First International Symposium on
Interdisciplinary Materials Science (ISIMS-2008)

March 13-14, 2008

Tsukuba

Abstract Booklet

Strategic Initiatives for
Center of Interdisciplinary Materials Science

University of Tsukuba
Tsukuba Research Center for Interdisciplinary Materials Science (TIMS) was established in 2003 upon the achievements of Emeritus Professor Hideki Shirakawa, a Nobel laureate in chemistry, and has achieved substantial results in research and education in materials science and nanotechnology. In this fiscal year, we planned the next phase of TIMS. At the same time, two groups in Graduate School of Pure and Applied Sciences independently proposed plans of the center of innovative hybrid molecules (leader: Toshiharu Teranishi) and the center of interdisciplinary optical science (leader: Yutaka Moritomo). As these proposals are closely related, the university decided to support them as a unified program in the framework of Pre Strategic Initiatives.

The First International Symposium on Interdisciplinary Materials Science (ISIMS-2008) will be held as a part of this program, and will provide a forum to discuss the latest research progress in the related fields, i.e., innovative hybrid molecules, interdisciplinary optical science, nano-science, and biomaterial.

Organizer: Strategic Initiatives for Center of Interdisciplinary Materials Science

Date: March 13-14, 2008

Venue: EPOCHAL TSUKUBA (Tsukuba International Congress Center)
Conference Room 101 & 102

Organizing Committee
Youiti Ootuka, Kikuo Yamabe,
Tatsuya Nabeshima, Yukio Nagasaki,
Takaki Kanbara, Hidemi Shigekawa,
Yutaka Moritomo, Keiichi Tomishige,
Toshiharu Teranishi

Administrative Coordinator
Kiyoshi Akiba, Emiko Omori
Program

March 13 (Thursday)
9:20 Opening
Youiti Ootuka (TIMS, University of Tsukuba)

Session 1. Interdisciplinary Optical Science  
chairman: Yutaka Moritomo

9:30-10:10 Collective atomic motion in solids observed as wave-packet propagation
Tohru Suemoto (Institute of Solid-State Physics, University of Tokyo) ..................... 1

10:10-10:35 Femtosecond microscopic study of dynamics of surface plasmon polariton
Atsushi Kubo (University of Tsukuba; PRESTO-JST) ..............................................2

10:35-10:45 break
chairman: Muneaki Hase

10:45-11:10 Adiabatic manipulation of Raman process and its application to novel coherent light source
Masayuki Katsuragawa (University of Electro-Communications; PREST-JST) .... 3

11:10-11:35 Coherent dynamics of exciton qubits in strain-compensated quantum dots
Junko Ishi-Hayase (JST-PREST; National Institute of Information and Communications Technology (NICT); Department of Physics, Sophia University) ... 4

11:35-12:00 Phonon-induced low energy dynamics of graphite
Jae Dong Lee (School of materials science, Japan Advanced Institute of Science and Technology) .............................................................5

12:00-13:30 Lunch

Session 2. Innovative Hybrid Molecules  
chairman: Takeshi Akasaka

13:30-14:20 Supramolecular Photo- and Electro-active Nanostructures
Nazario Martin (Departament of Organic Chemistry, University of Complutense) .... 6

chairman: Hiroki Oshio

14:20-14:55 Spin-chiral-structural Correlation in Frustrated Molecular Based Magnets
Hiroyuki Nojiri (Institute for Materials Research and CINTS, Tohoku University) ....7

14:55-15:05 break

*chairman: Toshiharu Teranishi*

15:05-15:40 Main Group Approach to New pi-Electron Materials
Shigehiro Yamaguchi (Department of Chemistry, Graduate School of Science, Nagoya University; SORST, JST) .............................................. 8

15:40-16:00 Design and Synthesis of Helical Oligooxime-Zinc(II) Complexes for Ion Recognition
Shigehisa Akine (Tsukuba Research Institute for Interdisciplinary Materials Science, Graduate School of Pure and Applied Sciences, University of Tsukuba) .......... 9

16:00- 18:30 Poster session (Conference Room 102)

18:30- Reception (Restaurant ESPOIR)

