

7th International Symposium on Organic Molecular Electronics (ISOME2012)

*June.7~June.8, 2012, NTT Musashino R&D Center, Japan
The Electronics Society of IEICE*



Book of Abstracts

Steering Committee

Chairperson	Tohru MARUNO (NTT-AT)
Vice- Chairperson	Hiroaki USUI (TUAT) Keizo KATO (Niigata Univ.)
Advisors	Mitsumasa IWAMOTO (Tokyo Tech) Kazuhiro KUDO (Chiba Univ.) Yutaka OHMORI (Osaka Univ.) Mitsuyoshi ONODA (Univ. of Hyogo) Hiroyuki SASABE (Chitose Inst. Sci. Tech.) Katsumi YOSHINO (Shimane Inst. Industr. Tech.)
Member	Akira BABA (Niigata Univ.) Shintaro ENOMOTO (Toshiba) Takeshi FUKUDA (Saitama Univ.) Toshiaki HAYASHI (NTT) Masatoshi KIDOWAKI (Shibaura Inst. of Tech.) Akihiro KOHNO (NTT) Kyouji KOMATSU (Sendai Nat. Coll. Tech.) Takaaki MANAKA (Tokyo Tech) Akito MASUHARA (Yamagata Univ.) Tatsunosuke MATSUI (Mie Univ.) Tatsuo MORI (Aichi Inst. of Tech.) Shigeki NAKA (Toyama Univ.) Masakazu NAKAMURA (NAIST) Koichi SAKAGUCHI (Saga Univ.) Takeshi SANO (Yamagata Univ.) Kazuya TADA (Univ. of Hyogo) Kiyoshi TAKIMOTO (Canon)
Secretariat	Jiro NAKAMURA (NTT) Naoki MATSUDA (AIST) Masatoshi SAKAI (Chiba Univ.)

Organized by :

Technical Committee on Organic Molecular Electronics (OME), Electronics Society of
The Institute of Electronics, Information, and Communication Engineering (IEICE)

Supported by :

Electronics Society of IEICE

Division of Molecular Electronics and Bioelectronics, The Japanese Society of Applied
Physics

In cooperation with :

Technical Committee on Dielectric and Electrical Insulation Materials, IEEJ

Preface

Recent Progress in Organic molecular Devices

We are pleased to invite you to the 7th International Symposium on Organic Molecular Electronics ISOME2012. This is the 7th in a series of the biennial conference that begun in Nagoya University in 2000, continued in Riken (Saitama), Kyoto University, Saitama University, University of Hyogo, Chiba University, and now NTT Musashino R&D Center (Tokyo). This symposium provided a good opportunity for a wide range of researchers to meet together since the development of organic molecular electronics has been supported by different kinds of technologies.

Organic devices such as electroluminescent devices, organic thin-film-transistors, organic sensors, biological systems and so on have attracted much attention not only in the field of electronics and photonics applications but also in environmental and energy issues. The main purpose of this symposium is to provide the opportunities to researchers, who are interested in organic molecular electronics, to come together in an informal and friendly atmosphere and exchange their knowledge and experience. I am sure that this symposium is very useful and fruitful for all participants to summarize the recent progress in organic molecular electronics and prepare a new step for the next generation.

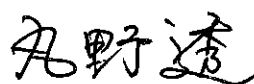
The symposium will be attended by wide range of researchers and invited speakers in organic molecular electronics as well as by contributed speakers in various fields including fabrication, evaluation, bio-electronics, sensors, displays, and so on. These researchers are very much active in the most progressive topics of organic molecular electronics which have received a great deal of attention. We expect that illuminating discussions are conducted in this symposium to stimulate future development of this field.

I would like to express my sincere thanks to the organizing committee of this symposium and thank organizations such as the electronics society of the Electronics, Information and Communication Engineers (IEICE), Division of Molecular Electronics and Bioelectronics, The Japan Society of Applied Physics (M&BE) and NTT Musashino R&D Center for the support including financial one. Thanks are also due to the many people who have given great efforts to make this symposium possible and valuable.

