Program

Oral Presentation / Poster Session

March 18 | 19 | 20

Monday, March 18

Opening / Chair : H. ARAKAWA

10:00 Opening Address
Jiro HIRAISHI, AIST
COE Project “Photoreaction Control and Photofunctional Materials (PCPM)”
M. TACHIYA, AIST

Session 1 / Chair : M. TACHIYA

10:20 O-1 : Photoswitchable Molecular Receptors
Michael ALFIMOV, Photochemistry Center of Russian Academy of Sciences, Russia

11:00 O-2 : Single Molecules in Nanoscience
M. ORRIT, University of Leiden, The Netherlands

11:40 Lunch

13:00 Poster Session 1 (Odd numbers)

Session 2 / Chair : I. KOJIMA

14:40 O-3 : Size Tunable Emission from Organic Capped Silicon Quantum Dots and Nanoparticle/Bilayer Composites
Doug ENGLISH, University of Maryland-College Park, USA

15:00 O-4 : Development of Femtosecond Transient Reflecting Grating Spectroscopy and Its Application to Observation of Solid/Liquid Interface
Masanori FUJINAMI, University of Tokyo

15:40 O-5 : Attempts of Controlling Photoreactions by Lasers in AIST
Taisuke NAKANAGA, AIST

16:10 Break

Session 3 / Chair: T. NAKANAGA

16:30 O-6 : Direct Observation of Ultrafast Dynamics of Molecules and Clusters in Intense Laser Fields
Kaoru YAMANOUCHI, University of Tokyo

17:10 O-7 : Adaptive Femtosecond Quantum Control
Gustav GERBER, University of Wuerzburg, Germany

17:50

Tuesday, March 19

Session 4 / Chair : A. YABE

09:00 O-8 : Surface Micro-fabrication of Silica Glass by LIBWE Method
H. NIINO, AIST

09:30 O-9 : Materials Processing Using Interaction of Laser Beam and Another Medium
K. SUGIOKA, RIKEN

10:10 Break
### Session 5 / Chair: H. NIINO

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<tr>
<td>10:30</td>
<td>O-10: Three-dimensional Microfabrication Using Two-photon Activated Chemistry</td>
<td>Joseph W. PERRY</td>
<td>University of Arizona, USA</td>
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<tr>
<td>11:10</td>
<td>O-11: Laser-assisted Scanning Tunneling Spectroscopy: a New Tool to Probe Local Photocarriers in Organic Semiconductors</td>
<td>Denis FICHOU</td>
<td>CEA-Saclay, France</td>
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11:50 Lunch

13:00 **Poster Session 2 (Even numbers)**

### Session 6 / Chair: M. MATSUMOTO

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<tr>
<td>14:40</td>
<td>O-12: Green Photonics - Photoresponsive Electroluminescent Devices</td>
<td>Kiyoshi YASE</td>
<td>AIST</td>
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<tr>
<td>15:10</td>
<td>O-13: Organic Solid-State Laser</td>
<td>Musubu ICHIKAWA</td>
<td>Shinshu University</td>
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15:50 Break

### Session 7 / Chair: K. YASE

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<tr>
<td>16:10</td>
<td>O-14: Photoreactions in Organic Ultrathin Films</td>
<td>Mutsuyoshi MATSUMOTO</td>
<td>AIST</td>
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<tr>
<td>16:40</td>
<td>O-15: Light-induced Orientation and Diffusion of Azobenzene Containing Polymers</td>
<td>Joachim STUMPE</td>
<td>Fraunhofer-Institute for Applied Polymer Research, Germany</td>
</tr>
<tr>
<td>17:20</td>
<td>O-16: Molecular Amplification of Photochemical Events</td>
<td>Kunihiro ICHIMURA</td>
<td>Tokyo University of Science</td>
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18:00

18:30 Banquet

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### Wednesday, March 20

#### Session 8 / Chair: S. MURATA

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<tbody>
<tr>
<td>09:00</td>
<td>O-17: Ultrafast Electron Injection Dynamics in Dye- and Polymer Sensitized Nanocrystalline Semiconductor Thin Films</td>
<td>Tianquan Tim LIAN</td>
<td>Emory University, USA</td>
</tr>
<tr>
<td>09:40</td>
<td>O-18: Theory of Charge Recombination in Dye-Sensitized Nanocrystalline Semiconductors</td>
<td>M. TACHIYA</td>
<td>AIST</td>
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10:20 Break

