

December 12 (Monday)

10:00-17:30	Registration	
10:30-10:40	Opening remarks	Takaaki Manaka (Tokyo Institute of Technology) Mitsumasa Iwamoto (Tokyo Institute of Technology)
10:40-11:20	Plenary Lecture 1	Chair : Toshiki Yamada (NICT)
10:40-11:20	<PL-1> (Invited)	Present and future spin-on electro-optic waveguide modulator °Shiyoshi Yokoyama ^{1,2} , Hiromu Sato ¹ , Alisa Bannaron ¹ , Jiawei Mao ² , Futa Uemura ² ¹ Institute for Materials Chemistry and Engineering, Kyushu University, Japan ² Department of Molecular and Material Science, Kyushu University, Japan
11:20-11:30	Break	
11:30-12:50	Session 1 : Organic semiconductor materials and devices I	Chair : Hirotake Kajii (Osaka University)
11:30-11:55	<S1-I-1> (Invited)	Realization of low-work-function electrodes using strong bases and their application to organic light-emitting diodes °Hirohiko Fukagawa ¹ , Tsubasa Sasaki ¹ , Takuya Okada ¹ , Taku Oono ¹ , Takahisa Shimizu ¹ ¹ NHK Science & Technology Research Laboratories, Japan
11:55-12:20	<S1-I-2> (Invited)	Multifunctional materials: design strategies towards organic crystals, co-crystals based photosensitizers Debasish Barman ¹ , °Parameswar Krishnan Iyer ¹ ¹ Department of Chemistry, Centre for Nanotechnology, School of Health Science and Technology, Indian Institute of Technology Guwahati, India.
12:20-12:35	<S1-O-1>	Local spatial distribution and enormous red shift of molecularly-oriented J-aggregates °Tetsuya Aoyama ¹ , Atsuya Muranaka ² , Masanobu Uchiyama ² , Yutaka Yamagata ¹ , Jian Yu ³ , Shinya Matsumoto ³ , Masamitsu Ishitobi ⁴ , Hirohito Umezawa ⁵ , Toshihiko Tanaka ⁶ ¹ RIKEN Center for Advanced Photonics (RAP), Japan ² RIKEN Center for Sustainable Resource Science (CSRS), Japan ³ Yokohama National University, Japan ⁴ ASET Sumitomo Chemical laboratory, Tsukuba Research Laboratory, Sumitomo Chemical Co. Ltd, Japan ⁵ National Institute of Technology, Fukushima College, Japan ⁶ Hamamatsu University School of Medicine, Japan
12:35-12:50	<S1-O-2>	Multicolor emission and organic light-emitting diodes with controlling crystallinity °Masahiro Morimoto ¹ , Kazuho Furukawa ² , Shigeki Naka ¹ ¹ Academic Assembly Faculty of Engineering, University of Toyama, Japan

²Graduate School of Science and Engineering for Education, University of Toyama, Japan

12:50-14:00 **Lunch**

14:00-14:30 **Keynote Presentation 1**

Chair : Kiyooki Usami (Osaka Sangyo University)

14:00-14:30 <KN-1>
(Invited)

Formation and interface control of polymer thin films by vapor deposition

^oHiroaki Usui¹

¹Institute of Engineering, Tokyo University of Agriculture and Technology, Japan

14:30-14:40 **Break**

14:40-16:00 **Session 2 : Organic semiconductor materials and devices II / Soft material physics and applications in electronics**

Chair : Masatoshi Sakai (Chiba University)

14:40-15:05 <S2-I-1>
(Invited)

Impact of density of states in semiconducting polymers on performance of organic field-effect transistors

^oKyohei Nakano¹, Yumiko Kaji¹, Keisuke Tajima¹

¹RIKEN, Center for Emergent Matter Science (CEMS), Japan

15:05-15:30 <S2-I-2>
(Invited)

Layered organic semiconductors for high-performance printed transistors

^oShunto Arai¹

¹Research Center for Functional Materials, National Institute for Materials Science (NIMS), Japan

15:30-15:45 <S2-O-1>

Electrically reconfigurable logic circuits based on organic antiambipolar transistors

^oRyoma Hayakawa¹, Kosuke Honma^{1,2}, Shu Nakaharai¹, Yutaka Wakayama¹, Kaname Kanai

¹International Center for Materials Nanoarchitectonics (WPI-MANA), National Institute for Materials Science (NIMS), Japan

²Department of Physics, Faculty of Science and Technology, Tokyo University of Science, Japan

15:45-16:00 <S2-O-2>

Crystal structure and mobility of polycrystalline thin films of Ph-BTBT-10 fabricated by precursor of supercooled highly ordered liquid crystal

^oHiroaki Iino¹, Jun-ichi Hanna¹

¹Imaging Science and Engineering Research Center, Tokyo Institute of Technology, Japan

16:00-16:20 **Break**

16:20-17:15 **Session 3 : Fabrication and characterization of organic and molecular devices I**

Chair : Hitoshi Suzuki (Hiroshima University)

16:20-16:45 <S3-I-1>
(Invited)

