

PROGRAM

Oral Presentations

November 10 (Thursday)

Opening Ceremony

9:50-10:00

Vice President and Prof. A. Baba (Osaka University)

Prof. A. Harada (Osaka University) and S. Takeda (Osaka University)

Symposium A Bio-Environmental Chemistry

Chair: Prof.A. Harada (Osaka University)

10:00-10:40

A-1 Single Chain Polymeric Nanoparticles: from Structure to Function

Anja R. A. Palmans (Invited)

Laboratory of Macromolecular and Organic Chemistry, Institute of Complex Molecular systems, TU Eindhoven, Netherlands

10:40-11:20

A-2 Direct Observation of Single Molecular Event in DNA Origami Frame

Hiroshi Sugiyama (Invited)

Department of Chemistry, Graduate School of Science, Kyoto University, Japan, Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University, Japan, and CREST, Japan Science and Technology Corporation (JST), Japan

11:20-12:00

A-3 Easiest Action for Highest Technology

–Hand-Operating Nanotechnology (Molecular Manipulation by Hands)–

Katsuhiko Ariga (Invited)

World Premier International (WPI) Research Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS) & JST CREST, Japan

12:00- Lunch

Poster Session I

Chairs: Profs. Palmans (Institute of Complex Molecular systems), Shim (Hanyang University), Botton (McMaster University), H. Watanabe (Osaka University) and H. Tada (Osaka University)

12:30-14:00

Symposium B Advanced Structural and Functional Materials Design

Chair: Profs. Y. Fujiwara (Osaka University) and T. Kakeshita (Osaka University)

14:00-14:40

B-1 The Saturated Radiative Recombination Rate of Importance to the Efficiency Droop in InGaN-based Light-Emitting Diodes

Jong-In Shim (Invited)

Dept. of Electronics and Communication Eng., ERICA campus, Hanyang Univ., Korea

14:40-15:20

B-2 Bonding and Electronic Structure of Nanoscale with Electron Microscopy

G.A. Botton (Invited)

Dept of Materials Science and Engineering, Canadian Centre for Electron Microscopy-
Brockhouse Institute for Materials Research, McMaster University, Hamilton, Canada,

15:20-15:50

B-3 New routes to carbon nanostructures

Hideo Kohno (Invited)

Graduate School of Science, Osaka University, Japan

15:50-16:10 Coffee Break

Special Lecture

Chair: Prof. T. Itoh (INSD, Osaka University)

16:10-16:50

Nano-Technology Strategy for Low Carbon Society Nuclear vs. Renewable Energy after 3.11 Fukushima

Koichi Kitazawa (Invited)

Japan Science and Technology Agency, Japan

Conference Banquet

17:10-19:30 Restaurant Minelva/ Icho Kaikan

November 11 (Friday)

Symposium C Advanced Materials-Interdisciplinary Education

Chair: Profs H. Miyasaka (Osaka University) and M. Ashida (Osaka University)

8:30-9:10

C-1 Multiexciton Dynamics in New Solar Cell Materials

Yoshihiko Kanemitsu (Invited)

Institute for Chemical Research, Kyoto University, Japan

9:10-9:50

C-2 Single-molecule Approach to Structure and Photophysics of Molecular Complexes: From Conjugated Polymers to Photosynthetic Light Harvesting

Martin Vacha (Invited)

Department of Organic and Polymeric Materials, Tokyo Institute of Technology, Japan

9:50-10:30

C-3 Photoresponsive Crystal Shape Change of Photochromic Diarylethenes

Seiya Kobatake (Invited)

Department of Applied Chemistry, Graduate School of Engineering, Osaka City University, Japan

10:30-10:50 Coffee Break

Symposium D Green nanotechnology

Chair: Prof. Y. Aso(ISIR, Osaka University)

10:50-11:30

D-1 Tsukuba Innovation Arena (TIA)

A New Open-Innovation Hub for Nanotechnology

Toshihiko Kanayama (Invited)

National Institute of Advanced Industrial Science and Technology, Japan

11:30-12:10

D-2 FIRST Program: Development of Core Technologies for Green Nanoelectronics

Naoki Yokoyama (Invited)

Collaborative Research Team Green Nanoelectronics Center

National Institute of Advanced Industrial Science & Technology (AIST), Japan

12:10- Lunch

Poster Session II

Chairs: Prof. Sweetman(University of Nottingham), Rahe (Johannes Gutenberg-Universität Mainz), Vacha (Tokyo Institute of Technology) and H. Akai(Osaka University)