#### Session 9 / Chair: H. SUGIHARA

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<th>Session Title</th>
<th>Speaker</th>
<th>Institution</th>
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<tbody>
<tr>
<td>10:40</td>
<td>O-19: Molecular Control of Photo-induced Electron and Energy Transfer at Nanocrystalline Semiconductor Interfaces</td>
<td>Gerald J. MEYER</td>
<td>Johns Hopkins University, USA</td>
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12:00 Lunch

#### Session 10 / Chair: K. SAYAMA

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**Program**
http://192.168.1.20/pcpm/eng/program.html (2/3) [2002/03/04 11:21:04]
13:10  O-21 : Molecular Design of Efficient Ruthenium(II) Polypyridyl Photosensitizers for Nanocrystalline TiO₂ Based Solar Cells
       Ashraful ISLAM, AIST

13:50  O-22 : Photocatalysts for Water Decomposition of RuO₂-combined p-Block Metal Oxides with d¹⁰ Configuration
       Y. INOUE, Nagaoka University of Technology

Session 11 / Chair : K. KASUGA

14:30  O-23 : TiO₂-Photocatalyzed Oxidation of Organic Compounds by H₂O₂ Under Visible Light Irradiation
       Teruhisa OHNO, Osaka University

15:00  O-24 : Direct Water Splitting into H₂ and O₂ under Visible Light Irradiation with a New Series of Mixed Oxide Semiconductor Photocatalysts
       Hironori ARAKAWA, AIST

15:30  Closing Remarks
       Hironori ARAKAWA, AIST

15:40
**Oral Presentation / Poster Session**

*Odd numbers---March 18 / Even numbers--March 19*

**P-1**
Infrared spectroscopy of aniline-toluene, aniline-toluene-water and investigation of the infrared predissociation reaction in the ternary cluster cation
Naveed K Piracha and T Nakanaga
National Institute of Advanced Industrial Science & Technology

**P-2**
IR-CRD spectroscopy of large methyliodide clusters -structure and its photochemical relevance-
Fumiyuki Ito and Taisuke Nakanaga
photoreaction control research center, AIST

**P-3**
Infrared depletion spectroscopy of aniline-acetonitrile and aniline-acetonitrile-water cluster cations
Hidekazu Nagai, Naveed Piracha and Taisuke Nakanaga
National Institute of Advanced Industrial Science and Technology

**P-4**
The observation of interference effect in the simultaneous one- and two-photon dissociation of allyl iodide
Hideki Ohmura, Taisuke Nakanaga, Fumiyuki Itoh, Hidekazu Nagai, Hironori Arakawa and Masanori Tachiya
National Institute of Advanced Industrial Science and Technology

**P-5**
Intramolecular naphthalene dimer cations studied by near-IR transient absorption spectroscopy
Hideo OHKITA,¹ Yusuke FUJITA,¹ Toshiki FUSHIMI,¹ Shinzaburo ITO¹ and Masahide YAMAMOTO²
¹ Department of Polymer Chemistry, Graduate School of Engineering, Kyoto University, ² Faculty of Science and Engineering, Ritsumeikan University

**P-6**
CUFF (Consistent Charge Equilibration with Universal Force Field)
Osamu KITAO¹,², Tetsuji OGAWA²,³, Noriyuki KURITA⁴, Hideo SEKINO⁴ and Shigenori TANAKA⁵
¹ PCRC-AIST, ² The University of Tokyo, ³ The Society of Chemical Engineers, Japan, ⁴ Toyohashi University of Technology, ⁵ Toshiba Corporation

**P-7**
The Role of Duschinsky Effect on Intramolecular Electron Transfer
K. K. Liang¹, P. Lelong¹, A. M. Mebel¹, S. H. Lin¹, M. Hayashi², H. L. Selzle³, E. W. Schlag³ and M. Tachiya⁴
¹ Institute of Atomic and Molecular Sciences, ² Center for Condensed Matter Science, ³ Technisch Universitât, ⁴ AIST

**P-8**
Electric Field Effect on Fluorescence Quenching Due to Electron Transfer in a Donor-Spacer-Acceptor Systems
Maria Hilczer¹,², M. Tachiya¹
¹ AIST ² Technische Universität