Molecular-scale hardware that mimic synapses

^oChristian A. Nijhuis¹

¹Department of Molecules and Materials, MESA+ Institute for Nanotechnology,

Conference Program

16:45-17:00	<S3-O-1>	Molecules Center and Center for Brain-Inspired Nano Systems (BRAINS), Faculty of Science and Technology, University of Twente, Netherlands Preparation of vertically oriented aromatic polyester thin films by thermal chemical vapor deposition °Ryosuke Matsubara ¹ , Shuichiro Aida ¹ , Atsushi Kubono ¹ , Seiji Onohara ² , Yasuko Koshiba ² , Shohei Horike ² , Kenji Ishida ² ¹ Graduate School of Integrated Science and Technology, Shizuoka University, Japan ² Graduate School of Engineering, Kobe University, Japan
17:00-17:15	<S3-O-2>	Dipolar energy as an electrical power source: dipole rotation in solids opens a new way for triboelectric generator °Dai Taguchi ¹ , Takaaki Manaka ¹ , Mitsumasa Iwamoto ¹ ¹ Tokyo Institute of Technology, Japan
17:15-17:30	Break	
17:30-19:30	Poster Session	
17:30-19:30	On site	Odd number: 17:30-18:30 Even number: 18:30-19:30
19:00-19:30	On line	
	<P-1>*	Hole injection characteristics and annealing temperature dependence for organic light-emitting diodes using spontaneous polarization °Ryosuke Fukazawa ¹ , Masahiro Morimoto ² , Shigeki Naka ² ¹ Graduate School of Science and Engineering, University of Toyama, Japan ² Academic Assembly Faculty of Engineering, University of Toyama, Japan
	<P-2>*	Exciplex up-conversion-type organic light-emitting diode and operating mechanism by exciton diffusion °Teppei Masuda ¹ , Masahiro Morimoto ² , Shigeki Naka ² ¹ Graduate School of Science and Engineering, University of Toyama, Japan ² Academic Assembly Faculty of Engineering, University of Toyama, Japan
	<P-3>*	Impact of Deposition Rate of Alq₃ on Charge Behaviors and Device Properties in Organic Light-Emitting Diodes °Shin Shinohara ¹ , Naoya Abe ¹ , Hisao Ishii ¹ , Yuya Tanaka ² ¹ Chiba University, Japan ² Gunma University, Japan
	<P-4>	Improved Characteristics of Polymer Light-Emitting Devices Utilizing Solution-Processable Inorganic Copper(I) Thiocyanate °Hirotake Kajii ¹ , Yuto Takayama ¹ , Shinsei Yamada ¹ , Maowei Huang ¹ , Masato Morifuji ¹ , Masahiko Kondow ¹ ¹ Graduate School of Engineering, Osaka University, Japan
	<P-5>	Doped Lateral Organic Solar Cells °Jaseela Palassery Jaseela ^{1,2} , Seiichiro Izawa ^{1,2} , Masahiro Hiramoto ^{1,2} ¹ Institute for Molecular Science, Japan ² SOKENDAI, Japan
	<P-6>*	Donor/acceptor compositional dependence of bimolecular recombination

constants in organic photovoltaics studied with modulation spectroscopy

^oRyoya Sugita¹, Takashi Kobayashi^{2,4}, Takashi Nagase^{2,4}, Hiroyoshi Naito^{3,4}

¹Department of Physics and Electronics, Osaka Prefecture University, Japan

²Department of Physics and Electronics, Osaka Metropolitan University, Japan

³Department of Applied Chemistry, Osaka Metropolitan University, Japan

⁴The Research Institute for Molecular Electronic Devices, Osaka Metropolitan University, Japan

<P-7> Initial Photocarrier Generation Process in OPV Observed with Light Triggered Time Domain Reflectometry

Tomoaki Mashiko¹, Koki Takano¹, Akira Kaino¹, Sou Kuromasa¹, Shintaro Fujii¹, Tatsuya Omori¹, ^oMasatoshi Sakai¹, Kazuhiro Kudo¹, Hirofumi Mino²

¹Department of Electrical and Electronic Engineering, Chiba University, Japan

²Graduate School of Global and Transdisciplinary Studies, Chiba University, Japan

<P-8>* Improvement of Non-fullerene Organic Solar Cells by Using the Localized Surface Plasmon Resonance Effect of Metal Nanoparticles

^oYuting Miao¹, Sachiko Jonai¹, Kazunari Shinbo¹, Keizo Kato¹, Akira Baba¹

¹Graduate School of Science and Technology and Faculty of Engineering, Niigata University, Japan

<P-9>* Organic Schottky Photodiode Enhanced by Surface Plasmon Excitation

^oSupakeit Chanarsa^{1,2,3}, Kazunari Shinbo¹, Keizo Kato¹, Kontad Ounnunkad^{2,3,4}, Akira Baba¹

¹Graduate School of Science and Technology and Faculty of Engineering, Niigata University, Japan

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

³Center of Excellence for Innovation in Chemistry, Faculty of Science, Chiang Mai University, Thailand

⁴Research Center on Chemistry for Development of Health Promoting Products from Northern Resources, Chiang Mai University, Thailand

<P-10> Controlling the TiO₂-Dye Nanomolecular Interactions for Improving the Photoconversion in Transparent Dye-sensitized Solar Cell

^oPritha Roy¹, Yuki Kurokawa², Shyam S. Pandey²

¹Department of Physics, Jagannath University, Bangladesh

²Graduate School of Life Science and System Engineering, Kyushu Institute of Technology, Japan

<P-11> OPTIMIZATION OF DEVICE PARAMETERS FOR BACK CONTACT TCO-LESS DYE SENSITIZED SOLAR CELLS

^oMd. Zaman Molla¹, Ajay Kumar Baranwal², Shuzi Hayase², Shyam S. Pandey³

¹Ahsanullah University of Science and Technology, Bangladesh

²Info-Powered Energy System Research Center, University of Electro-Communications, Japan

³Graduate School of Life Science and System Engineering, Kyushu Institute of Technology, Japan

<P-12>* Fabrication and Characterization of Bifacial Dye-Sensitized Solar Cells Utilizing Indolene Dye with Iodine and Cobalt-based Redox Electrolytes

^oSuraya Shaban¹, Shyam S. Pandey¹

¹Graduate School of Life Science and System Engineering, Kyushu Institute of Technology, Japan