March 14 (Friday)
Session 3. Nano Science/ Nano Technology

*chairman: Hidemi Shigekawa*

9:00-9:40 Future of Nano Technology
Young Kuk (Department of Physics and Astronomy, Seoul National University.) ... 10

9:40-10:00 Characteristics of Nanoscale Devices
Tomihiro Hashizume (Advanced Research Laboratory, Hitachi, Ltd.; Department of Physics, Tokyo Institute of Technology; WPI Advanced Institute for Materials Research, Tohoku University) ............................................. 11

10:00-10:10 break

*chairman: Young Kuk & Takaki Kanbara*

10:10-10:30 Functionalized metal complex with molecular recognition ability controlled by external stimuli
Junpei Kuwabara (Tsukuba Research Center for Interdisciplinary Materials Science, University of Tsukuba) ......................................................... 12
10:30-10:50  **Molecular wire for multi-channel transistor**  
Yutaka Wakayama (Advanced Electronic Materials Center, National Institute for Materials Science) ............................................ 13

10:50-11:10  **Atomic Switch and Related Applications**  
Tsuyoshi Hasegawa (WPI Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science ) ............................................ 14

11:10-11:30  **Superconductivity of Nanometer-size superconductors visualized by STM**  
Toyoaki Eguchi (Institute for Solid State Physics, University of Tokyo) ............ 15

11:30-13:00 Lunch

**Session 4.  Bio Materials**

*chairman: Yukio Nagasaki*

13:00-13:40  **Quantification of copy number variation by multiplex ligation-dependent sequence amplification (MLSA) and photodiode-based pyrosequencer**  
Guohua Zhou (Medical School, Nanjing University) .............................................. 16

13:40-14:00  **Density Controlled PEG/Biomacromolecule Co-Immobilized Gold Surface as an Intelligent Sensor Platform**  
Keitaro Yoshimoto (Center for Tsukuba Advanced Research Alliance (TARA), Graduate School of Pure and Applied Sciences, and Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba) ....................... 18

14:00-14:10  break  

*chairman: Guohua Zhou & Keitaro Yoshimoto*

14:10-14:30  **Effective Protein Recognition on the Glycosylated Self-Assembled Monolayer**  
Yukari Sato (National Institute of Advanced Industrial Science and Technology (AIST)) ................................................................. 19

14:30-14:50  **Novel Biocompatible Surface with Concentrated Polymer Brushes**  
Chiaki Yoshikawa (International Center for Materials Nanoarchitectonics, National Institute for Materials Science) ......................................................... 20

14:50-15:10  **Dynamic control of cellular microenvironment based on caged compounds**  
Jun Nakanishi (WPI Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science)  ............................................ 21
15:10-15:30  **Formation of elaborately-patterned co-culture system by photo-control of cell adhesion**
Kimio Sumaru (Research Center of Advanced Bionics, National Institute of Advanced Industrial Science and Technology (AIST))  ............................ 22

15:30  Closing
Toshiharu Teranishi  (University of Tsukuba)
List of Poster Presentations

P-1 **Activation of Alkynes by Indium Salts and Its Application to Catalytic Carbon-Carbon Bond Formation**  
Katsukiyo Miura, Kiyomi Yamamoto, Sayaka Toyohara, Junji Ichikawa and Akira Hosomi  
Department of Chemistry, Graduate School of Pure and Applied Sciences, University of Tsukuba

P-2 **Synthesis of Fluorine-Containing Five-Membered Heterocyclic Compounds via Nucleophilic 5-endo-trig Cyclizations of Metalloenolates and Metalloenamines**  
Masahiro Ikeda1, Kotaro Sakoda2, and Junji Ichikawa1  
1 Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Ibaraki 305-8573, Japan  
2 Graduate School of Science, University of Tokyo,

P-3 **Synthetic Study on 13-Oxyingenol**  
Takayuki Ohyoshi, Toshihiro Haruna, Yuki Asuma, Kenta Aoki, Satomi Ohmura, Ichiro Hayakawa and Hideo Kigoshi  
Department of Chemistry, Graduate School of Pure and Applied Sciences, and Center for Tsukuba Advanced Research Alliance, University of Tsukuba,