**P-9**
Competitive Electron Transfers in Model Ionic Triad System. MD Simulations
Maria Hilczer¹,², M. Tachiya¹
¹ AIST ² Technische Universität

**P-10**
Diffusion-assisted long-range reaction between the ends of a polymer: Effective sink approximation
A.V. Barzykin, K. Seki and M. Tachiya
National Institute of Advanced Industrial Science and Technology (AIST)

**P-11**
Relaxation and recombination of excess electrons in water. Two-state electron model.
S.G. Fedorenko and M. Tachiya
National Institute of Advanced Industrial Science and Technology (AIST)

**P-12**
Electric Field Effect on Electron Transfer Rate
K. Seki, S. D. Traytak and M. Tachiya

AIST

P-13 Femtosecond transient absorption study on the electron injection process from excited Ru-complexes to nano-crystalline ZnO semiconductor films: Effect of the dye concentration

Akihiro Furube, Ryuuki Katoh, Kohjiro Hara, Shigeo Murata, Hironori Arakawa, Masanori Tachiya

National Institute of Advanced Industrial Science and Technology (AIST)

P-14 Effect of molecular aggregation on electron injection efficiency from Ru-complex to nanocrystalline ZnO films

Hiroaki Horiochi, Ryuuki Katoh, Kohjiro Hara, Masatoshi Yanagida, Shigeo Murata, Hideki Sugihara, Hironori Arakawa, M. Tachiya

AIST

P-15 Measurement of fluorescence quantum yield of organic solids

Jin Tatsuzaki, Sayaka Fuji and Masahiro Kotani

Faculty of Science, Gakushuin University

P-16 Absorption spectrum of electron injected from excited molecule adsorbed on nanocrystalline TiO$_2$ and ZnO films

Ryuuki Katoh, Akihiro Furube, Kohjiro Hara, Shigeo Murata, Hironori Arakawa, Masanori Tachiya

Photoreaction Control Research Center National Institute of Advanced Industrial Science and Technology (AIST)

P-17 Applications of magnetic field effect and pulsed RYDMR on the photo-induced electron transfer reaction of flavin derivatives.

Kiminori Maeda$^{1}$, Makoto Horiuchi$^{1}$, Masaaki Murakami$^{1}$, Toshiaki Suzuki$^{1}$, Tatsuo Arai$^{1}$ and Hisao Murai$^{2}$

$^{1}$ Department of Chemistry, University of Tsukuba, $^{2}$ Department of Chemistry, Graduate School of Science, Tohoku University

P-18 Electron transfer in nonpolar solvent. Long-range electron transfer

Shigeo Murata$^{1}$, M. El-Kemary$^{1}$ and M. Tachiya$^{2}$

$^{1}$ Photoreaction Control Research Center, AIST $^{2}$ AIST

P-19 Molecular design and photophysical properties of a calix[4]arene-based metalloporphyrin dimer which exhibits high selectivity for C$_{70}$

Takashi Arimura, Seiji Ide, Yasuhiro Suga, Takuya Nishioka,Hideki Sugihara, Shigeo Murata and M. Tachiya

National Institute of Advanced Industrial Science and Technology

P-20 OBSERATION OF CYANINE J-AGGREGATES WITH PHOTON SCANNING TUNNELING MICROSCOPE

Takehisa OKUYAMA and Kotaro KAJIKAWA

Department of Information Processing, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology

P-21 Photoinduced Electron Transfer Systems Connected with Intermolecular Quadruple Hydrogen Bonding

Masashi Ikegami, Ikuma Ohshiro, Tatsuo Arai

Department of Chemistry, University of Tsukuba

P-22 Photoinduced electron transfer in a polysaccharide solid

Kazuhiro Suzuki, Hidenobu Shiroishi and Masao Kaneko

Faculty of Science, Ibaraki University

P-23 Fluorescence Quenching Reaction of Chlorophyll a in DPPC Vesicles

Makoto Takezaki, Toshihiro Tominaga, Keichi Yamane* and Michiko Kodama*

Department of Applied Chemistry, Faculty of Engineering, Okayama University of Science, *Department of Biochemistry, Faculty of Science, Okayama University of Science

P-24 Excited State Dynamics of Closely Connected C$_{60}$-Aromatic Amine Dyad in Non-polar and Polar Solvents