- <P-13>* **Design, Synthesis and Photophysical Characterization of Multifunctional NIR Dyes for Dye-Sensitized Solar Cells**
°Kota Mori¹, Yuki Kurokawa¹, Shyam S. Pandey¹
¹Graduate School of Life Science and System Engineering, Kyushu Institute of Technology, Japan
- <P-14>* **Effect of Light Irradiation on Giant Surface Potential of Polar Organic Molecules on Insulator Layer**
°Keisuke Kurihara¹, Hideyuki Kayaguchi¹, Masaya Kitaoka¹, Hisao Ishii¹, Yuya Tanaka²
¹Chiba University, Japan
²Gunma University, Japan
- <P-15>* **Effect of a crucible heating on the surface potential of 1,3,5-tris(1-phenyl-1H-benzimidazol-2-yl)benzene**
°Hideyuki Kayaguchi¹, Keisuke Kurihara¹, Hisao Ishii¹, Yuya Tanaka²
¹Chiba University, Japan
²Gunma University, Japan
- <P-16>* **Fabrication and Characteristics of Semitransparent Organic Position Sensitive Detector with thin Ag electrode**
°Izuto Takimoto¹, Ayumu Nagakawa¹, Taichiro Morimune¹, Hirotake Kajii²
¹Department of Electronics Systems of Engineering, National Institute of Technology Kagawa College, Japan
²Graduate School of Engineering, Osaka University, Japan
- <P-17> **Response Properties of Organic Position Sensitive Detectors based on PEDOT:PSS Surface Resistive Layers with Different Resistivities**
°Taichiro Morimune¹, Hirotake Kajii²
¹Department of Electronics Systems of Engineering, National Institute of Technology Kagawa College, Japan
²Graduate School of Engineering, Osaka University, Japan
- <P-18> **Fabrication and characterization of pn-junction metal phthalocyanine nanorods using vacuum deposition**
°Yasuko Koshiba^{1,2}, Iori Sugimoto¹, Kenta Higashida¹, Shohei Horike^{1,2,3}, Kenji Ishida^{1,2}
¹Graduate school of Engineering, Kobe University, Japan
²Research Center for Membrane and Film Technology, Kobe University, Japan
³PRESTO, Japan Science and Technology Agency, Japan
- <P-19>* **Thermally stable n-type carbon nanotubes doped with organic superbases for flexible thermoelectric generators**
°Mayuko Nishinaka¹, Shohei Horike^{1,2,3,4}, Yasuko Koshiba^{1,2}, Kenji Ishida^{1,2}, Qingshuo Wei⁴, Kouki Akaike⁴, Kazuhiro Kirihara⁴, Masakazu Mukaida⁴
¹Graduate school of Engineering, Kobe University, Japan
²Research Center for Membrane and Film Technology, Kobe University, Japan
³PRESTO, Japan Science and Technology Agency, Japan
⁴Nanomaterials Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan
- <P-20>* **Hole dominant transport in halogenated p-benzoquinone complexes of diamionaphthalene**
°Mallela Nikhil Rao¹, Takehiko Mori¹
¹Department of Materials Science and Engineering, Tokyo Institute of Technology, Japan

- <P-21> **Fabrication and Characterization of Organic Field-Effect Transistors utilizing Oriented Thin films Novel DA Type Conjugated Copolymers: Implications of F Substitution**
 °Moulika Desu¹, Shyam S. Pandey¹, Guan-Lin Chen², Leeyih Wang²
¹Graduate School of Life Science and System Engineering, Kyushu Institute of Technology, Japan
²Department of Mol. Science and Engineering, National Taipei University of Technology, Taiwan
- <P-22>* **Fabrication of flexible organic thin film transistors with liquid crystalline organic semiconductor, Ph-BTBT-10**
 °Issei Suzuki¹, Junichi Hanna¹, Hiroaki Iino¹
¹Imaging Science and Engineering Research Center, Tokyo Institute of Technology, Japan
- <P-23>* **Operation Mechanism of *n*-Channel Organic Floating-Gate Memories Based on Donor-Acceptor Polymer Semiconductors**
 °Naoyuki Nishida¹, Takashi Nagase^{1,2}, Takashi Kobayashi^{1,2}, Hiroyoshi Naito^{2,3}
¹Department of Physics and Electronics, Osaka Metropolitan University, Japan
²The Research Institute for Molecular Electronic Devices (RIMED), Osaka Metropolitan University, Japan
³Department of Applied Chemistry, Osaka Metropolitan University, Japan
- <P-24>* **Device Characteristics of Electrically Programmable Organic Transistor Memories Using Polymer-Small Molecules Composite Floating-Gate Layers**
 °Takaki Adachi¹, Takashi Nagase^{1,2}, Naoyuki Nishida¹, Takashi Kobayashi^{1,2}, Hiroyoshi Naito^{2,3}
¹Department of Physics and Electronics, Osaka Metropolitan University, Japan
²The Research Institute for Molecular Electronic Devices (RIMED), Osaka Metropolitan University, Japan
³Department of Applied Chemistry, Osaka Metropolitan University, Japan
- <P-25>* **Facile Fabrication and Characterization of Solid-State Dye-Sensitized Solar Cells Utilizing a Combination of Visible and NIR Dyes**
 °Yuki Kurokawa¹, Safalmani Pradhan¹, Shyam S. Pandey¹
¹Graduate School of Life Science and System Engineering, Kyushu Institute of Technology, Japan
- <P-26>* **Design and Synthesis of Novel NIR Sensitive Squaraine dyes altering Squaric Acid Core for Dye-Sensitized Solar Cells**
 °Safalmani Pradhan¹, Yuki Kurokawa¹, Shyam S. Pandey¹
¹Graduate School of Life Science and System Engineering, Kyushu Institute of Technology, Japan
- <P-27> **Inverted perovskite solar cells with transfer-printed electron transporting layers**
 °Eiji Itoh¹, Takao Ueda¹, Tatsuya Koike¹
¹Department of Electrical and Computer Engineering, Shinshu University, Japan
- <P-28>* **Evaluation of degradation process of organic thin film solar cells using LBIC and optical second harmonic generation**
 °Yuki Okada¹, Dai Taguchi¹, Takaaki Manaka¹
¹Tokyo Institute of Technology, Japan
- <P-29> **Improvement of Photothermal Properties of Grating Structured Silver Nanoparticle Thin Films Using Simultaneous Propagating and Localized**

Surface Plasmon Excitation

^oTsubasa Kato¹, Kazunari Shinbo¹, Keizo Kato¹, Akira Baba¹

¹Graduate School of Science and Technology, Niigata University, Japan

<P-30> **Synthesis of multicolor N-doped carbon quantum dots for bio-imaging applications**

^oLee Hak Hyeon¹, Jongsung Kim¹

¹Department of Chemical and Biological Engineering, Gachon University, South Korea

<P-31>* **Evaluation of thermal transport properties in acceptor-doped thiophene-based polymer thin films by the 3 ω method**

^oKazuki Takayama¹, Shun Kanazawa¹, Goki Ito¹, Ryosuke Ikkatai¹, Kei Noda¹

¹Department of Electronics and Electrical Engineering, Keio University, Japan

<P-32> **I-V measurement system for evaluating triboelectric generators as a dipolar polarization power source**