12:30-14:00

Plenary Lecture

Chair: Prof. Y. Yoshida (ISIR, Osaka University)

14:00-14:40

Nanotechnology for Single Molecular DNA Sequencing

—STM and Gating Nanopore—

Tomoji Kawai (Invited)

FIRST Program, ISIR, Osaka University, Japan

14:40-15:00 Coffee Break

Symposium E Electronics Devices Innovation

Chair: Prof. M. Abe (Osaka University)

15:00-15:40

E-1 Atomic-scale vertical and lateral interactions

Shigeki Kawai and Ernst Meyer (Invited)

Department of physics, University of Basel, Switzerland

15:40-16:20

E-2 Mechanical atom manipulation and sub-molecular imaging using qPlus NC-AFM

Adam Sweetman¹, Sam Jarvis¹, Joseph Bamidele², Rosanna Danza¹, Cristina Chiutu¹, A. Lakin¹, J. Dunn¹, Lev Kantorovich², and Philip Moriarty¹ (Invited)

¹ School of Physics, University of Nottingham, UK

² School of Physics, Kings College London Strand, London, UK

16:20-17:00

E-3 Three-dimensional atomic force microscopy on the calcite(104) surface

Philipp Rahe¹, Stefan Kuhn¹, Jens Schütte^{1,2}, Michel Reichling³, Masayuki Abe⁴, Yoshiaki Sugimoto⁴, Angelika Kühnle¹ (Invited)

¹Institut für Physikalische Chemie, Johannes Gutenberg-Universität Mainz, Germany

²now at: Dr. Eberl MBE-Komponenten GmbH, Weil der Stadt, Germany

³Fachbereich Physik, Universität Osnabrück, Osnabrück, Germany

⁴Graduate School of Engineering, Osaka University, Osaka, Japan

Poster Award Ceremony and Closing Ceremony

17:00-17:15

Poster Presentations

Conference Room, Icho Kaikan

Poster Session I

November 10 (Thursday) 12:30-14:00

Chair: Profs. Palmers, Shim, Botton, H. Watanabe, and H. Tada

PI-1 Redox Responsive Supramolecular Hydrogel Formed by Host and Guest Polymers

Masaki Nakahata¹, Yoshinori Takashima¹, Hiroyasu Yamaguchi¹, and Akira Harada^{1,2}

¹Graduate School of Science, Osaka University, ²JST CREST

PI-2 Discrimination of the Substituted Position on Naphthyl Group in Macroscopic Scale using Polyacrylamide Gel Modified with β -Cyclodextrin

Yongtai Zheng¹, Akihito Hashidzume¹, Yoshinori Takashima¹, Hiroyasu Yamaguchi¹, Akira Harada^{1,2}

¹Department of Macromolecular Science, Graduate School of Science, Osaka University, ²Japan Science and Technology Agency (JST), Core Research for Evolutional Science and Technology (CREST), Japan

PI-3 Photoswitchable Gel Assembly based on Molecular Recognition

Yuichiro Kobayashi¹, Hiroyasu Yamaguchi¹, Ryosuke Kobayashi, Yoshinori Takashima¹, Akihito Hashidzume¹, and Akira Harada^{1,2}

¹Graduate School of Science, Osaka University, ²JST CREST

PI-4 Formation of Supramolecular Hydrogel through Host-guest Interaction and Self-healing Property

Takahiro KAKUTA¹, Yoshinori TAKASHIMA¹, Hiroyasu YAMAGUCHI¹, Akira HARADA^{1,2}

¹Graduate School of Science, Osaka University, ²JST-CREST

PI-5 Controlling Fluorescence of Perylene-3,4,9,10-tetracarboxylic diimide Produced by Tumbling of Cyclodextrin

Yu Fukui¹, Yoshinori Takashima¹, Hiroyasu Yamaguchi¹, and Akira Harada^{1,2}

¹Department of Macromolecular Science, Graduate School of Science, Osaka University, ²JST CREST

PI-6 Completely Encapsulated Oligothiophenes: Synthesis, Properties, and Single-Molecule Conductance

Yutaka Ie^{1, 2}, Masaru Endou¹, See Kei Lee³, Ryo Yamada³, Hirokazu Tada³, Yoshio Aso¹