Yasuyuki ARAKI$^{1}$, Ryota HATSUDA$^{2}$, Bahlul Zayed Sh. AWEN$^{2}$, Akihiko OUCHI$^{2}$, Osamu ITO $^{1}$,$^{3}$

$^{1}$, $^{2}$, $^{3}$
P-25 SPECTROSCOPIC ANALYSIS OF AN UV IRRADIATED POLYIMIDE FILM
Tomoaki TANAKA, Nobuyuki MATSUBAYASHI, Motoyasu IMAMURA, Hiromichi SHIMADA
National Institute of Advanced Science and Technology

P-26 Theoretical Studies on Photoexcitation Processes under Visible Light Irradiation in 3d Transition Metal-Doped Titanium Dioxide
Tsumoto UMEBAYASHI*1, Tetsuya YAMAKI*2, Hisayoshi ITOH*2 and Keisuke ASAI*1
*1 Department of Quantum Engineering and Systems Science, Graduate School of Engineering, The University of Tokyo *2 Department of Materials Development, Takasaki Radiation Chemistry Research Establishment, Japan Atomic Energy Research Institute

P-27 Ketone acts as an external electron spin multiplicity modulator of excited singlet methoxybenzoate : New discovery in a dioxetane photolysis at low temperature
Takeshi WAKASUGI*1, Ken Fujimori*1, Masakatsu Matsumoto*2, Shigeo Murata*3, Ryuzi Katoh*3
*1 University of Tsukuba, Department of Chemistry *2 Kanagawa University, Department of Chemistry *3 AIST

P-28 PRESERVATION CHARACTERISTICS OF RIGHT AND LEFT CIRCULARLY POLARIZED PHOTOLUMINESCENCE OBSERVED IN Si BASED LUMINESCENCE MATERIAL
Naokatsu YAMAMOTO
Basic and Advanced Research Division, Communications Research Laboratory

P-29 Possibility of Nonequilibrium Isomerization of Azobenzene Triggered by Vibrational Excitations
Shigenori Tanaka*1, Satoshi Itoh*1 and Noriyuki Kurita*2
*1 Advanced Materials & Devices Laboratory, Toshiba Research & Development Center *2 Department of Knowledge-Based Information Engineering, Toyohashi University of Technology

P-30 A Highly Efficient Dye-Sensitized Solar Cells with Ionic Conducting Polymer
Liyuan Han, Ryoichi Komiya, Ryohsuke Yamanaka, Takehito Mitate
Ecological Technology Development Center, SHARP CORPORATION

P-31 Dye-sensitized nanocrystalline TiO₂ solar cells using novel coumarin dyes
Kohjiro Hara*1, Yasuhiro Tachibana*1, Ryuzi Katoh*1, Akihiro Furube*1, Kazuhiro Sayama*1, Hironori Arakawa*1, Yasuho Ohga*2, Akira Shinpō*2 and Sadaharu Suga*2
*1 National Institute of Advanced Industrial Science and Technology (AIST), Photoreaction Control Research Center (PCRC) *2 Hayashibara Biochemical Laboratories, Inc.

P-32 Oxidation of diamond and silicon carbide using TiO₂(IV) photocatalyst
Yoshie Ishikawa*1, Yoko Nishida and Yasumichi Matsumoto
Department of Applied Chemistry, Faculty of Engineering

P-33 INFLUENCE OF THE ELECTROLYTES ON ELECTRON TRANSPORT PROPERTIES IN MESOPOROUS TiO₂-ELECTROLYTE SYSTEMS
Shingo KAMBE, Shogo NAKADE, Takayuki KITAMURA, Yuji WADA and Shozo YANAGIDA
Material and Life Science, Graduate School of Engineering, Osaka University

P-34 ELECTRON DIFFUSION LENGTH IN DYE-SENSITIZED SOLAR CELLS
Takayuki KITAMURA, Mizuho MATSUDA, Shogo NAKADE, Shingo KAMBE, Yasuteru SAITO, Yuji WADA and Shozo YANAGIDA
Material and Life Science, Graduate School of Engineering, Osaka University

P-35 Quasi-solid-state dye-sensitized solar cells using room temperature molten salts and a low molecular weight gelator
Wataru KUBO, Takayuki KITAMURA, Kenji HANABUSA, Yuji WADA and Shozo YANAGIDA
Material and Life Science, Graduate School of Engineering, Osaka University Graduate School of Science and Technology, Shinsyu University