Akihiro Nagafuchi¹, ^oDai Taguchi¹, Takaaki Manaka¹, Mitsumasa Iwamoto¹

¹Tokyo Institute of Technology, Japan

<P-33>* **Study on molecular alignment change of tin phthalocyanine film grown by vacuum deposition in DC electric field**

^oRiku Koshiba¹, Dai Taguchi¹, Takaaki Manaka¹

¹Tokyo Institute of Technology, Japan

<P-34> **Protein-resistant polyethylene glycol terminated polyurea film using trifunctional amines as a monomer of the polyurea sublayer**

^oRyo Tabata¹, Ryosuke Matsubara², Atsushi Kubono²

¹Graduate School of Science and Technology, Shizuoka University, Japan

²Faculty of Engineering, Shizuoka University, Japan

<P-35> **Effect of Fe₂O₃ Additive on Space Charge Accumulation in Low-Density Polyethylene**

^oRyotaro Ozaki¹, Yuto Nagataki¹, Taichi Yano¹, Shinya Itoh¹, Shinji Yudate¹, Kazunori Kadowaki¹

¹Graduate School of Science and Engineering, Ehime University, Japan

<P-36> **Preparation of Release Films by Ion-Assisted Deposition Method**

^oHirokazu Yano¹, Hiroaki Usui²

¹Lintec Corporation, Japan,

²Tokyo University of Agriculture and Technology, Japan

<P-37> **Fabrication of Multilayered Structure of Organic/Hybrid Polymer Thin Films**

^oTakumi Miyayama¹, Hiroaki Usui¹

¹Institute of Engineering, Tokyo University of Agriculture and Technology, Japan

<P-38>* **Vapor Deposition of *p*-Hexadecylstyrene by Ion- and Electron-Assisted Methods**

^oAoba Sasaki¹, Atsushi Ohyama¹, Hiroaki Usui¹, Yuto Kitazawa², Satoshi Usui²

¹Institute of Engineering, Tokyo University of Agriculture and Technology, Japan

²Graduate School of Science and Technology, Niigata University, Japan

<P-39> **Synthesis and Polymerization of Diacetylene Derivatives with Acceptor Unit**

^oRyoko Arai¹, Kazuki Saito¹, Yoko Tatewaki¹, Sadafumi Nishihara², Shuji Okada³

¹Division of Applied Chemistry, Graduate School of Engineering, Tokyo University of Agriculture and Technology, Japan

²Department of Chemistry, Graduate School of Science, Hiroshima University, Japan

³Department of Organic Device Engineering, Graduate School of Science and Engineering, Yamagata University, Japan

<P-40>* **Optical properties of phenyl-cored thiophene dendrimer with multiple π -conjugations**

°Mizuho Yamagishi¹, Shohei Horike^{1,2,3}, Yasuko Koshiba^{1,2}, Atsunori Mori¹, Kenji Ishida^{1,2}

¹Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University, Japan

²Reserch Center for Membrane and Film Technology, Kobe University, Japan

³PRESTO, Japan Science and Technology Agency, Japan

<P-41>* **Reverse piezoelectric response of P(VDF/TrFE) thin films for medical micropump**

°Keigo Shikata¹, Shohei Horike^{1,2,3}, Yasuko Koshiba^{1,2}, Kenji Ishida¹

¹Department of Chemical Science and Engineering, Graduate school of Engineering, Kobe University, Japan

²Reserch Center for Membrane and Film Technology, Kobe University, Japan

³PRESTO, Japan Science and Technology Agency, Japan

<P-42>* **Preparation and Optical properties of Polynanocrystal Structures Composed of 10, 12-nonacosadiynoic Acid**

°Kohei Hattori¹, Yoko Tatewaki¹, Sadafumi Nishihara^{2,3}, Shuji Okada⁴

¹Tokyo University of Agriculture and Technology, Japan

²Hiroshima University, Japan

³JST PRESTO, Japan

⁴Yamagata University, Japan

<P-43> **Molecular Dynamics Simulation Analysis of Intermolecular Phonons:Relation with Crystallinity of Poly (ether ether ketone) (PEEK)**

°Toshihiro Shimada¹, Xiaoran Yang², Seiya Yokokura¹, Taro Nagahama¹, Makoto Yamaguchi³

¹Division of Applied Chemistry, Faculty of Engineering, Hokkaido University, Japan

²Graduate School of Chemical Science and Engineering, Hokkaido University, Japan

³Department of Systems Design Engineering, Akita University, Japan

<P-44>* **Structural analysis of SAM membranes having amino group with various alkyl chains by XPS**

°Yuta Takaoka¹, Hiroaki Omori¹, Hiroyuki Sakaue¹, Hitoshi Suzuki¹

¹Hiroshima University, Japan

<P-45>* **Mesh structures formed by tetrabromobiphenyl molecules on Au(111) and Cu(111) surfaces**

°Kaito Matsuguchi¹, Shuto Shingae¹, Hiroyuki Sakaue¹, Hitoshi Suzuki¹, Yukihiro Tominari², Shukichi Tanaka²

¹Hiroshima University, Japan

²National Institute of Information and Communications Technology, Japan

<P-46> **Quantum coherent transport at room temperature in a single molecular junction**

^oBiswajit Pabi¹, Štěpán Marek², Adwitiya Pal³, Puja Kumari⁴, Soumy jyoti Ray⁴, Arunabha Thakur³, Richard Korytár², Atindra Nath Pal¹

¹Department of Condensed Matter Physics and Material Sciences, S. N. Bose National Centre for Basic Science, India

²Department of Condensed Matter Physics, Faculty of Mathematics and Physics, Charles University, Czech Republic

³Department of Chemistry, Jadavpur University, India

⁴Department of Physics, Indian Institute of Technology Patna, India

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Vertical Quantum-Effect Transistors with Molecular Dots

^oRyoma Hayakawa¹, Tuhin Shuvra Basu¹, Yutaka Wakayama¹

¹International Center for Materials Nanoarchitectonics (WPI-MANA), National Institute for Materials Science (NIMS), Japan

