The 4th International Symposium on Organic Molecular Electronics (ISOME2006)

18-19 May 2006
Saitama University, JAPAN
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Supported by:
Electronic Society of IEICE
Group of Organic Nice Devices, The Japan Society of Applied Physics

In cooperation with:
The Japan Society of Applied Physics
Division of Molecular Electronics and Bioelectronics
, The Japan Society of Applied Physics (M & BE)
Technical Committee on Dielectric and Electrical Insulation Materials, IEEJ
The Japan Society of Applied Physics
The Society of Polymer Science, Japan
The Japanese Liquid Crystal Society
Preface

May 18, 2006

Recent progress of Organic Molecular Electronics

We are pleased to invite you to the 4th International Symposium on Organic Molecular Electronics (ISOME2006). This is the 4th in a series of the biennial conference that began in Nagoya University in 2000, continued in Riken (Saitama), Kyoto University and now Saitama University. This symposium has been provided a good opportunity traditionally for wide range of researchers to meet together since the development of organic molecular electronics has been supported by different kinds of technologies.

Research of organic molecular electronics has a long history and has developed through several steps of progress. For example, the idea of "molecular device" was proposed more than 20 years ago. Recently again this research field has much attention and progress opportunity under the development of micro and nano-scale technologies as well as bioelectrical and molecular electronic technologies. It is quite meaningful that this symposium is took place under these situation and time.

The symposium contains wide range of researches of organic molecular electronics of invited speakers as well as of the contributed speakers including fabrication, evaluation, bio-electronics, field effect devices, sensors, displays and so on. These researches are the most attractive and progressive topics of the recent organic molecular electronics. We expect that essential discussions are conducted in this symposium to stimulate future development of this field.

We would like to express our thanks to many organizations, such as Electronic Society of IEICE, Group of Organic Nice Devices, The Japan Soc. Of Appl. Phys, that have supported this Symposium and also to many people to have given their great effort to make this conference 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 Saitama, Japan.

General Chair
Prof. Teruaki Katsube
Division of Mathematics, Electronics and Informatics
Graduate School of Science and Engineering
Saitama University
### ISOME2006 Schedule

**Saitama University, Saitama, JAPAN**  
**May 18-19, 2006**

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<td>16:00 - 17:20 Fabrication of organic materials II</td>
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The 4th International Symposium on Organic Molecular Electronics
Program

May 18 (Thursday)

< Registration > < 8:30 - 17:00 >
< Opening remarks > < 9:00 - 9:05 >

Opening Talk

General Chair: Teruaki Katsube (Saitama University, Japan)

< Plenary lecture > < 9:05 - 9:55 >

Chairperson: Teruaki Katsube (Saitama University, Japan)

PL Present Status and Future of Organic Light Emitting Devices
Hiroyuki Sasabe and Chihaya Adachi* (Chitose Institute of Science and Technology,
*Kyusyu University, Japan)

< Coffee brake > (9:55 - 10:15)

< Organic molecular devices I > < 10:15 - 12:05 >

Chairperson: Takao Someya (University of Tokyo, Japan)

< 10:15 - 10:45 > (invite)

OD1 Organic Materials for Thin Film Transistors
Zhenan Bao (Stanford University, USA)

< 10:45 - 11:05 >

OD2 Fabrication and Device Simulation of Single Nano-Scale Organic Static Induction Transistors
N. Ohashi, N. Muraishi, M. Nakamura, M. Sakai and K. Kudo (Chiba University, Japan)

< 11:05 - 11:25 >

OD3 Characteristics of organic static induction transistors and inverters
Yasuuyuki Watanabe, Hiroyuki Iechi* and Kazuhiro Kudo** (OITDA, *Ricoh Co. Ltd,
**Chiba University, Japan)

< 11:25 - 11:45 >

OD4 Analysis of organic FET operation based on Maxwell-Wagner effect
Ryosuke Tamura, Takaaki Manaka, Eunju Lim and Mitsumasa Iwamoto
(Tokyo Institute of Technology, Japan)

< 11:45 - 12:05 >

OD5 Temperature dependent Mobilities in Organic P-type and N-type Field Effect Transistors
Matsushige (Kyoto University, *Kobe University, **Kyoto Institute of Technology, Japan)

<Lunch Time> (12:05 - 13:05)
Flexible organic field-effect transistors based on the composites with the same backbone by wet process
Hirotake Kajii, Hiroshi Okuya, Shohei Fukuda, Akinori Sakakibara and Yutaka Ohmori (Osaka University, Japan)

Interfacial Characteristics of Pentacene-based Thin-Film Transistors
Horng-Show Koo, Xizhang Wang*, Tsuyoshi Sekitani and Takao Someya
(The University of Tokyo, *Nanjing University, China)