Finally, we thank you again for attending the symposium. We hope that all of you have an enjoyable and informative time in Musashino, Tokyo.

June 7, 2012

ISOME 2012 Chair



Dr. Tohru Maruno

NTT Advanced Technology

Scope and Topics

Organic molecules are recognizing as important materials for electronics and photonics. They are an insulator, a semiconductor, a conductor, a superconductor, and an optical material. The research in this field has also been distributing to various applications like as memories, operational elements, displays, optical elements, actuators, and so on. The special symposium ISOME was proposed to summarize the studies and bring up new buds on the study to progress in this 21st Century.

The ISOME2012 will be composed with review papers and original papers. Here we call for original papers. The main topics are as follows, but not limited to: fundamental and applied researches on organic materials, thin film fabrication, device fabrication, electrical and electronic properties, optical properties, optically nonlinear properties, interface properties, EL and LCD devices, sensing devices, bio-electronics, optical electronics, materials for batteries, and so on.

Language

The working language of the symposium will be English. All printed matter will appear in English.

Submission of Papers

You are invited to submit an abstract on **A4 size paper within 2 pages to the Symposium Secretariat by April 17, 2012**. The abstract must include the title, author's names and affiliations, phone and fax numbers, mail and e-mail addresses and body of abstract, which must be printed out clearly for the off-set printing.

The authors of accepted papers will also be requested to *submit manuscripts to the IEICE Transactions on Electronics by June 30, 2012*. The special issue is scheduled to publish in March, 2013. The paper must be a full paper of maximum 6 pages or a letter paper of 2 pages, and the manuscript must be prepared according to the Information for Authors, IEICE Transactions on Electronics [See (<http://www.ieice.or.jp>)].

Registration

Registration form and related information will be gotten on Web Site.
(<http://www.ieice.org/~ome/ISOME/Welcome.html>).

Important Information

- a) Date: June 7 and 8, 2012.
- b) Place: NTT Musashino R&D center
3-9-11, Midori-cho, Musashino-shi, Tokyo, 180-8585 Japan
<http://www.ntt.co.jp/islab/e/access/index.html>
- c) Deadline for abstract: **April 17, 2012**
- d) Registration Fee
 - On or before May 21: Regular ¥25,000-, Student ¥10,000
 - After May 21: Regular ¥30,000-, Student ¥15,000

Secretariat

Dr. Jiro Nakamura, NTT Energy & Environmental Systems Labs, NTT
3-9-11, Midori-cho, Musashino-shi, Tokyo, 180-8585 Japan
Phone: +81-422-59-2280, Fax: +81-422-59-4128, E-mail: nakamura.jiro@lab.ntt.co.jp
URL: <http://www.ntt.co.jp/islab/e/org/en.html>