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Epitaxial Growth of PZT Thin Film and Application of EO Waveguide Modulator

^oFuta Uemura¹, Shiyoshi Yokoyama¹

¹Kyushu University, Japan

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Integrated Waveguide Circuit of Light Modulation and Picking for Trapped Ion Quantum Computers on Photonic-chip

^oRintaro Tajima¹, Shiyoshi Yokoyama¹

¹Kyushu University, Japan

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Evaluation of optical characteristics in electro-optic chromophores designed for applications at O-band

^oToshiki Yamada¹, Isao Aoki¹, Chiyumi Yamada¹, Akira Otomo¹

¹Advanced ICT Research Institute, National Institute of Information & Communications Technology, Japan

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Thin film passivation of organic electro-optic polymer by atomic layer deposition

^oYukihiro Tominari¹, Toshiki Yamada¹, Takahiro Kaji¹, Akira Otomo¹

¹Advanced ICT Research Institute, National Institute of Information and Communications Technology (NICT), Japan

<P-52>

Si/EO polymer hybrid optical modulators for O-band datacom applications

Hideo Yokohama¹, Isao Aoki¹, Chiyumi Yamada¹, Toshiki Yamada¹, ^oAkira Otomo¹, Masato Tanaka², Manabu Shiozaki², Hidehisa Tazawa², Yasunori Murakami², Rai Kou³, Guangwei Cong³, Morifumi Ohno³, Yuriko Maegami³, Haruhiko Kuwatsuka³, Koji Yamada³

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²Transmission Devices Laboratory, Sumitomo Electric Industries, Ltd, Japan

³Platform Photonics Research Center, National Institute of Advanced Industrial Science and Technology, Japan

<P-53>*

All Solid Near Infrared Light Induced Self Written Optical Waveguides and Optical Interconnection

^oHaruki Otaka¹, Tomomi Ota¹, Hidetaka Terasawa¹, Keisuke Kondo¹, Okihiko Sugihara¹, Yasunari Kawasaki²

¹Utsunomiya University, Japan

²NTT Advanced Technology, Japan

<P-54>*

Role of Solvent Blending in the Preparation of Semiconducting Polymer Films Using Unidirectional Floating Film Transfer Method

- ^oJumpei Toyoda¹, Rishabh Vashist¹, Manish Pandey¹, Yongyoon Cho¹, Hiroaki Benten¹, Masakazu Nakamura¹, Shyam S. Pandey²
¹Nara Institute of Science and Technology, Japan
²Graduate School of LSSE, Kyushu Institute of Technology, Japan
- <P-55>* **Influence of Thin Film Crystallinity and Molecular Orientation on Charge Carrier Transport in Organic Field Effect Transistors**
^oKumar Vivek Gaurav¹, Harshita Rai¹, Shuichi Nagamatsu², Shyam S. Pandey¹
¹Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology, Japan
²Department of Computer Science and Electronics, Kyushu Institute of Technology, Japan
- <P-56>* **Clarifying the Role of Viscosity in Controlling the Extent and Direction of Orientation in Donor-Acceptor type Conjugated Polymers**
^oShubham Sharma¹, Shyam S. Pandey¹
¹Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology, Japan
- <P-57> **Early stage growth process of dinaphtho[2,3-b:2',3'-f]thieno[3,2-b]thiophene (DNTT) thin film by slow deposition method**
^oNobuya Hiroshiba¹, Yuta Kawano¹, Richard Ongko¹, Kazuto Koike¹, Ryosuke Matsubara², Atsushi Kubono², Hirotaka Kojima³
¹Nanomaterials Microdevices Research Center, Graduate School of Engineering, Osaka Institute of Technology, Japan
²Graduate School of Integrated Science and Technology, Shizuoka University, Japan
³National Institute of Technology (KOSEN), Maizuru College, Japan
- <P-58> **Fabrication of vertical separated multilayers of S-DNTT-10/polystyrene ultra-thin films on anodic oxidized HfO₂ for low-temperature processed high-performance OFETs**
^oBojun Chen¹, Eiji Itoh¹
¹Department of Electrical and Computer Engineering, Shinshu University, Japan
- <P-59>* **Optoelectronic Artificial Synapse Device Based on Organic Floating-Gate Memory**
^oKazuyoshi Morikawa¹, Takashi Nagase^{1,2}, Kazuki Nakagawa¹, Naoyuki Nishida¹, Takashi Kobayashi^{1,2}, Hiroyoshi Naito^{2,3}
¹Department of Physics and Electronics, Osaka Metropolitan University, Japan
²The Research Institute for Molecular Electronic Devices (RIMED), Osaka Metropolitan University, Japan
³Department of Applied Chemistry, Osaka Metropolitan University, Japan
- <P-60> **High performance and stable self-powered perovskite nanowires photodetectors enabled by multi-functional conjugated polymer interfacial layer**
^oChih-Yu Chang¹
¹Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taiwan
- <P-62> **AgBiS₂ Nanocrystal / ZnO Nanowire Heterojunction Solar Cells with Enhanced Carrier Collection Efficiency**
Yun Xiao¹, Haibin Wang², Fumiyasu Awai², ^oTakaya Kubo¹, Hiroshi Segawa^{1,2}
¹Research Center for Advanced Science and Technology, The University of

Tokyo, Japan

²Graduate School Arts & Sciences, The University of Tokyo, Japan

<P-63>* **Optical Properties of Green Emissive InP-based Quantum Dots with Different Intermediate Shell Thicknesses and Their Application to Hybrid Light-Emitting Diodes**

°Maowei Huang¹, Hirotake Kajii¹, Shinsei Yamada¹, Akihito Okamoto¹, Haruki Bai¹, Shintaro Toda², Masahiko Kondow¹

¹Osaka University, Japan

²ULVAC-Osaka Univ. Joint Research Laboratory for Future Technology, Japan

<P-64> **Development of quercetin-loaded liposome-based gold nanoparticles for drug delivery applications**

°Jiyoung Lee¹, Jongsung Kim¹

¹Department of Chemical and Biological Engineering, Gachon University, South Korea

<P-65>* **Synthesis of Mxene nanoflakes for organic electronic applications**

°Radhe Shyam¹, Subhajit Jana¹, Rajiv Prakash¹

¹School of Materials Science and Technology, Indian Institute of Technology (BHU), Varanasi, India