Switching Power Supply Using Boost Converter and TV Flyback Transformer for Neon Sign Lighting
Tanets Tanitteerapan and Bandit Yimnoi
(King Mongkut’s University of Technology Thonburi, Thailand)

Switching Losses Reduction by Passive Circuit Components Implementation for DC-DC Boost Converters
Tanets Tanitteerapan and Seksan Suteabtawan
(King Mongkut’s University of Technology Thonburi, Thailand)

Heat Treatment Effect on the Polymer Light-Emitting Device Based on Poly (9,9-dioctylfluorene) during the Maskless Dye-Diffusion Technique
Kazuya Tada and Mitsuyoshi Onoda (University of Hyogo, Japan)

Phosphorescent polymer light-emitting diodes consisting of pyridine-containing copolymers and metal complexes
Takeshi Sano, Jian Li, Yasuko Hirayama, Taiji Tomita, Hiroyuki Fujii, Kenichiro Wakisaka and Masayuki Shouno (SANYO Electric Co., Ltd., Japan)

Fabrication of Phosphorescent OLED by Deposition Polymerization
Akira KAWAKAMI*, Hiroshi BEKKU, Rihito WADA, Hisaya SATO, Hideo TAKA**, Hiroshi KITA** and Hiroaki USUI
(Tokyo University of Agriculture and Technology, *TRADIM, **Konica Minolta Technology, Japan)

< Coffee Brake > (15:25 – 15:45)
BS1  The potential of protein motors’ functions for development of bio-nano and bio-molecular devices
(National Institute of Information and Communication Technology, *University of Hyogo, **Japan Society for the Promotion of Science, Japan)

BS2  A Novel Formaldehyde-degrading Fungus, Trichoderma virens: Isolation and Some Properties
Ayako SAWADA, Ryuzoh IKEDA*, Eiichi TAMIYA*, Taketoshi YOSHIDA*, Takashi Oyabu and Hidehito NANTO** (Kanazawa Seiryo University, *Advanced Institute of Science and Technology, **Kanazawa Institute of Technology, Japan)

BS3  Bioelectrical Potential Responses of Plant Cells under various Light Irradiation
Yuki Hasegawa, Soichi Kumada, Takahiro Yamanaka and Teruaki Katsube
(Saitama University, Japan)

BS4  A Novel Sensing System for Glucose in a Solution Based on Cataluminescence
Masahiro Ozaki, Tohru Okabayashi*, Nobuhiko Yamashta** and Masuo Nakagawa*
(Sumita Clinic, *Okayama University of Science, **Okayama University, Japan)

BS5  Fabrication of electrodes on overhead-transparency film toward development of chemical sensors
S. Toyama (National Rehabilitation Center for Persons with Disabilities, Japan)

BS6  Electron transfer mediated biosensor with plasma-polymerized film containing redox site
Hitoshi Muguruma and Hideyuki Uehara (Shibaura Institute of Technology, Japan)

< Banquet > (18:10 – 19:30)
May 19 (Friday)

< Registration > < 8:30 - 17:00 >

< Evaluation of organic materials I > < 9:00 - 10:10 >

Chairperson: Kazunari Shinbo (Niigata University, Japan)

< 9:00 – 9:30 > (invite)

EM1  Molecular Behavior Control of Dendrimer Monolayers and Electrical Properties Measuring by Using SPMs
Hoon·Kyu Shin (Pohang University of Science and Technology, Korea)

< 9:30 – 9:50 >

EM2  Orientation of Poly(di·hexyl silane) Thin Films
Shoji Furukawa, Hidetaka Ohta and Hitoshi Arakawa (Kyushu Institute of Technology, Japan)

< 9:50 – 10:10 >

EM3  Electrical properties of conducting polymer /CNT composite films prepared on thin titanium dioxide layer
Eiji Itoh, Issei Suzuki, Yu Nishii and Keiichi Miyairi (Shinshu University, Japan)

< Coffee Brake > ( 10:10 – 10:30 )

< Evaluation of organic materials II > < 10:30 – 11:50 >

Chairperson: Hiroaki Usui (Tokyo University of Agriculture and Technology, Japan)

< 10:30 – 10:50 >

EM4  Amplified Spontaneous Emissions from p-Conjugated Dye Doped Polymer Film and Dye Polymer Film
Yasuaki Itakura, Atushi Fujimoto, Akihiro Tomioka and Sinji Kinosita
(Osaka Electro-Communication University, Japan)

< 10:50 – 11:10 >

EM5  Molecular Ordering in Self-Organized Dye Particles • Near-Field and Polarized Evanscent-Field Excited Fluorescence Study –
Sinji Kinosita, Akihiro Tomioka, Atushi Fujimoto and Yasuaki Itakura
(Osaka Electro-Communication University, Japan)