ISOME 2012 Conference Schedule

	Morning	Afternoon	Evening
June 7 (Thu)	Registration (9:00~18:00) Opening Ceremony (9:30~9:35) Plenary Lecture (9:35~10:25) 09:35~10:25 PL (invite) <i>Y. Ohmori</i> Coffee Break (10:25~10:40) SESSION 1 (10:40~12:50) ~ Organic Optical Devices ~ 10:40~11:10 I-1 (invite) <i>B.J. Lee</i> 11:10~11:40 I-2 (invite) <i>K. Shinbo</i> 11:40~12:00 O1-1 <i>A. Yokoo</i> 12:00~12:20 O1-2 <i>X. Chen</i> 12:20~12:50 I-3 (invite) <i>O. Sugihara</i> Lunch (12:50~13:30)	POSTER SESSION (13:40~14:50) 13:40~14:50 P-1 ~ P-19 SESSION 2 (15:00~16:10) ~ Organic Photonics ~ 15:00~15:30 I-4 (invite) <i>M. Fujiki</i> 15:30~15:50 O2-1 <i>T. Matsui</i> 15:50~16:10 O2-2 <i>T. Yamada</i> Coffee Break(16:10~16:30) SESSION 3 (16:30~18:00) ~ Organic Electronic Devices ~ 16:30~17:00 I-5 (invite) <i>K. Kudo</i> 17:00~17:20 O3-1 <i>M. Sakai</i> 17:20~17:40 O3-2 <i>T. Manaka</i> 17:40~18:00 O3-3 <i>M. Yamamoto</i>	Banquet (18:20~20:00)
June 8 (Fri)	Registration (9:00~12:00) SESSION 4 (9:30~11:10) ~ Organic Optical Devices & Properties of Organic Materials ~ 09:30~10:00 I-6 (invite) <i>S.H. Su</i> 10:00~10:30 I-7 (invite) <i>M. Ichikawa</i> 10:30~10:50 O4-1 <i>K. Tada</i> 10:50~11:10 O4-2 <i>K. Sakaguchi</i> Coffee Break (11:10~11:30) SESSION 5 (11:30~12:50) ~ Biotechnology & Bioelectronics I ~ 11:30~12:00 I-8 (invite) <i>H. Mukundan</i> 12:00~12:30 I-9 (invite) <i>T. Sakata</i> 12:30~12:50 O5-1 <i>K. Tawa</i> Lunch & Guided Tour around NTT Musashino R&D Center Showroom (12:50~14:30)	SESSION 6 (14:30~16:10) ~ Biotechnology & Bioelectronics II ~ 14:30~15:00 I-10 (invite) <i>N. Kasai</i> 15:00~15:30 I-11 (invite) <i>H. Ohnuki</i> 15:30~15:50 O6-1 <i>N. Matsuda</i> 15:50~16:10 O6-2 <i>K. Furukawa</i> Coffee Break (16:10~16:30) SESSION 7 (16:30~18:00) ~ Preparation & Characterization of Organic Materials & Films ~ 16:30~17:00 I-12 (invite) <i>D.L. Patton</i> 17:00~17:20 O7-1 <i>T. Fukuda</i> 17:20~17:40 O7-2 <i>Y. Liao</i> 17:40~18:00 O7-3 <i>H. Teramae</i> Closing Ceremony (18:00~18:05)	

ISOME 2012 Program

June 7, Thursday

-Registration 9:00 - 17:00

-Opening 9:30 - 9:35

Opening Address

Tohru Maruno (NTT Advanced Technology Corporation, Japan)
Chair of the Organizing Committee

-Plenary Lecture 9:35 - 10:25

Chairperson: Tohru Maruno (NTT-AT, Japan)

PL (invite)

9:35 Polymeric Opto-electronic Devices for Optical Signal Transmission

Yutaka Ohmori

Graduate School of Engineering, Osaka University, Japan

-Coffee Break 10:25 - 10:40

-Session I (Organic Optical Devices) 10:40 - 12:50

Chairperson: Hiroaki Usui (TUAT, Japan)

I-1 (invite)

10:40 Application of Zinc(II) Complexes to OLED Materials

Trinh Dac Hoanh, Young-Hoon Im, Ik-Hwan Kim and Burm-Jong Lee

Department of Chemistry, Inje University, Korea

I-2 (invite)

11:10 Evaluation of Thin Film Deposition and Gas Detection Using Surface Plasmon Resonance and Optical Waveguide Sensors

Kazunari Shinbo, Yasuo Ohdaira, Akira Baba, Keizo Kato and Futao Kaneko

Department of Electrical Engineering, Niigata University, Japan

O1-1

11:40 Fabrication of photonic crystal cavity by using a nanoprobe

Atsushi Yokoo^{1,2}, Takasumi Tanabe¹, Eiichi Kuramochi^{1,2} and Masaya Notomi^{1,2}

¹*NTT Basic Research Laboratories, NTT Corporation, Japan*

²*Nanophotonics Center, NTT Corporation, Japan*

O1-2

12:00 Investigation of interfacial charging processes of pentacene/C60/BCP triple-layer organic solar cells

Xiangyu Chen, Dai Taguchi, Takaaki Manaka, and Mitsumasa Iwamoto

Department of Physical Electronics, Tokyo Institute of Technology, Japan

I-3 (invite)**12:20 Photonic Polymers for Next Generation Optical Interconnect Device**