¹The Institute of Scientific and Industrial Research (ISIR), Osaka University,

²PREST-JST, ³Graduate School of Engineering Science, Osaka University

PI-7 Synthesis and Properties of Polythiophenes Bearing Oligothiophene Side Chains for Organic Electronics Materials

Makoto Karakawa, Yutaka Ie, Yoshio Aso

ISIR, Osaka-university

PI-8 Hydrothermal Synthesis of Silicon-Based Nanocapsules

Satoru Sonae¹, Masato Ara² and Hirokazu Tada¹

¹Graduate School of Engineering Science, ²Institute for Nanoscience Design, Osaka University

PI-9 Investigation of Chemical Bonding States at Inorganic/Organic Interface For Development of Low-Damage Fabrication Processes of Hybrid Multi-Layer Structure

Ken Cho^{1,5}, Kosuke Takenaka^{2,5}, Yuichi Setsuhara^{2,5}, Masaharu Shiratani^{3,5}, Makoto Sekine^{4,5} and Masaru Hori^{4,5}

¹ Graduate school of engineering, Osaka University, ² Joining and Welding Research Institute, Osaka University, ³ Department of Electronics, Kyushu University, ⁴Graduate School of Engineering, Nagoya University, Japan, ⁵Japan Science and Technology Agency, CREST, Japan

PI-10 Growth of Vanadium Dioxide Nanowires using Vanadyl Acetylacetonate

T. Ishibe, J. Kikkawa, Y. Nakamura, and A. Sakai

Graduate School of Engineering Science, Osaka University

PI-11 Formation of ultrahigh density iron oxide nanodots on Si substrates with nanometer-sized interfaces controlled by ultrathin SiO₂ films

K. Tanaka¹, Y. Nakamura^{1,2}, H. Hamanaka¹, J. Kikkawa¹, and A. Sakai¹

Graduate School of Engineering Science, Osaka University¹, PRESTO-JST²

PI-12 Position-, Size-, and Shape-controlled highly crystalline ZnO nanostructures

Azusa N. Hattori, Atsushi Ono, and Hidekazu Tanaka

The Institute of Scientific and Industrial Research, Osaka University

PI-13 Three-dimensionally-nanopatterned MgO substrates for the fabrication of the epitaxial transition metal oxide nanowire

Yasushi Fujiwara, Azusa N. Hattori, and Hidekazu Tanaka

The Institute of Scientific and Industrial Research, Osaka University

PI-14 Epitaxial VO₂ Nanolines Fabricated by Using a Nanoimprint Lithography Technique

H. Takami, K. Kawatani, T. Kanki, and H. Tanaka

Institute of Scientific and Industrial Research, Osaka University

PI-15 Position-selective Growth of Self-organized Fe Nanopillars on Substrates with Patterned Nanodots

K. Okada, T. Sakamoto, A. Hattori, T. Kanki, and H. Tanaka

The Institute of Scientific and Industrial Research, Osaka University

PI-16 Fabrication of (Fe,Mn)₃O₄ nanowires using a sidewall deposition method

Takayoshi Kushizaki, Kohei Fujiwara, Azusa N. Hattori, Teruo Kanki, and Hidekazu Tanaka

ISIR, Osaka Univ.

PI-17 Size and Shape Controls of Ag Nanoparticles by Simultaneous Irradiations with UV and NIR Lasers

Hiroaki Yamauchi, Syoji Ito, and Hiroshi Miyasaka

Division of Frontier Materials Science, Graduate School of Engineering Science and Center for Quantum Science and Technology under Extreme Conditions, Osaka University

PI-18 Characterization of Thin Yttrium Film Surfaces with Annealing

Akira KITAJIMA¹, Koji HIGUCHI¹, Cong Que DINH¹, Akihiro OSHIMA¹, Shigehiko HASEGAWA¹, Masamichi SAKAI²

¹) Institute of Scientific and Industrial Research, Osaka University, ²) Saitama University

PI-19 Formation of Nanoporous Ta₂O₅ with Oriented Nanovoids via Annealing of Amorphous Films

K. Tanaka, R. Nakamura, M. Ishimaru and H. Nakajima

The Institute of Scientific and Industrial Research, Osaka University

PI-20 Electron-Irradiation-Induced Crystal-to-Amorphous-to-Crystal (C-A-C) Transition in a Cr-Ti Alloy: Discussion on Gibbs Free Energies of a Non-Equilibrium BCC Solid Solution and an Amorphous Phase