<P-66> **Phase-Field Modelling of Electrical Tree Propagation in Polymer with Various Filler Distribution**

°Shinji Yodate¹, Tomoya Tachibana¹, Kazuki Oshimo¹, Ryotaro Ozaki¹, Kazunori Kadowaki¹

¹Graduate School of Science and Engineering, Ehime University, Japan

<P-67> **Chiral sensing of chiral organic-inorganic perovskite under circularly polarized light**

°Shiyan Shang¹, Feng Wei¹, Dai Taguchi¹, Takaaki Manaka¹

¹Tokyo Institute of Technology, Japan

<P-68>* **Evaluation on Chirality Temperature Dependence of Hybrid Perovskites thin film**

°Feng Wei¹, Dai Taguchi¹, Takaaki Manaka¹

¹Tokyo Institute of Technology, Japan

<P-69>* **ESR study on charge states and device degradation mechanisms in PEA containing tin perovskite solar cells**

°Atsushi Sato^{1,2}, Seira Yamaguchi^{1,2}, Mayu Motohashi^{1,2}, Yihuang Wang^{1,2}, Kazuhiro Marumoto^{1,2}, Tomoya Nakamura³, Atsushi Wakamiya³

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³Inst. for Chem. Res., Kyoto Univ., Japan

<P-70>* **CH₃NH₃PbI₃-Based Solar Cells Fabricated by Bar Coating Process**

°Tomoki Saito¹, Genya Uzurano¹, Nao Kuwahara¹, Kentaro Abe¹, Shogo Miyake¹, Akihiko Fujii¹, Masanori Ozaki¹

¹Division of Electrical, Electronic and Infocommunications Engineering, Graduate School of Engineering, Osaka University, Japan

<P-71>* **Effect of coating process on the electrical and optical properties of Silver Nanowire based electrodes**

°Tejswini Kishor Lahane¹, Jitesh Agrawal¹, Vipul Singh¹

¹Molecular and Nanoelectronics Research Group (MNRG), Department of Electrical Engineering, IIT Indore, India

<P-72> **Oxide Based Heterojunction for Modern Optoelectronic Applications**

Arige Sumanth¹, M. S. Ramachandra Rao², °Tejendra Dixit¹

¹Optoelectronics and Quantum Devices Group, Indian Institute of Information Technology Design and Manufacturing Kancheepuram, India.

²Department of Physics, Quantum Centre for Diamond and Emergent Materials (QuCenDiEM), Nano Functional Materials Technology Centre (NFMTC) and Materials Science Research Centre (MSRC) - Building, Indian Institute of Technology Madras, India

<P-73>* **Investigations on the effect of Laser Texturing of Kapton Polyimide on the Piezoelectric response of ZnO based Nanogenerators**

°N. H. Purabiarao¹, V. Singh¹, I. A. Palani²

¹Molecular and Nanoelectronics Research Group (MNRG), Department of Electrical Engineering, Indian Institute of Technology, Indore, India

²Mechatronics and Instrumentation Lab, Department of Mechanical Engineering, Indian Institute of Technology, Indore, India

<P-74> **Particle Dynamics Study in Laser Micro 3D Printing for Sensors Fabrication**

Anshu Sahu¹, °Vipul Singh², I A Palani¹

¹Mechatronics and Instrumentation Lab, Discipline of Mechanical Engineering, Indian Institute of Technology Indore, India

²Molecular and Nanoelectronics Research Group, Discipline of Electrical Engineering, Indian Institute of Technology Indore, India

<P-75>* **Smartphone based non-invasive glucose monitoring in diabetic patients utilizing enhanced chemiluminescence imaging technique**

°Nupur kumari¹, Priya singh¹, Narsingh raw Nirala¹, Rajiv Prakash¹

¹School of Materials Science and Technology, Indian Institute of Technology (Banaras Hindu University), Varanasi, India

<P-76>* **Fluorescence Detection of Elastase Enzyme by Novel Peptide Squaraine Dye Conjugate**

°Sai Kiran Mavileti¹, Tetsuya Narimatsu¹, Shekhar Gupta¹, Tamaki Kato¹, Shyam S. Pandey¹

¹Graduate School of Life Science and System Engineering, Kyushu Institute of Technology, Japan

<P-77> **Design & Synthesis of FITC-Flanked Novel Squaraine Dye and its Interaction with Bovine Serum Albumin as a Model Protein**

°Shekhar Gupta¹, Yuuki Yamawaki¹, Safalmani Pradhan¹, Shyam S. Pandey¹, Tamaki Kato¹

¹Graduate School of Life Science and System Engineering, Kyushu Institute of Technology, Japan

<P-78>* **Bioinspired magnetic iron oxide nanoparticles from *Argyrea nervosa* leaf extract for efficient electrochemical determination of carbofuran pesticide: a sustainable approach**

°Kshitij RB Singh¹, Shyam S Pandey¹

¹Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology, Japan

<P-79>* **Novel strategy for designing NIR fluorescence ON probe for wide range dynamic pH sensing via acid induced oligomerization**