*O. Sugihara*¹, *F. S. Tan*¹, *T. Kaino*¹, *T. Yamashita*², *D. Inoue*², *A. Kawasaki*², *O. Watanabe*²,
*M. Kagami*², *Y. Tatewaki*³, *S. Okada*³, *M. Tomiki*⁴, *H. Sakata*⁴, *M. Sato*⁵, *A. Kaneko*⁵ and *A. Ohkawa*⁵
¹IMRAM, Tohoku University, Japan
²Toyota Central R&D Laboratories, Inc., Japan
³Yamagata University, Japan
⁴Shizuoka University, Japan
⁵FUJIFILM Corporation, Japan

Lunch 12:50 - 13:40

-Poster Session 13:40 - 14:50

P-1 ~ P-19

13:40

-Session 2 (Organic Photonics) 15:00 - 16:10

Chairperson: Jiro Nakamura (NTT Energy and Environment Systems Lab., Japan)

I-4 (invite)**15:00 Limonene meets chiral photonics polymers: Instantaneous generation from achiral polymers without catalyst in 100 % yield at room temperature**

Michiya Fujiki
 Graduate School of Materials Science, Nara Institute of Science and Technology, Japan

O2-1**15:30 ADE-FDTD analysis of lasing dynamics in cholesteric liquid crystal with absorption process**

Tatsunosuke Matsui^{1,2}
¹Department of Electrical and Electronic Engineering, Graduate School of Engineering,
 Mie University, Japan
²The Center of Ultimate Technology on Nano-Electronics, Mie University, Japan

O2-2**15:50 Single molecule spectroscopy under various ambient conditions**

Toshiki Yamada, *Takahiro Kaji* and *Akira Otomo*
 National Institute of Information and Communications Technology, Japan

-Coffee Break 16:10 - 16:30

-Session 3 (Organic Electronic Devices) 16:30 - 18:00

Chairperson: Keizo Kato (Niigata Univ., Japan)

I-5 (invite)**16:30 Vertical Channel Organic Transistors for Information Tag Applications**

*K. Kudo*¹, *D. Tsutsumi*¹, *H. Yamauchi*¹, *S. Kuniyoshi*¹, *M. Sakai*¹ and *M. Iizuka*²
¹Graduate School of Engineering, Chiba University, Japan
²Faculty of Education, Chiba University, Japan

O3-1**17:00 Laminated Plastic Card Transistors Fabricated by Thermal Press Processes**

Masatoshi Sakai, *Atsuo Inoue*, *Tatsuyoshi Okamoto*, *Shigekazu Kuniyoshi*, *Hiroshi Yamauchi* and
Kazuhiro Kudo
 Department of Electrical and Electronic Engineering, Chiba University, Japan

O3-2
17:20 **Ambipolar carrier injection into organic FET probed by charge modulated spectroscopy**
Takaaki Manaka and Mitsumasa Iwamoto
Department of Physical Electronics, Tokyo Institute of Technology, Japan

O3-3
17:40 **Photoinduced conductance switching in a dye-doped single-electron device composed of molecule/gold-nanoparticle composite**
M. Yamamoto¹, T. Terui², R. Ueda², K. Imazu³, K. Tamada³, T. Sakano⁴, K. Matsuda⁴, H. Ishii^{1,5}, and Y. Noguchi^{1,5,6}
¹ *Graduate School of Advanced Integration Science, Chiba University, Japan*
² *KARC, National Institute of Information and Communications technology, Japan*
³ *Institute for Materials Chemistry and Engineering, Kyushu University, Japan*
⁴ *Department of Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University, Japan*
⁵ *Center for Frontier Science, Chiba University, Japan*
⁶ *PRESTO, Japan Science and Technology Agency, Japan*

-Banquet 18:20 - 20:00

June 8, Friday

-Registration 9:00 - 12:00

-Session 4 (Organic Optical Devices & Properties of Organic Materials) 9:30 - 11:10

Chairperson: Masatoshi Sakai (Chiba Univ., Japan)