Satoshi Anada^a, Takeshi Nagase^{a,b}, Hidehiro Yasuda^b, and Hirotaro Mori^b

^aDivision of Materials and Manufacturing Science, Graduate School of Engineering,

Osaka University, ^bResearch Center for Ultra-High Voltage Electron Microscopy, Osaka University

PI-21 Electron-irradiation-induced structural transitions in Pd nanoparticles

Tsuyoshi Furuta^a and Hidehiro Yasuda^b

^aDivision of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University, ^bResearch Center for Ultra-High Voltage Electron Microscopy, Osaka University

PI-22 Preparation of Nickel Nanoparticles/Hollow Silica (Core/Shell) nanocomposites by using a Nickel Hydrazine Complex as a Mold

T. Harada, T. Misaka, T. Sugita, S. Ikeda, M. Matsumura

Research Center for Solar Energy Chemistry, Osaka University

PI-23 A protein removal technique with atmospheric-pressure He plasma for fabricating plasmonic device using porter-protein system

Yurie Fukunishi¹, Tatsuya Hashimoto¹, Zheng Bin^{2,3}, Megumi Fukuta^{1,3}, Nobuyuki Zettsu^{1,3}, Ichiro Yamashita^{2,3}, Yukiharu Uraoka^{2,3} and Heiji Watanabe^{1,3}

¹ Graduate School of Engineering, Osaka University, ² Graduate School of Materials Science, Nara Institute of Science and Technology (NAIST), ³ Japan Science and Technology Agency, CREST, Japan

PI-24 Characterization of Grain Boundaries and Lattice Strain in Multicrystalline Si for Solar Cells by Synchrotron White X-ray Micro-beam Diffraction Method

T. Matsumiya¹, N. Morimoto¹, S. Fujino¹, T. Hosoi¹, T. Shimura¹, K. Kajiwara², J. Chen³, T. Sekiguchi³, and H. Watanabe¹

¹Graduate School of Engineering, Osaka University, ² Japan Synchrotron Radiation Research Institute (JASRI), SPring-8, ³ National Institute for Materials Science (NIMS)

PI-25 Photovoltaic Effect of Si Nanoparticles Fabricated by Non-vacuum Simple Method

Masanori Maeda, Taketoshi matsumoto, Hikaru Kobayashi

ISIR, Osaka University

PI-26 X-band ESR of diluted magnetic semiconductor GaAs:Er,O

W. M. Zhang^A, Y. Fukuoka^B, F. Elmasy^B, S. Okubo^C, H. Ohta^C, Y. Fujiwara^D

^ADivision of Frontier Research and Technology, Kobe University, Japan, ^BGraduate School of Science, Kobe University, Japan, ^CMolecular Photoscience Research Center, Kobe University, Japan, ^DGraduate School of Engineering, Osaka University, Japan.

PI-27 Silver nanowire flexible antenna for printed electronics

Natsuki Komoda,¹ Masaya Nogi,² Kazuo Kohno,³ Kanji Otsuka,³ Katsuaki Suganuma²

¹Department of Adaptive Machine systems, Graduate school of Engineering, Osaka University, ² The Institute of Scientific and Industrial Research, Osaka University
³Collaborative Research Center, Meisei University, Japan

PI-28 Transfer-Free Graphene Growth by Annealing Amorphous Carbon

Kenta Gumi, Yasuhide Ohno, Kenzo Maehashi, Koichi Inoue, and Kazuhiko Matsumoto

The Institute of Scientific and Industrial Research, Osaka University

PI-29 Deposition of Zinc Oxide films with Plasma-Assisted Mist Chemical Vapor Deposition Method

Kosuke Takenaka, Yusuke Okumura, and Yuichi Setsuhara

Joining and Welding Research Institute, Osaka University

PI-30 Time-Dependent Behavior of Short Lived Active Species in Polymer Model Compound Studied by Femtosecond Pulse Radiolysis for Advanced Nano-Fabrication

Takafumi Kondoh, Jinfeng Yang, Kimihiro Norizawa, Koichi Kan, Tomohiro Toigawa, Atsushi Ogata, Hitoshi Kobayashi, Seiichi Tagawa, Yoichi Yoshida

The Institute of Scientific and Industrial Research, Osaka University

PI-31 The Formation and Reaction Process of Hydrated Electron Studied by Femtosecond Pulse Radiolysis

