</sup>lt;sup>2</sup>Department of Chemistry, Faculty of Science, Toho University, Japan

# P-07 (Student) Adsorption of Diamond Nanoparticles on Self-Assembled Monolayers Ryota Koguma<sup>1</sup>, Fujio Ohishi<sup>2</sup>, and Hiroaki Usui<sup>1</sup>

<sup>1</sup>Institute of Engineering, Tokyo University of Agriculture and Technology, Japan

# P-08 (Student) Ion-Assisted Deposition Polymerization of p-Hexadecylstyrene <u>Atsushi Ohyama</u><sup>1</sup>, Yuto Kitazawa<sup>2</sup>, Satoshi Usui<sup>2</sup>, Aoba Sasaki<sup>1</sup>, and Hiroaki Usui<sup>1</sup> Institute of Engineering, Tokyo University of Agriculture and Technology, Japan

# P-09 (Student) Vapor Deposition of Fluoropolymer Thin Films for Antireflection Coating Soma Yasui<sup>1</sup>, Fujio Ohishi<sup>2</sup>, and Hiroaki Usui<sup>1</sup>

Institute of Engineering, Tokyo University of Agriculture and Technology, Japan

# P-10 (Student) Structural dependence of carrier conduction behavior of naphthyl anthracene derivatives

<u>Takaki Kudo</u><sup>1</sup>, Masahiro Morimoto<sup>2</sup>, and Shigeki Naka<sup>2</sup>

<sup>1</sup>Graduate School of Science and Engineering for Education, University of Toyama, Japan

# P-11 (Student) Synthesis and Fabrication of Nanofibers Composed of C<sub>3</sub>-Symmetric TTF Derivative and Fluorinated TCNO

<u>Hirohisa Oishi</u><sup>1</sup>, Taiga Ida<sup>1</sup>, Sadafumi Nishihara<sup>2,3</sup>, Tomoyuki Akutagawa<sup>4</sup>, Takayoshi Nakamura<sup>5</sup>, and Yoko Tatewaki<sup>1</sup>

### P-12 (Student) Fabrication and Polymerization of Nanocrystals

Composed of 10,12-Nonacosadienoic Acid

Kohei Hattori<sup>1</sup>, Sadafumi Nishihara<sup>2,3</sup>, Shuji Okada<sup>4</sup>, and Yoko Tatewaki<sup>1</sup>

# P-13 Lead bromide-based layered perovskite quantum-well films having polycyclic aromatics chromophores in organic layer

Masanao Era, Yumiko Kawaji, Masato Doi, Kazuki Ookubo, and Koji Yamamoto

Department of Chemistry and Applied Chemistry, SagaUniversity, Japan

# P-14 (Student) Demonstration of the Ferroelectricity of $\alpha$ -In $_2$ Se $_3$ Nanoflakes Through PFM Measurement

Shurong Miao, Zhongzheng Sun, and Yutaka Majima

Laboratory for Materials and Structures, Tokyo Institute of Technology, Japan

# P-15 (Student) A micropump for mounting on an internal microcapsule driven by a chemical reaction

Mizuki Ikeda, Satomitsu Imai

Department of Precision Machinery Engineering, Graduate School of Science and Technology, Nihon University, Japan

<sup>&</sup>lt;sup>2</sup>Faculty of Science, Kanagawa University, Japan

<sup>&</sup>lt;sup>2</sup>Graduate School of Science and Technology, Niigata University, Japan

<sup>&</sup>lt;sup>2</sup>Faculty of Science, Kanagawa University, Japan

<sup>&</sup>lt;sup>2</sup>Academic Assembly Faculty of Engineering, University of Toyama, Japan

<sup>&</sup>lt;sup>1</sup>Tokyo University of Agriculture and Technology, Japan

<sup>&</sup>lt;sup>2</sup>Hiroshima University, Japan

<sup>&</sup>lt;sup>3</sup>JST PRESTO, Japan

<sup>&</sup>lt;sup>4</sup>Tohoku University, Japan

<sup>&</sup>lt;sup>5</sup>Hokkaido University, Japan

<sup>&</sup>lt;sup>1</sup>Tokyo University of Agriculture and Technology, Japan

<sup>&</sup>lt;sup>2</sup>Hiroshima University, Japan

<sup>&</sup>lt;sup>3</sup>JST PRESTO, Japan

<sup>&</sup>lt;sup>4</sup>Yamagata University, Japan

P-16 (Student) Morphological Control of Cellulose Nanofibers Films by Vacuum Drying Process Nanako Hayashida, Ayaka Hirata, Sho Morita, Haruto Shibata, Asami Ohtake, and Koichi Sakaguchi

Department of Chemistry and Applied Chemistry, Saga University, Japan

P-17 (Student) Vapor Deposition of Trimethoxysilane Having Fluoroalkyl End Groups <u>Hiroki Kojima</u>, Kuniaki Tanaka, and Hiroaki Usui

Institute of Engineering, Tokyo University of Agriculture and Technology, Japan

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<u>Yotaku Nakashima</u>, Yusuke Ichino, Yoshiyuki Seike, and Tatsuo Mori *Aichi Institute of Technology, Japan* 

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<u>Fu Ishizuka</u><sup>1</sup>, Rui-cong Yu<sup>1</sup>, Takumi Nisinobo<sup>1</sup>, Dongbao Yin<sup>1</sup>, Ryo Shintani<sup>2</sup>, and Yutaka Majima<sup>1</sup>

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<sup>2</sup>Division of Chemistry, Department of Materials Engineering Science, Graduate School of Engineering Science, Osaka University, Japan

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Takumi Kobayashi<sup>1</sup>, Masahiro Minagawa<sup>2</sup>, Akira Baba<sup>1</sup>, Keizo Kato<sup>1</sup>, and Kazunari Shinbo<sup>1</sup>

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<sup>2</sup>National Institute of Technology, Nagaoka College, Japan

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Akari Nishimura, and Tsuyoshi Tsujioka\*

Osaka Kyoiku University, Japan

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Liangchen Li<sup>1</sup>, Masahiro Morimoto<sup>2</sup>, and Shigeki Naka<sup>2</sup>

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<sup>2</sup>Academic Assembly Faculty of Engineering, University of Toyama, Japan

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Department of Electrical and Computer Engineering, Shishu University, Japan

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Atsuya Yamakawa, and Satomitsu Imai

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