P-4 **Synthesis of Ustalic Acid**  
Hidekazu, WATANABE; Ichiro, HAYAKAWA; Hideo, KIGOSHI.  
Department of Chemistry, Graduate School of Pure and Applied Sciences, and Center for Tsukuba Advanced Research Alliance, University of Tsukuba,

P-5 **Total Synthesis of Haterumalide NA**  
Mitsuru UEDA, Yuta SUZUKI, Kensaku YOSHIZATO, Yoichi IKEDA, Masashi YAMURA, Ichiro HAYAKAWA, Hideo KIGOSHI ,  
Department of Chemistry, Graduate School of Pure and Applied Sciences, and Center for Tsukuba Advanced Research Alliance, University of Tsukuba,

P-6 **Synthesis of Glaziovianin A**  
Akiyuki Ikedo, Ichiro Hayakawa, Hideo Kigoshi  
Department of Chemistry, Graduate School of Pure and Applied Sciences, and Center for Tsukuba Advanced Research Alliance, University of Tsukuba,

P-7 **Synthesis of Cyclic Zinc(II) Dipyrrin Trimer by Heteroleptic Coordination**  
Satoko Ueda1, Chusaku Ikeda1, Tatsuya Nabeshima1,2  
1 Graduate School of Pure and Applied Sciences, University of Tsukuba,  
2 Tsukuba Research Institute for Interdisciplinary Materials Science, University of Tsukuba,

P-8 **Ion pair recognition by multidentate pyridine ligand bearing urea moieties**  
Hiroshi Tamai1 and Tatsuya Nabeshima1,2  
1 Department of Chemistry, University of Tsukuba  
2 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba

P-9 **Recognition of Aromatic Guests by Molecular Metalloclefts Bearing Terpyridine-Pt(II) Moieties**  
Nozomi Kimura1, Mayumi Hasegawa1, Shigehisa Akine1, 2 and Tatsuya
P-10  **Self-assembled Cyclic Boron-Dipyrrin Oligomers as a Supramolecular Host**  
Chusaku Ikeda1 and Tatsuya Nabeshima1, 2  
1 Graduate School of Pure and Applied Sciences, University of Tsukuba  
2 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba

P-11  **Synthesis and Complexation of Podand with a Catechol Moiety for Responsible Metallohost**  
Shiho Kijima1, Yuki Imamura1,2 and Tatsuya Nabeshima1,2  
1 Graduate School of Pure and Applied Sciences, University of Tsukuba  
2 Tsukuba Research Institute for Interdisciplinary Materials Science, University of Tsukuba

P-12  **One-pot Synthesis of Hetero and Homo Multi-metal Complexes of Macro cyclic Trisaloph Ligand**  
Ryoko Ebata1 and Tatsuya Nabeshima1,2  
1 Graduate School of Pure and Applied Sciences, University of Tsukuba  
2 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba

P-13  **Synthesis of Macro cyclic Hexaoxime Ligand Using Two Different Metal Ions**  
Shuichi Sunaga,1 Shigehisa Akine,1,2 and Tatsuya Nabeshima1,2  
1 Graduate School of Pure and Applied Sciences, University of Tsukuba  
2 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba

P-14  **Synthesis and luminescent properties of zinc(II)-lanthanide(III) complexes of oxime chelate ligands**  
Utsuno Fumihiko,1 Morita Yoko,1 Akine Shigehisa,1,2 and Nabeshima Tatsuya,1,2  
1 Graduate School of Pure and Applied Sciences, University of Tsukuba  
2 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba

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Masaki Sairenji,1 Chusaku Ikeda,1 and Tatsuya Nabeshima1,2  
1 Graduate School of Pure Applied Sciences, University of Tsukuba  
2 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba

P-16  **Synthesis of Novel Macro cyclic Oligo-oxime Ligands by Ring-closing Olefin Metathesis of Helical Metal Complexes**  
Toshio Tadokoro1, Shigehisa Akine1,2 and Tatsuya Nabeshima1,2  
1 Graduate School of Pure and Applied Sciences, University of Tsukuba  
2 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba

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Naoya Sakamoto,1 Chusaku Ikeda1 and Tatsuya Nabeshima1,2
1Graduate School of Pure and Applied Sciences, University of Tsukuba,
2 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS),
University of Tsukuba,

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Robert Trokowski, Shigehisa Akine and Tatsuya Nabeshima
Graduate School of Pure and Applied Sciences, University of Tsukuba
Tsukuba Research Institute for Interdisciplinary Materials Science (TIMS),
University of Tsukuba,

P-19  **Helical Complexes of Flexible Ligand Based on Two N2O2 Chelate Moieties Connected with Polyether Linker**
Yoko Morita,1 Shigehisa Akine1,2 and Tatsuya Nabeshima1,2
1 Graduate School of Pure and Applied Sciences, University of Tsukuba
2 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS),
University of Tsukuba

P-20  **Synthesis and Function of Novel Terpyridine Podand Bearing Several Recognition Sites**
Takuro Makiguchi,1 Shigehisa Akine,1, 2 Tatsuya Nabeshima1, 2
1 Graduate School of Pure and Applied Sciences, University of Tsukuba,
2 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS),
University of Tsukuba

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Toshihiko Shimada1, Chusaku Ikeda1 and Tatsuya Nabeshima1, 2
1 Graduate School of Pure and Applied Sciences, University of Tsukuba,
2 Tsukuba Research Center for Interdisciplinary Materials Science, University of Tsukuba

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Yuki Imamura and Tatsuya Nabeshima
Graduate School of Pure and Applied Sciences, University of Tsukuba
Tsukuba Research Center for Interdisciplinary Materials Science (TIMS),
University of Tsukuba

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Kiyofumi Irie,1 Shin-ichi J. Takayama,1 Hulin Tai,1 Shin-ichi Mikami,1 Shin Kawano,1
Shigenori Nagatomo,1 Takumi Kawahara,2 Noriaki Funasaki,2 Teruhiro Takabe,3
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1 Univ. of Tsukuba; 2 Kyoto Pharm. Univ.; 3 Meijo Univ.; 4 NIST; 5 PRESTO.;

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Shin-ichi Mikami1, Kiyofumi Irie1, Shin-ichi J. Takayama1, Hulin Tai1, Masato Kage1, Shin
Kawano1, Shigenori Nagatomo1, and Yasuhiko Yamamoto1
1 Tsukuba Research Institute for Interdisciplinary Materials Science, University of Tsukuba,

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Takuya Teratani1,2, Ken Okamoto1,2, Take-aki Koizumi2, Takaki Kanbara1, and Takakazu Yamamoto2
1Tsukuba Research Center for Interdisciplinary Materials Science, University of Tsukuba
2Chemical Resources Laboratory, Tokyo Institute of Technology

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Ken Okamoto1,2, Takakazu Yamamoto1, and Takaki Kanbara2
1Chemical Resources Laboratory, Tokyo Institute of Technology, 2Tsukuba Research Center for Interdisciplinary Materials Science, University of Tsukuba,

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1 Center for Tsukuba Advanced Research Alliance, University of Tsukuba, 2Department of Chemistry, Tokyo Gakugei University, Koganei, 3Bruker AXS K. K., 4Department of Theoretical Molecular Science, Institute for Molecular Science,

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Haruka Enoki1, Midori O. Ishitsuka1, Takahiro Tsuchiya1, Takeshi Akasaka1, Zdenek Slanina1, Michael T. H. Liu2, Naomi Mizorogi3, Shigeru Nagase3
1 Center for Tsukuba Advanced Research Alliance, University of Tsukuba, 2Department of Chemistry, University of Prince Edward Island, 3Institute for Molecular Science,

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1Center for Tsukuba Advanced Research Alliance, University of Tsukuba, 2Department of Chemistry, Josai University, 3Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, 4National Institute of Advanced Industrial Science and Technology (AIST), 5Physical Chemistry III, Darmstadt University of Technology,