K. Norizawa, T. Toigawa, T. Kondoh, K. Kan, J. Yang, T. Kozawa and Y. Yoshida

The Institute of Scientific and Industrial Research, Osaka University

PI-32 In-Plane Gating Nanopore for Single-Molecule Electrical DNA Sequencing

Makusu Tsutsui, Rahong Sakon, Masateru Taniguchi, and Tomoji Kawai

The Institute of Scientific and Industrial Research, Osaka University

PI-33 Tissue and Cell Specific Delivery of Strong Anti-Inflammatory Protein Using Bio-nanocapsule

Kenji Tatematsu and Katsuyuki Tanizawa

The Institute of Scientific and Industrial Research, Osaka University

PI-34 Spatially Controlled Uniform Oxide Nanowire Arrays by Ultra-thin AAO Membrane Mask

Gang Meng¹, T. Yanagida^{1,2}, M. Kanai¹, K. Nagashima¹, A. Klamchuen¹, K. Oka¹, S. Rahong¹, M. Horprathum^{1,3}, T. Yanagishita⁴, H. Masuda⁴ and T. Kawai^{1,5}

¹ Institute of Science and Industrial Research, Osaka University, ² PRESTO, Japan Science and Technology Agency, ³ Optical Thin-Film Laboratory, National Electronics and Computer Technology Center, Thailand, ⁴ Department of Applied Chemistry, Tokyo Metropolitan University, Japan, ⁵ Division of Quantum Phases & Devices, Department of Physics, Konkuk University, Korea

PI-35 Integration of Oxide Nanowires in Microfluidic Chip for Long DNA Molecules Manipulation

Sakon Rahong¹, T. Yanagida^{1,2}, M. Kanai¹, K. Oka¹, A. Klamchuen¹, M. Gang¹, K. Nagashima¹, M. Horprathum^{1,3}, T. Yasui^{4,5}, K. Motoyama⁴, N. Kaji^{4,5,7}, Y. Baba^{4,6} and T. Kawai¹

¹The Institute of Scientific and Industrial Research, Osaka University, ²PRESTO, Japan Science and Technology Agency, Japan, ³Photonic Technology Laboratory, National Electronics and Computer Technology Center, Thailand, ⁴Department of Applied Chemistry, Graduate School of Engineering, Nagoya University, Japan, ⁵FIRST Research Center for Innovative Nanobiodevices, Nagoya University, Japan, ⁶Health Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan, ⁷Graduate School of Science, ERATO Higashiyama Live-Holomics Project, Nagoya University, Japan

PI-36 Dynamic Dopant Incorporation Rule on Semiconductor Oxide Nanowire Growth

A. Klamchuen¹, T. Yanagida^{1,2}, M. Kanai¹, K. Nagashima¹, K. Oka¹, G. Meng¹, S. Rahong¹, M. Horprathum^{1,3}, B. Xu¹, F. Zhuge¹, Y. He¹, M. Suzuki⁴, Y. Hidaka⁴, S. Kai⁴ and T. Kawai^{1,5}

¹ Institute of Science and Industrial Research, Osaka University, ² PRESTO, Japan Science and Technology Agency, Japan, ³ Optical Thin-Film Laboratory, National Electronics and Computer Technology Center, Thailand, ⁴ Department of Applied Quantum Physics and Nuclear Engineering, Faculty of Engineering, Kyushu University, Japan, ⁵ Division of Quantum Phases & Devices, Department of Physics, Konkuk University, Korea

PI-37 Peristaltic Mechanism of Multidrug Efflux Transporter AcrB Revealed by the Crystal Structure of AcrB with High-Molecular-Weight Drugs

Nakashima R., Sakurai K., Yamasaki S., Nishino K., Yamaguchi A.