I-6 (invite)
09:30 **The Application of White Organic Light Emitting Diodes for Lighting**
Shui-Hsiang Su and Meiso Yokoyama
I-Shou University, Taiwan

I-7 (invite)
10:00 **Using interlayer excitation transfer for organic thin-film solar cells**
Musubu Ichikawa^{1,2}
¹ *Interdisciplinary Graduate School of Science and Technology, Shinshu University, Japan*
² *Presto, Japan Science and Technology Agency (JST), Japan*

O4-1
10:30 **Temporal change in electric potential distribution and film thickness in electrophoretic deposition of conjugated polymer**
Kazuya Tada
Division of Electrical Engineering, University of Hyogo, Japan

O4-2
10:50 **Oxidation Time Dependence of Graphene Oxide**
Koichi Sakaguchi¹, Akinori Fujito¹, Seiko Uchino¹, Asami Ohtake¹, Noboru Takisawa¹, Kunio Akedo² and Masanao Era¹
¹ *Department of Chemistry and Applied Chemistry, Saga University, Japan*
² *Toyota Central Research and Development laboratories, Japan*

-Coffee Break 11:10 - 11:30

-Session 5 (Biotechnology & Bioelectronics I) 11:30 - 12:50

Chairperson: Naoki Matsuda (AIST, Japan)

I-8 (invite)

11:30 **Novel Optical Strategies for Biodetection**

Harshini Mukundan

Los Alamos National Laboratory, USA

I-9 (invite)

12:00 **In vitro cell sensing with semiconductor-based biosensing technology**

Toshiya Sakata

Department of Materials Engineering, School of Engineering, The University of Tokyo, Japan

O5-1

12:30 **Bright Fluorescence Image of Neurons Observed with a Plasmonic Chip**

Keiko Tawa¹, Chikara Yasui^{1,2}, Chie Hosokawa¹, Junji Nishii³ and Hiroyuki Aota²

¹ *HRI, AIST, Japan*

² *Kansai University, Japan*

³ *RIES, Hokkaido University, Japan*

-Lunch & Guided Tour around NTT Musashino R&D Center Showroom 12:50 - 14:30

-Session 6 (Biotechnology & Bioelectronics II) 14:30 - 16:10

Chairperson: Akira Baba (Niigata Univ., Japan)

I-10 (invite)

14:30 **Micro/nano-fabrication for Biological Interface**

Nahoko Kasai, Akiyoshi Shimada, Shingo Tsukada, Aya Tanaka, Yoshiaki Kashimura, Koji Sumitomo, and Keiichi Torimitsu

NTT Basic Research Laboratories, Japan

I-11 (invite)

15:00 **Interdigitated electrode based impedance biosensor for label-free detection of human immunoglobulin A**

Hitoshi Ohnuki¹, Ryuzo Ohno¹, Huihui Wang¹, Takuya Yokoyama¹, Hideaki Endo²,

Daiju Tsuya³ and Mitsuru Izumi¹

¹ *Faculty of Marine Technology, Tokyo University of Marine Science and Technology, Japan*

² *Faculty of Marine Science, Tokyo University of Marine Science and Technology, Japan*

³ *National Institute for Materials Science, Japan*

O6-1

15:30 **In situ observation of cytochrome c functionality immobilized on solid/liquid interfaces with slab optical waveguide spectroscopy**

Naoki Matsuda and Hirotaka Okabe

Measurement Solution Research Center, AIST, Japan

O6-2

15:50 **Graphene Oxide as Optical Platform for Protein Recognition**

Kazuaki Furukawa¹, Yuko Ueno², Emi Tamechika² and Hiroki Hibino¹

¹ *NTT Basic Research Laboratories, Japan*

² *NTT Microsystem Integration Laboratories, Japan*

-Coffee Break 16:10 - 16:30

-Session 7 (Preparation & Characterization of Organic Materials & Films) 16:30 - 18:00

Chairperson: Takaaki Manaka (Tokyo Tech, Japan)

I-12 (invite)

16:30 Versatile Synthetic Routes to Functional Polymer Surfaces via Thiol-Click Chemistry
Ryan M. Hensarling, Arthur L. LeBlanc, Emily A. Hoff, Wei Guo and Derek L. Patton
School of Polymers and High Performance Materials, University of Southern Mississippi, USA