°Linjun Tang¹, Shyam S. Pandey¹

¹Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology, Japan

- <P-80>* **Characterization of electrochemical performance of polyaniline-polyvinyl acetate films used as pH sensor**
°QI KANG¹, Hiroaki Takehara^{1,2}, Takanori Ichiki^{1,2}
¹Department of Materials Engineering, the University of Tokyo, Japan
²Innovation Center of NanoMedicine (iCONM), Japan
- <P-81>* **Fabrication of Dual-mode Miniature Surface Plasmon Resonance Sensor Chip Using a Grating-polymeric Prism**
°Wisansaya Jaikeandee¹, Chutiparn Lertvachirapaiboon¹, Kazunari Shinbo¹, Keizo Kato¹, Akira Baba¹, Supeera Nootchanat², Sanong Ekgasit²
¹Graduate School of Science and Technology and Faculty of Engineering, Niigata University, Japan
²Sensor Research Unit (SRU), Department of Chemistry, Faculty of Science, Chulalongkorn University, Thailand
- <P-82>* **A Graphene Oxide-Modified Extended-Gate-Type Organic Transistor for Glucose Detection in a Human Blood Sample**
°Haonan Fan¹, Qi Zhou¹, Yui Sasaki¹, Tsuyoshi Minami¹, Yuta Nishina^{2,3}
¹Institute of Industrial Science, The University of Tokyo, Japan
²Research Core for Interdisciplinary Sciences, Okayama University, Japan
³Graduate School of Natural Science and Technology, Okayama University, Japan
- <P-83>* **Sensing of Nitrate Ions Using Graphene-Extended Gate Field-Effect Transistor**
°Koki Kato¹, Kento Mimura¹, Masato Nishiwaki², Takayuki Hasegawa¹, Nobuya Hiroshiba¹, Kazuto Koike¹, Toshihiko Maemoto¹, Akira Fujimoto¹
¹Graduate Course in Electrical, Electronic and Mechanical Engineering, Nanomaterials Microdevices Research Center, Osaka Institute of Technology, Japan
²Division of Human Sciences, Faculty of Engineering, Osaka Institute of Technology, Japan
- <P-84> **Properties of Microwells Sealed with Lipid Bilayers: Effects of Surface Materials**
°Yoshiaki Kashimura¹, Masumi Yamaguchi¹
¹NTT Basic Research Laboratories and Bio-Medical Informatics Research Center, NTT Corporation, Japan
- <P-85> **Development of EIS biosensors for rapid cortisol determination in saliva**
°Keitaro Mori¹, Takayuki Shibata¹, Hitoshi Ohnuki¹, Haiyun Wu², Hideaki Endo², Daijyu Tsuya³, Yuki Maruyama⁴
¹Division of Marine Technology, Tokyo University of Marine Science and Technology, Japan
²Division of Marine Science, Tokyo University of Marine Science and Technology, Japan
³National Institute for Materials Science, Japan
⁴Research and Development Division, Lion Corporation, Japan
- <P-86>* **Co-assembly of fibloin like peptides on graphite surface for potential biosensing**
°Shun Shimizu¹, Chishu Homma¹, Yuhei Hayamizu¹
¹Department of Materials Science and Engineering, School of Materials and Chemical Technology, Tokyo Institute of Technology, Japan

December 13 (Tuesday)

9:15-17:00	Registration	
9:30-10:10	Plenary Lecture 2	
		Chair : Naoki Matsuda (AIST)
9:30-10:10	<PL-2> (Invited)	Engineering nano-bio-interfaces for biosensing and neuro-electronics °Andreas Offenhäusser ¹ , Pegah Shokoohimehr ¹ , Gabriela Figueroa Miranda ¹ , Dirk Mayer ¹ ¹ Institute of Biological Information Processing-Bioelectronics, Forschungszentrum Jülich, Germany
10:10-10:20	Break	
10:20-11:30	Session 4 : Bioelectronics	
		Chair : Akira Baba (Niigata University)
10:20-10:45	<S4-I-1> (Invited)	High spatiotemporal resolution live cell imaging on a plasmonic metasurface °Kaoru Tamada ¹ ¹ Institute for Materials Chemistry and Engineering (IMCE), Kyushu University, Japan
10:45-11:00	<S4-O-1>	Surfactant-free gold nano-particle dispersed aqueous solution for surface-enhanced Raman scattering spectroscopy °Naoki Matsuda ¹ , Hirotaka Okabe ¹ Sensing System Research Center, National Institute of Advanced Industrial Science and Technology, Japan
11:00-11:15	<S4-O-2>*	A label free disposable immunosensor based on simple architecture with self-assembled monolayers for novel cancer biomarker sensing °Amit K. Yadav ¹ , Payal Gulati ¹ , Pratima R. Solanki ¹ , Rinu Sharma ² , Alok Thakkar ³ ¹ Nano-Bio Laboratory, Special Centre for Nanoscience, Jawaharlal Nehru University, India ² Guru Gobind Singh Indraprastha University, India ³ Otolaryngology & Head Neck Surgery, All India Institute of Medical Sciences, India
11:15-11:30	<S4-O-3>	Strategies for signal amplification in electrochemical immunosensors for clinical diagnoses Siriporn Anuthum ^{1,2} , Patrawadee Yaiwong ^{1,2} , Supakeit Chanarsa ^{1,2} , Natthawat Semakul ¹ , Jaroon Jakmune ^{1,3} , °Kontad Ounnunkad ^{1,3} ¹ Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Chiang Mai University, Thailand ² The Graduate School, Chiang Mai University, Thailand ³ Research Center on Chemistry for Development of Health Promoting Products from Northern Resources, Chiang Mai University, Thailand

Conference Program

11:30-11:50	Break	
11:50-12:40	Session 5 : AI and materials informatics	Chair : Takashi Nagase (Osaka Metropolitan University)
11:50-12:15	<S5-I-1> (Invited)	Experiments- and machine learning-driven approach to the development of organic photovoltaics °Akinori Saeki ¹ ¹ Department of Applied Chemistry, Graduate School of Engineering, Osaka University, Japan
12:15-12:40	<S5-I-2> (Invited)	Pattern recognition-driven chemical sensing based on an organic transistor °Tsuyoshi Minami ¹ ¹ Institute of Industrial Science, The University of Tokyo, Japan
12:40-14:00	Lunch	
14:00-14:30	Keynote Presentation 2	Chair : Hiroaki Usui (Tokyo University of Agriculture and Technology)
14:00-14:30	<KN-2> (Invited)	Carrier generation in high-mobility organic semiconductors °Masahiro Hiramoto ¹ ¹ Institute for Molecular Science, Japan
14:30-14:40	Break	
14:40-16:30	Session 6 : Fabrication and characterization of organic and molecular devices II	Chair : Shyam S. Pandey (Kyushu Institute of Technology) Co-chair : Hiroaki Iino (Tokyo Institute of Technology)
14:40-15:05	<S6-I-1> (Invited)	Charge separation with small energy offset at donor:acceptor interface °Yasunari Tamai ¹ ¹ Department of Polymer Chemistry, Graduate School of Engineering, Kyoto University, Japan
15:05-15:30	<S6-I-2> (Invited)	Photo- and electrically-excited upconversion emission using organic semiconductor interface °Seiichiro Izawa ¹ ¹ Institute for Molecular Science, Japan
15:30-15:45	<S6-O-1>*	Comparative investigation of plasmonic P3HT:PC61BM based solar cells with aluminum grating and embeded gold nanoparticulates °Joseph Baki Kaore ¹ , Akira Baba ¹ , Kazunari Shinbo ¹ , Keizo Kato ¹ ¹ Graduate School of Science and Technology, Niigata University, Japan
15:45-16:00	<S6-O-2>*	Gold nanocomposite film enhanced photoelectrochemical non-enzymatic glucose sensor °Sopit Phetsang ¹ , Naoto Okuuchi ² , Chutiparn Lertvachirapaiboon ² , Kazunari Shinbo ² , Keizo Kato ² , and Akira Baba ² ¹ Division of General Education, National Institute of Technology, Nagaoka College, Japan ² Graduate School of Science and Technology, Niigata University, Japan