P-36 Fabrication of dye-sensitized solar cells from amorphous TiO₂-sol by spray pyrolysis deposition
Masayuki Okuya, Daisuke Osa, G.R.A. Kumara and Shoji Kaneko
Department of Materials Science and Technology, Shizuoka University
P-37 Poly(ethylenedioxythiophene) as a hole conductor in solid state dye sensitized solar cells
Yasuteru Saito, Takayuki Kitamura, Yuji Wada and Shozo Yanagida
Material and Life Science, Graduate School of Engineering, Osaka University

P-38 Development of virtual device simulator of bipolar photogalvanic cell
Hidenobu Shiroishi¹, Yuuki Kaburagi¹, Michiko Seo¹, Takayuki Hoshi¹, Tomoyo Nomura¹, Sumio Tokita² and Masao Kaneko¹
¹ Faculty of Science, Ibaraki University ² Faculty of Engineering, Saitama University

P-39 Application of Carbon Nano-fibers to Counter Electrode in Dye- Sensitized Solar Cells
Kazuharu Suzuki, Makoto Yamaguchi and Mikio Kumagai
Chemical Research Department, Institute of Research and Innovation

P-40 Quantitative analysis of electron transfer yield in dye sensitised TiO₂ solar cells: influence of light scattering magnitudes and excitation energy
Yasuhiro Tachibana, Kohjiro Hara, Kazuhiro Sayama and Hironori Arakawa
Photoreaction Control Research Center (PCRC), National Institute of Advanced Industrial Science and Technology (AIST)

P-41 Dye-Sensitized Solar Cells using Semiconductor Thin Film Composed of Titania Nanotubes
Susumu Yoshikawa¹, Issei Okada², Yusuke Murata³ and Motonari Adachi⁴
¹ Institute of Advanced Energy, Kyoto University ² Institute of Advanced Energy, Kyoto University
³ Institute of Advanced Energy, Kyoto University ⁴ Institute of Advanced Energy, Kyoto University

P-42 DEVELOPMENT OF DYE-SENSITIZED SOLID-STATE PHOTOVOLTAIC CELL: IMPROVED STABILITY BY FORMING A FINE CRYSTALLINE COPPER IODIDE FILM
Akinori Konno¹, G. R. Asoka Kumara¹ and Kirthi Tennakone²
¹ Faculty of Engineering, Shizuoka University ² Institute of Fundamental Studies, Sri Lanka

P-43 Nanocrystalline Solar Cells Sensitized with Pyridyl-Quinoline Ruthenium(II) Complexes
Masatoshi Yanagida¹, Ashraful Islam¹, Yasuhiro Tachibana¹, Gaku Fujihashi², Kohjiro Hara¹, Ryuzi Katoh¹, Hideki Sugihara¹ and Hironori Arakawa¹
¹ National Institute of Advanced Industrial and Science Technology (AIST), Photoreaction Control Research Center(PCRC) ² Sumitomo Osaka Cement Co. Ltd

P-44 Photochemical CO₂ reduction mediated by ruthenium and cobalt polypyridine complexes in compressed CO₂
Atsushi Fushimi, Yoshihito Maeno and Takuji Hirose
Department of applied chemistry, Saitama university

P-45 Homogeneous Hydrogenation of Carbon Dioxide to Formate Catalyzed by Rhodium Complexes in Aqueous Solution Under Mild Conditions
Yuichiro Himeda, Nobuko Onozawa, Hideki Sugihara, Hironori Arakawa and Kazuyuki Kasuga
Photoreaction Control Research Center, National Institute of Advanced Industrial Science and Technology (AIST)

P-46 Structure and properties of diastereoisomers of a ruthenium(II) complex having a pyridylpyrazoline derivative as a ligand
Pengfei Wang, Kazuyuki Kasuga, Nobuko Onozawa-Komatsuzaki, Ryuzi Katoh, Yuichiro Himeda, Hideki Sugihara and Hironori Arakawa
Photoreaction Control Research Center, National Institute of Advanced Industrial Science and Technology (AIST)