O7-1

17:00 P3HT:PCBM Thin Film with Different Concentrations by Electropray Deposition Method
Takeshi Fukuda¹, Kenji Takagi¹, Jungmyoung Ju², Yutaka Yamagata² and Yusuke Tajima²
¹ *Department of functional materials science, Saitama University, Japan*
² *RIKEN, Japan*

O7-2

17:20 Electropray-Coated PEDOT:PSS Thin Films with Optimized Additional Solvent and Applied Voltage
Yingjie Liao, Takeshi Fukuda, Asumi Suzuki, Kenji Takagi and Norihiko Kamata
Graduate School of Science and Engineering, Saitama University, Japan

O7-3

17:40 Theoretical study on the reaction mechanism of formation of lutidine derivatives
Hiroyuki Teramae and Yasuko Y. Maruo
Department of Chemistry, Josai University, Japan

-Closing 18:00 - 18:05

Closing Remarks

Hiroaki Usui (Tokyo University of Agriculture and Technology, Japan)
Chair of the Technical Committee on Organic Molecular Electronics, IEICE

Poster Session (June 7, Thursday, 13:40 - 14:50)

P-1

Synthesis of Zinc Complexes Containing Quinaldic Acid for OLED

Young-Hoon Im, Ik-Hwan Kim, Trinh Dac Hoanh and Burm-Jong Lee
Department of Chemistry, Inje University, Korea

P-2

Fabrication of Stacked OLED using Electro-Spray Deposition

Takaomi Okada, Tetsuo Sakamoto and Hideaki Anzai
Graduate School of Electrical and Electronic Engineering, Kogakuin University, Japan

P-3

Effects of Using a Co-evaporation Layer of MoOx and α -NPD in Organic Light-Emitting Diodes

Sang-Geon Park¹, Haiying Wang¹, Kazuhiro Imai¹, Takuya Morimoto¹, Tomoya Inden¹, Shizuyasu Ochiai² and Tatsuo Mori^{1,2}

¹ Department of Electrical Engineering and Computer Science, Nagoya University, Japan

² Department of Electrical Engineering, Aichi Institute of Technology, Japan

P-4

Effect of Photoreactive SAM at the Interface of ITO and Hole Transport Layer

Seong-Ho Kim¹, Hanae Ohtsuka¹, Rigoberto C. Advincula² and Hiroaki Usui¹

¹ Department of Organic and Polymer Materials Chemistry, Tokyo University of Agriculture and Technology, Japan

² Department of Macromolecular Science and Engineering, Case Western Reserve University, USA

P-5

Fabrication and Characterization of All Solution-Processed Organic Thin Film Photovoltaic Cells

Sho Noguchi, Koichi Sakaguchi and Masanao Era

Department of Chemistry and Applied Chemistry, Faculty of Science and Engineering, Saga University, Japan

P-6

Fabrication of tandem dye-sensitized solar cells with Pt-coated Ni-mesh

ChengChieh Yen¹, Takehiro Jikumaru¹ and Tatsuo Mori^{1,2}

¹ Department of Electrical Engineering and Computer Science, Nagoya University, Japan

² Department of Electrical Engineering, Aichi Institute of Technology, Japan

P-7

Enhanced Photocurrent Properties of Dye/Au-loaded TiO₂ Films by Grating-coupled Surface Plasmon Excitation

Hathaithip Ninsonti^{1,2}, Weerasak Chomkitichai^{1,2}, Akira Baba¹, Wiyong Kangwansupamonkon³, Sukon Phanichphant⁴, Kazunari Shinbo¹, Keizo Kato¹ and Futao Kaneko¹

¹ Center for Transdisciplinary Research, Niigata University, Japan

² Department of Chemistry, Faculty of Science, Chiang Mai University, Thailand

³ National Nanotechnology Center, National Science and Technology Development Agency, Thailand

⁴ Materials Science Research Center, Faculty of Science, Chiang Mai University, Thailand