The Institute of Science and Industrial Research, Osaka University

PI-38 Multi-color Cathodoluminescence Imaging for Biological Cells With Using Nanophosphors

H. Niioka¹, T. Furukawa², M. Ichimiya^{2,3}, M. Ashida², T. Araki², M. Hashimoto²

¹Institute for NanoScience Design, Osaka University, ²Graduate School of Engineering Science, Osaka University, ³Department of Physics, Osaka Dental University

PI-39 Genome specific diagnosis of influenza virus strains by hairpin-type peptide nucleic acid

Tenko Hayashi, Kunihiro Kaihatsu, Shinjiro Sawada, Shota Nakamura, Takaaki Nakaya, Nobuo Kato

Dept. of Organic Fine Chemicals, ISIR, Osaka University

PI-40 Possible Enhancement of Catalytic Activity by Electron Donation to NO on LaO surfaces of LaFeO₃

Koichi Kusakabe and Hidetoshi Kizaki

Graduate School of Engineering Science, Osaka University

PI-41 Characterization of Au Nanoparticles Formed in Ionic Liquid at Nanopore of Mesoporous Silica by X-ray Irradiation

T. Arimura^{1,3}, T. Sakamoto², T. Tsuda², S. Kuwabata^{2,3}, K. Fukui¹, A. Imanishi^{1,3}

¹Graduate School of Engineering Science, Osaka University, ²Graduate School of Engineering, Osaka University, ³CREST, JST

PI-42 First-Principle Molecular Dynamics Simulation of the Aqueous Fc⁰/Fc⁺ Redox Reaction: Toward the Redox Reaction of Electrode Interface.

Yukio. Kaneda¹, Yasuyuki. Yokota¹, Yoshitada. Morikawa², Ken-ichi. Fukui¹

¹ Department of Materials Engineering Science, Graduate School of Engineering Science, Osaka University, ² Division of Precision Science and Technology and Applied Physics, Graduate School of Engineering, Osaka University

PI-43 Potential-Induced Local Structural Change of Au(111) Electrode Surface by Electrochemical Frequency Modulation AFM

Shoko Tatsumi, Yasuyuki Yokota and Ken-ichi Fukui

Graduate School of Engineering Science, Osaka University

PI-44 Structure Changes of Au/TiO₂ Catalysts in Reactant Gases Observed by Environmental Transmission Electron Microscope

Y. Kuwauchi¹, H. Yoshida², T. Akita³, and S. Takeda²

¹Graduate School of Science, Osaka University, ²Institute of Scientific and Industrial Research, Osaka University, ³Research Institute for Ubiquitous Energy Devices,

National Institute of Advanced Industrial Science and Technology, Japan

PI-45 Temperature-Dependent Shape Changes of Platinum Nanoparticles Supported on CeO₂ during CO Oxidation

Hideto Yoshida¹, Yasufumi Kuwauchi², Hideo Kohno², Masatake Haruta³, Seiji Takeda¹

¹Nanoscience and Nanotechnology Center, The Institute of Scientific and Industrial Research, Osaka University, ²Department of Physics, Graduate School of Science, Osaka University, Japan, ³Department of Applied Chemistry, Graduate School of Urban Environmental Sciences, Tokyo Metropolitan University, Japan.

PI-46 Systematic Morphology Changes of Gold Nanoparticles Supported on CeO₂ during CO Oxidation

T. Uchiyama¹, H. Yoshida², Y. Kuwauchi^{1,2}, S. Ichikawa³, S. Shimada⁴, M. Haruta⁴, and S. Takeda²

¹Graduate School of Science, Osaka University, ²The Institute of Scientific and Industrial Research, Osaka University, ³Institute for Nanoscience Design, ³Osaka University, ⁴Graduate School of Urban Environmental Sciences, Tokyo Metropolitan University, Japan

Poster Session II

November 11 (Friday) 12:30-14:00

Chair: Profs. Sweetman, Rahe, Vacha and H. Akai

PII-1 Charge separation dynamics of phenyleneethynylenes with fluoro-substituted phenyl group as an electron acceptor

Masayasu Muramatsu¹, Yutaka Nagasawa¹, Hiroshi Miyasaka¹, Daisuke Matsuo², Yoshinori Suzuma², Akihiro Orita², Junzo Otera²

¹Osaka University, ¹KYOKUGEN, ²Okayama University of Science, Japan

PII-2 Development of Conjugated Oligomers Containing Carbonyl-bridged Bithiazole for Solution-processable n-Type Organic Field-effect Transistors

M. Nitani, Y. Ie, Y. Aso

The Institute of Scientific and Industrial Research, Osaka University

PII-3 Anisotropic Study of Single-crystal Field-Effect Transistors Based on Tetracene-related Novel Organic Materials

Katsumasa Nakahara¹, Toshihiro Okamoto¹, and Jun Takeya¹

¹ Department of Advanced Electron Devices, ISIR, Osaka University

PII-4 High-Power and Air-stable Three-dimensional Polymer FETs with Submicrometer Channels