P-47 Synthesis and properties of ruthenium bipyridyl-copper and cobalt schiff base dinuclear complexes having dipyrido phenazine moiety
Nobuko Onozawa-Komatsuzaki, Ryuzi Katoh, Yuichiro Himeda, Hideki Sugihara, Hironori Arakawa, Kazuyuki Kasuga
Photoreaction Control Research Center, National Institute of Advanced Industrial Science and Technology (AIST)

P-48 Significant Effect of NaI Addition on Water Splitting into H₂ and O₂ over Pt-loaded Semiconductor Photocatalysts - Suppression of Backward Reaction over Pt Particles on Semiconductor -
Ryu Abe, Zhigang Zou, Kazuhiro Sayama and Hironori Arakawa
Photoreaction Control Research Center (PCRC), National Institute of Advanced Industrial Science and Technology (AIST)
P-49  Photocatalytic water splitting into H₂ and O₂ over various tantalates
Hideki Kato and Akihiko Kudo
Faculty of Science, Science University of Tokyo

P-50  Photocatalytic reduction of CO₂ by Co(bpy)₃²⁺ sensitized by Ru(bpy)₃²⁺ fixed to cation exchange polymer
Yoshihito Maeno¹, Takuji Hirose¹ and Yuichiro Himeda²
¹ Department of Applied Chemistry, Saitama University, ² Photoreaction Control Research Center, National Institute of Advanced Industrial Science and Technology

P-51  Multinuclear complexes of Ruthenium and Osmium connected by Oligomethylene-Linked Bisphenanthrolines
Mitsuru Nakajima¹, Atsushi Fushimi¹, Yoshihito Maeno¹, Tomohisa Miura¹, Akhiro Tsukamoto¹, Takuji Hirose¹, Kazuyuki Kasuga², Nobuko Onozawa², Satomi Sakai³, Akio Yoshimura³ and Takeshi Ohno³
¹ Department of Applied Chemistry, Faculty of Engineering, Saitama University ² National Institute of Materials and Chemical Research ³ Department of Chemistry, Graduate School of Science, Osaka University

P-52  Photocatalytic Water Splitting into H₂ and O₂ under Visible Light Irradiation Mimicking a Z-Scheme Mechanism in Photosynthesis
Kazuhiro SAYAMA¹, Kazuaki, MUKASA², Ryu ABE¹, Yoshimoto ABE² and Hironori ARAKAWA¹
¹ AIST ² Science Univ. of Tokyo

P-53  Role of R in Bi₂RNbO₇ (R = Y, Rare earth): Effect on Band Structure and Photocatalytic Properties
Zhigang Zou, Jinhua Ye*, Ryu Abe, Kazuhiro Sayama and Hironori Arakawa
Photoreaction Control Research Center (PCRC), National Institute of Advanced Industrial Science and Technology (AIST), *Materials Engineering Laboratory (MEL), National Institute for Materials Science (NIMS)

P-54  ESR studies on electron transfer reaction from xanthene dye on TiO₂ particle
Yoshinari Konishi, Ryu Abe and Hironori Arakawa
National Institute of Advanced Industrial Science and Technology Photoreaction Control Research Center

P-55  FABRICATION OF MICROPATTERNS ON FUSED SILICA BY LASER-INDUCED BACKSIDE WET ETCHING (LIBWE)
Ximing Ding, Yoshizo Kawaguchi, Hiroyuki Niino and Akira Yabe
Photoreaction Control Research Centre, National Institute of Advanced Industrial Science and Technology (AIST)

P-56  Time evolution of ZnO plume in He atmosphere
Yoshizo KAWAGUCHI, Aiko NARAZAKI, Tadatake SATO, Hiroyuki NIINO and Akira YABE
Photoreaction Control Research Center, National Institute of Advanced Industrial Science and Technology (AIST)

P-57  Preparation and Characterization of Pb(Zr,Ti)O₃ Thin Films Using Coating Photolysis Process
Yuki Miyamoto¹, Tetsuo Tsuchiya², Iwao Yamaguchi², Takaaki Manabe², Hiroyuki Niino², Akira Yabe², Toshiya Kumagai², Toshio Tsuchiya¹ and Susumu Mizuta²
¹ Department of Material Science and Technology, Faculty of Industrial Science and Technology, Tokyo University of Science ² National Institute of Advanced Industrial Science and Technology (AIST)

P-58  DYNAMICS OF CHEMICALLY-REACTED SI NANOPARTICLES FORMED BY LASER ABLATION.
T. Mizuta, D. Takeuchi, T. Makimura and K. Murakami
Institute of Applied Physics, University of Tsukuba

P-59  Application of polyperinaphthalenic organic semiconductive thin films prepared by laser ablation to opto and electronic devices
Satoru Nishig¹, Kazuyuki Tamura¹, Jun Murata¹, Junko Kitahara¹, Teruhiko Kan¹, Akiyoshi Matsuzaki¹, Nobuo Ando², Yukinori Hato²
¹ Department of Chemistry for Materials, Faculty of Engineering, Mie University ² Kanebo LTD.