< 11:10 – 11:30 >

EM6  Adsorption of Dye-doped Polystyrene Spheres and Surface Plasmon Emission Light Properties
Kazunari Shinbo, Hiroshi Miura, Satoshi Takahashi, Yasuo Ohdaira, Keizo Kato and Futao Kaneko (Niigata University, Japan)

< 11:30 – 11:50 >

EM7  Observation of a Single Electron on a Alkanethiol-Protected Au Nanodot in a Double-barrier Tunneling Structure by Noncontact Atomic-Force Spectroscopy
Yasuo Azuma*, Masayuki Kanehara**, Toshiharu Teranishi** and Yutaka Majima*** (*Tokyo Institute of Technology, **University of Tsukuba, ***Japan Science and Technology Agency, Japan)
< Evaluation of organic materials III >

Chairperson: Kazuhiro Kudo (Chiba University, Japan)

< 13:00 – 13:30 >

EM8  
Enhancement of the OTFT mobility with thermal curable polymer
Ki-Chul Song, Gi-Heon Kim and Lee-Mi Do (Electronic and Telecommunication Research Institute, Korea)

< 13:30 – 13:50 >

EM9  
In situ observation of reduction behavior of hemoglobin molecules adsorbed on glass surface
Masayoshi Matsui, Akiko Nakahara* and Naoki Matsuda (AIST Kyushu, *Kyusyu Sangyo University, Japan)

< 13:50 – 14:10 >

EM10  
Spectroelectrochemical observations for the adsorption process of heptyl viologen cation radicals on ITO electrodes
Yusuke Ayato and Naoki Matsuda (AIST Kyushu, Japan)

< 14:10 – 14:30 >

EM11  
Electrical properties of organic single molecules in ultra-narrow gold nano-gap electrodes
Tohru Kubota, Takashi Nagase, Yutaka Noguchi, Rieko Ueda and Shinro Mashiko (National Institute of Information and Communication Technology, Japan)

< Coffee Brake > ( 14:30 – 14:50 )

< Fabrication of organic materials I >

Chairperson: Kazuhiro Saito (Advanced Industrial Science and Technology)

< 14:50 – 15:20 >

FM1  
Functional polymers and Organic/Inorganic Nanocomposites for Optics and Opto-Electronics
J. Stumpe, O. Kulikovska, O. Sakhno, J. Wagner, L. Goldenberg, T. Smirnova* and S. Slusserenko* (Fraunhofer Institute for Applied Polymer Research, *NASU, Germany)

< 15:20 – 15:40 >

FM2  
Preparation and Evaluation of Aligned Naphthacene Thin Films Using Surface Plasmon Excitation
Tohru Shimaoka, Hiroaki Kobayashi, Kazuki Yamashita, Yasuo Ohdaira, Kazunari Shinbo, Keizo Kato and Futao Kaneko (Niigata University)

< 15:40 – 16:00 >

FM3  
Non-linear optical properties of C:S-Au film prepared by co-operation process of plasma CVD and sputtering
Shinya Kato, Shinzo Morita and Shizuyasu Ochiai* (Nagoya University, *Aichi Institute of Technology, Japan)
<Fabrication of organic materials II>  
Chairperson: Shuichi Nagamatsu (Kyusyu Institute of Technology, Japan)

<16:00 – 17:20>

FM4  Physical Characteristics and Fabrication of Overcoat Resist Film for Color Filters in TFT-based LCD  
H. S. Koo*,**, H. C. Wu***, P. C. Pan* and T. Kawai** (*Ming-Hsin Univ. of Sci. and Tech., Taiwan, **Osaka University, ***Allied Material Technology Corp., Taiwan)

<16:20 – 16:40>

FM5  Organic Colorant Films Prepared by Inkjet Printing Method and Its Properties  
Po-Chuan Pan, Horng-Show Koo, Mi Chen*, Feng-Mei Wu** and Shinn-Jen Chang** (*University of Tokyo, **Ming-Hsin Univ. of Sci. and Tech., Taiwan, ***Union Chemical Laboratories, Taiwan)

<16:40 – 17:00>

FM6  Writing and Rewriting Memory of Composite Conducting Polymer  
Masaharu Fujii and Haruo Ihori (Ehime University, Japan)

<17:00 – 17:20>

FM7  Light-Induced Self-Written Serially Grafted Polymer Optical Waveguides  
Okihiro Sugihara, Shuhei Yasuda and Toshikuni Kaino (Tohoku University, Japan)

<Concluding remarks>  
Closing talk

Vice-chair: Mitsuyoshi Onoda (University of Hyogo, Japan)