K. Nakayama, T. Uemura, M. Uno and J. Takeya

The Institute of Scientific and Industrial Research, Osaka University

PII-5 Magnetoresistance in Organic Single-Crystal Field-Effect Transistors

Pham Song-Toan, Yoshitaka Kawasugi, Hirokazu Tada

Graduate School of Engineering Science, Osaka University

PII-6 Magnetoresistance of Uni-Molecular Junctions Studied by a Mechanically Controllable Break Junction Method

Motoki Noguchi, Ryo Yamada and Hirokazu Tada

Division of Materials Physics, Graduate School of Engineering Science, Osaka University

PII-7 Single-Electron Tunneling Force Spectroscopy of Ferrocenyl-Terminated Tripodal Molecule by Noncontact Atomic Force Microscopy (NC-AFM)

Hiromitsu Kirinoki, Masahiro Takenaka, Takeshi Miwa, Rashid N. Nadaf,

Yasuyuki Yokota, and Ken-ichi Fukui

Graduate School of Engineering Science, Osaka University

PII-8 Isotropic transport in high-oriented regioregular poly(3-hexylthiophene) monolayer

Y. Okuaki¹, M. Akai-Kasaya¹, A. Saito¹, S. Nagano², and Y. Kuwahara¹

¹ Department of Precision Science and Technology, Graduate School of Engineering, Osaka University, ² Department of Molecular Design and Engineering, Graduate School of Engineering, Nagoya University, Japan

PII-9 Electrical conductive evaluation of doped organic ultrathin films by an independently driven double-tip scanning tunneling microscope

Yusuke Miyake¹, Keiichiro Kurisu¹, Kazuhiro Takami¹, Shinji Tsuruta¹, Megumi Kasaya-Akai¹, Akira Saito^{1,2}, and Yuji Kuwahara¹

¹ Department of Precision Science and Technology, Graduate School of Engineering, Osaka University, ²RIKEN / SPring-8, Japan

PII-10 Ultra-low Power Thin Film Transistors and Liquid Crystal Displays with Ultrathin Gate Oxide Layer Fabricated by the NAOS (Nitric Acid Oxidation of Si) Method

**T. Matsumoto^{a,b}, Y. Kubota^{b,c}, M. Yamada^{a,b}, H. Tsuji^{b,d}, K. Taniguchi^{b,d}, S. Imai^{b,e},
S. Terakawa^{a,b}, H. Kobayashi^{a,b}**

^aISIR, Osaka Univ., ^bCREST-JST, ^cLiquid Crystal Display G., Sharp Corp.,

^dEEIE, Osaka Univ., Display Tech. Develop. G., Sharp Corp.

PII-11 Carbon Nanotube NVM with High-k Gate Dielectric Stack

**Yusuke Fujii, Takahiro Ohori, Yasuhide Ohno, Kenzo Maehashi, Koichi Inoue,
and Kazuhiko Matsumoto**

The Institute of Scientific and Industrial Research, Osaka University

PII-12 Bilayer Graphene FET with Ionic-Liquid Electrolyte

Y. Yamashiro, Y. Ohno, K. Maehashi, K. Inoue and K. Matsumoto

The Institute of Scientific and Industrial Research, Osaka University

**PII-13 Ion Concentration Dependence of Transfer Characteristics of Ionophore-
modified Graphene Field-Effect Transistors**

**Yasuyuki Sofue, Yasuhide Ohno, Kenzo Maehashi, Koichi Inoue, and Kazuhiko
Matsumoto**

The Institute of Scientific and Industrial Research, Osaka University

**PII-14 Electrolyte-Gated Multichannel Carbon Nanotube Field-Effect Transistors
for Biological Sensing**

^oS. Okuda, S. Okamoto, Y. Ohno, K. Maehashi, K. Inoue and K. Matsumoto

The Institute of Scientific and Industrial Research, Osaka University

PII-15 HSP Detection using F_{ab}-Modified Graphene-FET

S. Okamoto, Y. Ohno, K. Maehashi, K. Inoue, and K. Matsumoto

The Institute of Scientific and Industrial Research, Osaka University

**PII-16 Atomic-Scale Analysis on the Role of Molybdenum in Iron-Catalyzed
Carbon Nanotube Growth**

Hideto Yoshida, Seiji Takeda

Nanoscience and Nanotechnology Center, The Institute of Scientific and Industrial
Research, Osaka University