P-60  Formation of silicon-based polymer films using metal nano-particles produced by laser ablation
P-61 Laser ablation of iron disilicide studied by laser ionization time-of-flight mass spectrometry
Aiko Narazaki, Tadatake Sato, Yoshizo Kawaguchi, Hiroyuki Niino and Akira Yabe
Photoreaction Control Research Center, National Institute of Advanced Industrial Science and Technology

P-62 TRIPLET EXCIMER OF VINYL POLYMERS HAVING AROMATIC SIDE GROUP
Masahide YAMAMOTO\(^*1\), Kenji HISADA\(^*2\), Hideo OHKITA\(^*2\), Shinzaburo ITO\(^*2\), KeitaTANI\(^*3\) and Yasuo TOHDA\(^*3\)
\(^*1\) Faculty of Science and Engineering, Ritsumeikan University, \(^*2\) Department of Polymer Chemistry, Graduate School of Engineering, Kyoto University, \(^*3\) Division of Natural Science, Osaka Kyoiku University

P-63 Generation of benzldynes in low temperature matrices by laser-induced reaction
Tadatake Sato, Sundaram Arulmozhiraja, Aiko Narazaki, Yoshizo Kawaguchi, Hiroyuki Niino, Akira Yabe
Photoreaction Control Research Center, National Institute of Advanced Industrial Science and Technology(AIST)

P-64 Deposition dynamics for droplet-free Si nanoparticle films using laser ablation.
D. Takeuchi\(^*1\), T. Mizuta\(^*1\), T. Makimura\(^*1\), S. Yoshida\(^*1\), M. Fujita\(^*1\), K. Hata\(^*2\), H. Shigekawa\(^*1\) and K. Murakami
\(^*1\) Institute of Applied Physics, University of Tsukuba \(^*2\) Department of Chemistry and Chemical Biology, Harvard University

P-65 EPITAXIAL GROWTH OF INZIUM OXIDE FILMS BY A COATING PHOTOLYSIS PROCESS
Tetsuo Tsuchiya, Iwao Yamaguchi, Takaaki Manabe, Toshiya Kumagai, Hiroyuki Niino, Akira Yabe and Susumu Mizuta
National Institute of Advanced Industrial Science and Technology (AIST)

P-66 Improved Photo-Catalytic Activity and Carrier Dynamics of Vacuum-Deposited SiO\(_2\)/TiO\(_2\) Multilayer Film
Kiyoshi Miyashita\(^*1,2\), Shin-ichi Kuroda\(^*2\), Tsutomu Ubukata\(^*3\), Keiji Tokuda\(^*1\), So Tajima\(^*4\), Seiji Tobita\(^*2\) and Hitoshi Kubota\(^*2\)
\(^*1\) Department of Chemistry, Gunma Prefecture Industrial Technology Research Laboratory, \(^*2\) Department of Chemistry, Gunma University, \(^*3\) Ichikoh Industries Ltd., \(^*4\) Satellite Venture Business Laboratory, Gunma University,

P-67 IN SITU OBSERVATION OF ELECTRON TRANSFER BETWEEN SURFACE IMMOBILIZED CYTOCHROME c AND ITO ELECTRODE BY SLAB OPTICAL WAVEGUIDE SPECTROSCOPY
Naoki MATSUDA\(^*1\), Jose H. SANTOS\(^*1\), Zhi-mei Qi\(^*1\), Akiko TAKATSU\(^*2\) and Kenji KATO\(^*2\)
\(^*1\)Nanoarchitectonics Research Center, AIST, \(^*2\) National Metrological Laboratory, AIST

P-68 3-D Microfabrication of Photosensitive Glass by Femtosecond Laser
Masashi Masuda\(^*2\), Koji Sugioaka\(^*1\), Ya Cheng\(^*1\), Naoko Aoki\(^*2\), Masako Kawachi\(^*3\), Kazuhiko Shihoyama\(^*3\), Koichi Toyoda\(^*2\) and Katsumi Midorikawa\(^*1\)
\(^*1\) RIKEN (The Institute of Physical and Chemical Research), \(^*2\) Department of Applied Electronics, Faculty of Industrial Science and Technology, Science University of Tokyo. \(^*3\) HOYA CONTINUUM CORPORATION.