- 16:00-16:15 <S6-O-3> **ESR study of charge-accumulation states and molecular orientation in polymer solar-cell materials using organic electrochemical transistor structures**
 °Jiaxi Wang^{1,2}, Seira Yamaguchi^{1,2}, Dong Xue^{1,2}, Satoshi Inai^{1,2}, Kazuhiro Marumoto^{1,2}, Masahiko Saito³, Itaru Osaka³
¹University of Tsukuba, Japan
²TREMS, University of Tsukuba, Japan
³Hiroshima University, Japan
- 16:15-16:35 **Break**
- 16:35-18:25 **Session 7 : Organic-Inorganic hybrid material and applications**
 Chair : Toshihiro Shimada (Hokkaido University)
 Co-chair : Takaaki Manaka (Tokyo Institute of Technology)
- 16:35-17:00 <S7-I-1> **Phase/structure-engineered two-dimensional layered materials for innovative nanoelectronics**
 (Invited) °Yu-Lun Chueh¹
¹Department of Materials Science and Engineering, National Tsing-Hua University, Taiwan
- 17:00-17:25 <S7-I-2> **Novel photo-functional materials and devices based on organic-inorganic hybrid structures**
 (Invited) °Ayumi Ishii¹
¹Faculty of Life and Environmental Sciences, Teikyo University of Science, Japan
- 17:25-17:40 <S7-O-1> **CO₂ generation from carbohydrates fuel cells**
 °Keiichi Kaneto¹, Sadahito Uto¹
¹Department of Biomedical Engineering, Osaka Institute of Technology, Japan
- 17:40-17:55 <S7-O-2> **Fabrication of high response ZnO thin film-based carbon monoxide gas sensors**
 Jitesh Agrawal¹, Mayoorika Shukla¹, Tejaswini Kishor Lahane¹, °Vipul Singh¹
¹Molecular and Nanoelectronics Research Group (MNRG), Department of Electrical Engineering, Indian Institute of Technology Indore, India
- 17:55-18:10 <S7-O-3>* **Shift current generation along off-polar axis in organic-inorganic hybrid perovskites**
 °Taishi Noma¹, Fumito Araoka¹, Daigo Miyajima¹
¹RIKEN Center for Emergent Matter Science (CEMS), Japan
- 18:10-18:25 <S7-O-4>* **Investigation of charge transfer mechanism of RP tin-based perovskite solar cells with BA⁺ and PEA⁺ using operando ESR method**
 °Yizhou Chen^{1,2}, Seira Yamaguchi^{1,2}, Atsushi Sato^{1,2}, Dong Xue^{1,2}, Kazuhiro Marumoto^{1,2}
¹University of Tsukuba, Japan
²TREMS, University of Tsukuba, Japan

December 14 (Wednesday)

9:15-12:00	Registration	
9:30-10:10	Plenary Lecture 3	Chair : Takeshi Fukuda (Sekisui Chemical)
9:30-10:10	<PL-3> (Invited)	Towards sustainable intelligent materials and systems °Benjamin C.K. Tee ¹ ¹ College of Design and Engineering, National University of Singapore, Singapore
10:10-10:20	Break	
10:20-11:40	Session 8 : Haptic, wearable, flexible devices and applications	Chair : Dai Taguchi (Tokyo Institute of Technology)
10:20-10:45	<S8-I-1> (Invited)	Next-generation wearable devices by intrinsically stretchable polymer materials °Naoji Matsuhisa ¹ ¹ Institute of Industrial Science, The University of Tokyo, Japan
10:45-11:10	<S8-I-2> (Invited)	Human sensory and extra-sensory interactive sensing displays °Cheolmin Park ¹ ¹ Department of Materials Science and Engineering, Yonsei University, Korea
11:10-11:25	<S8-O-1> [*]	An ultrathin and stretchable electrochromic display with exceptional skin conformability °Taizo Tominaga ¹ , Tokihiko Shimura ¹ , Naoji Matsuhisa ¹ , Minoru Ashizawa ² ¹ Institute of Industrial Science, The University of Tokyo, Japan ² Materials Science and Engineering, Tokyo Institute of Technology, Japan
11:25-11:40	<S8-O-2> [*]	Two-dimensional Mo_xW_{1-x}S₂ alloys for nanogenerators producing record piezo-output and coupled photodetectors for self-powered UV sensor °Didhiti Bhattacharya ¹ , Shubhrasish Mukherjee ¹ , Atindra Nath Pal ¹ , Rajib Kumar Mitra ¹ , Samit Kumar Ray ^{1,2} ¹ S. N. Bose National Center for Basic Science, India ² Indian Institute of Technology Kharagpur, India
11:40-13:00	Lunch	
13:00-13:50	Session 9 : Organic semiconductor materials and devices III	Chair : Kazuhiro Marumoto (University of Tsukuba)
13:00-13:25	<S9-I-1> (Invited)	Dual-band organic photodetectors °Furong Zhu ¹ ¹ Department of Physics, Hong Kong Baptist University, China
13:25-13:50	<S9-I-2>	Oriented semiconducting polymers and polymer composite films for sensor devices

(Invited)

°Rajiv Prakash¹, Subhajit Jana¹

¹School of Materials Science and Technology, Indian Institute of Technology
Varanasi, India

13:50-14:10

Closing remarks (Award ceremony)