**PII-17 High-mobility Ge MOSFETs with GeON gate dielectrics formed by plasma
nitridation of ultrathin GeO₂**

**A. Kasuya, K. Kutsuki, I. Hideshima, Y. Minoura, T. Hosoi, T. Shimura, and H.
Watanabe**

Department of Material and Life Science, Graduate School of Engineering, Osaka University

PII-18 Electronic control of huge metal-insulator domains in VO₂ thin film on TiO₂(001) substrate

K. Kawatani, H. Takami, T. Kanki, and H. Tanaka

Institute of Scientific and Industrial Research, Osaka University

PII-19 Valence band structure of transient M₂ phase in VO₂ thin film

Teruo Kanki¹, Hidefumi Takami¹, Shigenori Ueda², Azusa N. Hattori¹, Ken Hattori³, Hiroshi Daimon³, Keisuke Kobayashi², Hidekazu Tanaka¹

Osaka Univ.¹, NIMS/SPring-8², NAIST³

PII-20 Ferromagnetic semiconductor-ferroelectric insulator nanocomposite thin films by self-assembled growth using a pulsed laser deposition method

T. Sakamoto, A. N. Hattori, K. Okada, T. Kanki and H. Tanaka

Institute of Scientific and Industrial Research, Osaka University

PII-21 Effects of Cu co-doping on photoluminescence properties in Eu-doped ZnO

T. Tsuji, Y. Terai, M. H. Kamarudin, and Y. Fujiwara

Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University

PII-22 Nano-scale Origin of Non-volatile Resistive Switching Phenomena in Nickel Oxide

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PII-23 Nature of Memristive Switching Revealed by Self-assembled Oxide Nanowire

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PII-24 Electrical Investigation of the Interface Band Structure in Rubrene Single-Crystal/Nickel Junction.

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PII-25 Inkjet Printing of Conductive Lines : Improvement of Line Morphology and Electrical Conductivity

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PII-26 Electrical conductivity enhancement of silver nanowire transparent electrodes at low temperature

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PII-27 Low frequency noise in organic solar cells

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PII-28 Coherent Cherenkov radiation for quasi-monochromatic Terahertz probe light for nano-scale information

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PII-29 10nm Resolution Electron Beam Lithography at 30 kV Acceleration Voltage Using Hydrogen Silsesquioxane (HSQ) as a Negative Resist

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PII-30 Observations of solvation and pre-solvation of electrons in alcohol radiolysis

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PII-31 Stretchable and conductive wirings having various electrical properties to different volume fraction of silver flakes

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PII-32 Photoemission Electron Microscopy (PEEM) of Light Induced Fast Magnetization Switching of GdFeCo

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PII-33 Spin-pumping-induced spin transport in n-type Si at room temperature

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PII-34 Essentially Exact Groundstate Energy Calculations by Superposition of Non-Orthogonal Slater Determinants

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PII-35 Room-temperature Spin Injection in p-type Si

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PII-36 Experimental Attempts to Observe Spin-Polarized Transport Properties of the Surface States of a Highly Bulk-Insulating Topological Insulator

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PII-37 Variational States Representing Large Entanglement Entropy for Small Spin Systems

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PII-38 Dependence of direct bandgap energies on growth condition in β -FeSi₂

epitaxial films on Si(001) substrate

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**PII-39 Electric-field modulation of transport properties in charge-ordered
LuFe₂O₄**

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PII-40 Excitation Behavior of the Anomalous Peak in Eu-Doped Gallium Nitride

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PII-41 Stability arrangement of impurities of copper in silicon

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**PII-42 Large magneto-optical effect in low-temperature-grown GaCrN and
GaCrN:Si**

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**PII-43 Structural and magnetic characterization of GaGdN thin films grown on
GaN(0001) templates**

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PII-44 Magnetic anisotropy of degradation-free capped GdN nano thin film

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PII-45 Nanoscale elemental identification using Synchrotron-Radiation-based STM

-Evaluation of elemental contrast for various interfaces-

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PII-46 Development of an ultra-precise deformable mirror for hard X-ray nanofocusing

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PII-47 Immuno-electron tomography for elucidation of localization of the multidrug efflux pumps in Salmonella

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PII-48 High Resolution Environmental TEMs at ISIR

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