P-8

Surface Plasmon Resonance Enhanced Photocurrent of Dye/Ag-loaded Titanium Dioxide Thin Film on Metallic Grating Surface

Weerasak Chomkitichai^{1,2}, Hathaithip Ninsonti^{1,2}, Akira Baba², Sukon Phanichphant³, Kazunari Shinbo², Keizo Kato² and Futao Kaneko

¹ Center for Transdisciplinary Research, Niigata University, Japan

² Department of Chemistry, Faculty of Science, Chiang Mai University, Thailand

³ Materials Science Research Center, Faculty of Science, Chiang Mai University, Thailand

P-9

Improved Adhesion of Fluoropolymer Thin Films by Vapor Deposition PolymerizationKazuo Senda, Tsuyoshi Matsuda, Takumi Kawanishi, Kuniaki Tanaka and Hiroaki Usui*Department of Organic and Polymer Materials Chemistry, Tokyo University of Agriculture and Technology, Japan*

P-10

Vapor Deposition of Low-Molecular Weight PEDOT Thin FilmsTaikai Eguchi, Ai Hasegawa, Kousuke Tsuchiya, Kuniaki Tanaka, Kenji Ogino and Hiroaki Usui*Department of Organic and Polymer Materials Chemistry, Tokyo University of Agriculture and Technology, Japan*

P-11

Electron-Assisted Vapor Deposition Polymerization of Fluorinated AlkylacrylateMisato Yagisawa, Yasuhiro Hosoda, Kuniaki Tanaka and Hiroaki Usui*Department of Organic and Polymer Materials Chemistry, Tokyo University of Agriculture and Technology, Japan*

P-12

Effect on thermoelectric property of conductive polymer by adding polyolsAkihiro Kohno, Shigeo Ogawa and Yoh Somemura*NTT Energy and Environment Systems Laboratories, Japan*

P-13

Optimization of Langmuir-Blodgett film formation for organic-inorganic layer perovskite by squeeze out methodKoichi Souda, Koichi Sakaguchi and Masanao Era*Department of Chemistry and Applied Chemistry, Faculty of Science and Engineering, Saga University, Japan*

P-14

Photocatalytic CO₂ reduction on Re(bpy-R₂)(CO)₃Cl (R = H, CH₃, COOH, CN)Yoko Ono, Masayuki Tsuda, Yasuko Y. Maruo and Yoh Somemura*NTT Energy and Environment Systems Laboratories, Japan*

P-15

Electrostatic Control of Artificial Cell Membrane Spreading through Molecule Gate Modulation within NanogapYoshiaki Kashimura, Kazuaki Furukawa and Keiichi Torimitsu*NTT Basic Research Laboratories, Japan*

P-16

Micropatterning of chondrocyte spheroids on the gold electrodeHidenori Otsuka¹, Koichi Kutsuzawa¹, Akie Kaneko¹, Masako Nagamura¹ and Toshiya Sakata²¹ *Department of Applied Chemistry, Faculty of Science, Tokyo University of Science, Japan*² *Department of Materials Engineering, Graduate School of Engineering, The University of Tokyo, Japan*

P-17

The Effect of Electric Fields on Biological CellsHidenori Otsuka¹, Koichi Kutsuzawa¹, Hideki Kohn², Saya Okimura¹, Masako Nagamura¹, Daisuke Matsukuma¹,Tatsuro Nakashima², Hirofumi Okabe² and Naoki Matsuda²¹ *Department of Applied Chemistry, Faculty of Science, Tokyo University of Science, Japan*² *Measurement Solution Research Center, AIST, Japan*

P-18

Newly Developed Optical Adhesives for Optical ConnectorsSatoru Tomaru, Yutaka Murakoshi, Masayuki Murakami, Naomi Kawakami and Kazumi Yamauchi*NTT Advanced Technology Corporation, Japan*

P-19

Development and evaluation of ozone sensor using azo dye with OH groupsYasuko Yamada Maruo, Kunihiko Akaoka and Jiro Nakamura*NTT Energy and Environment Systems Laboratories, Japan*