P-69 Bandgap effect to Thermal Quenching of Photoluminescence At 1.5fÊm from Er-Doped Si Nanocrystallites in SiO\(_2\) Matrices
C.Q.Li, K.Kondo, Y.Kawaguchi, T.Makimura and K.Murakami
Institute of Applied Physics, University of Tsukuba, Tsukuba

P-70 Fabrication of Er-doped Si nanocrystallites in SiO\(_2\) matrices without thermal quenching of 1.5fÊm photoluminescence
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P-71 PHOTO-ORIENTATION OF MESOSTRUCTURED SILICA USING AN AZOBENZENE MONOLAYER
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Qing Shen and Taro Toyoda  
Department of Applied Physics and Chemistry, the University of Electro-Communications  

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P-84 Enantioselective Photoreaction of 4-Isopropyltropolone Methyl Ether in Inclusion Crystals with Optically Active Host Compounds
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P-85 Photomagnetism of Photochromic Biindenylidene in the Solid State
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P-86 Fluorescence emission in microcrystals and thin films of diphenylhexatrienes
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P-87 Three-Component Photo Radical Initiating System -the effect of accelerator-
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P-88 Development of environmental depollution system using functional materials
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P-89 Gas-phase synthesis of fine particles from tetravinylgermanium and carbon disulfide
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P-90 Second harmonic generation (SHG) at semiconductor surfaces as a tool for in-situ characterization during nanometer-scale materials processing
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P-91 Nonlinear Optical Properties of Hemicyanine Self-Assembled Monolayers
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P-92 cis-trans PHOTOISOMERIZATION OF meta-SUBSTITUTED [1.1]AZOBENZENOPHANES
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P-93 Mn ion concentration dependence of the photoacoustic and photoluminescence spectra for ZnS:Mn nanocrystals
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P-94 Exposure time dependence of the photoacoustic and photoluminescence intensities for porous silicon with different wavelengths of excitation light
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P-95 Effect of applied voltage treatments on photoacoustic and photoelectrochemical current spectra in final preparation processes of porous TiO2 electrodes
Taro Toyoda, Masashi Hayashi, Jun Sato and Qing Shen
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P-96 Effect of sensitization by quantum-sized CdS on photoacoustic and photoelectrochemical current spectra of porous TiO2 electrodes
Taro Toyoda, Jun Sato and Qing Shen
Control of the Properties of CO₂ Reduction Photocatalysis of Rhenium Complexes Using Direct Interaction between Ligands
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Investigation of organic photoreceptor device using p/n alternating multilayer
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OPTO-ELECTRICAL PROPERTIES OF BORON DOPED CAMPHORIC CARBON THIN FILMS DEPOSITED BY PULSED LASER DEPOSITION
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OPTO-ELECTRICAL PROPERTIES OF TETRAHEDRAL CARBON THIN FILMS DEPOSITED BY PULSED LASER DEPOSITION
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SPECTRAL PHOTORESPONSE CHARACTERISTICS OF PHOSPHORUS DOPED n-CARBON/p-SILICON SOLAR CELL
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OPTO-ELECTRICAL PROPERTIES OF NITROGEN DOPED CAMPHORIC CARBON THIN FILMS DEPOSITED BY PULSED LASER DEPOSITION AND ITS APPLICATION TO n-CARBON/p-SILICON JUNCTION SOLAR CELL
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PATHWAY FOR THE EXCITATION ENERGY TRANSFER FROM THE CORE ANTENNA COMPLEX TO THE PHOTOSYNTHETIC REACTION CENTER OF PHOTOSYSTEM II
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Molecular Three-dementional Alignment in Thiophene Derivative Films
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Photoelectric Properties of Oriented Layers of Conjugated Polymers on Titanium dioxide
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