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1Center for Tsukuba Advanced Research Alliance, University of Tsukuba, 2Department of Chemistry, Tokyo Gakugei University, 3Bruker Biospin K. K., 4Bruker AXS K. K., 5Department of Theoretical and Computational Molecular Science, Institute for Molecualr Science,

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1Center for Tsukuba Advanced Research Alliance, University of Tsukuba, 2Department of Chemistry, Tokyo Gakugei University, 3Department of Theoretical and Computational Molecular Science, Institute for Molecular Science,

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Yuya Yokosawa, Takahiro Tsuchiya, Takeshi Akasaka
*Center for Tsukuba Advanced Research Alliance, University of Tsukuba*

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1Center for Tsukuba Advanced Research Alliance, University of Tsukuba, 2Department of Chemistry, Tokyo Gakugei University, 3Bruker BioSpin, K. K., 4Department of Theoretical and Computational Molecular Science, Institute for Molecular Science

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1Center for Tsukuba Advanced Research Alliance, University of Tsukuba, 2Department of Applied Chemistry, Kinki University, 3Department of Applied Chemistry, Graduate School of Science and Engineering University of Toyama, 4Department of Chemistry, Tokyo Gakugei University, 5Department of Theoretical Molecular Science, Institute for Molecular Science

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Graduate School of Pure and Applied Sciences, University of Tsukuba,

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1 Graduate School of Pure and Applied Sciences, University of Tsukuba, 2 Institute of Material Research, Tohoku University, Katahira 2-1-1, Aoba-ku, Sendai 980–8577, Japan

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Graduate School of Pure and Applied Sciences, University of Tsukuba,

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Graduate School of Pure and Applied Sciences, Institute of Materials Science, University of Tsukuba,

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Kohsuke Kawabata, Hiromasa Goto
Graduate School of Pure and Applied Sciences, Institute of Materials Science, University of Tsukuba,

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Graduate School of Pure and Applied Sciences, Institute of Materials Science, University of Tsukuba,

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Department of Chemistry, Graduate School of Pure and Applied Sciences, University of Tsukuba,

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Junichi Sakurai, Masayuki Kanehara, Toshiharu Teranishi
Graduate School of Pure and Applied Science, University of Tsukuba,

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Hideaki Tenkaji, Masayuki Kanehara, Toshiharu Teranishi
Graduate School of Pure and Applied Sciences, University of Tsukuba,

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Masaki Saruyama, Masafumi Nakaya, Masayuki Kanehara, Toshiharu Teranishi
Department of Chemistry, Graduate School of Pure and Applied Sciences, University of Tsukuba,

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Graduate School of Pure and Applied Sciences, University of Tsukuba,

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Graduate School of Pure and Applied Sciences, University of Tsukuba,

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Takuya Sakurayia, Tomohisa Miyazawaa, Kimio Kunimoria, Keiichi Tomishigea,*
a Graduate school of Pure and Applied Science University of Tsukuba, Ten-noudai 1-1-1, Tsukuba, Ibaraki
P-49 Surface modification of Ni catalysts with trace noble metals for oxidative steam reforming of methane
Kaori Yoshida, Yuya Mukainakano, Kimio Kunimori, Keiichi Tomishige
Graduate School of Pure and Applied Sciences, University of Tsukuba,

P-50 Hydrogenolysis of glycerol to propanediols catalyzed by heterogeneous catalysts
Akira Shimao, Tomohisa Miyazawa, Shuichi Koso, Kimio Kunimori, Keiichi Tomishige
Graduate School of Pure and Applied Sciences, University of Tsukuba,

P-51 Infrared chemiluminescence study of CO oxidation reactions on noble metal surfaces
Osamu Watanabe1, Kenji Nakao1, Shin-ichi Ito1, Keiichi Tomishige1, Kimio Kunimori1
1 Tsukuba Research Institute for Interdisciplinary Materials Science, University of Tsukuba,

P-52 Preferential CO oxidation promoted by the presence of H2 over K-Pt/Al2O3
Yoichi Ishida1,* , Hisanori Tanaka1, Shin-ichi Ito1, Keiichi Tomishige1, Kimio Kunimori1
1 Tsukuba Research Institute for Interdisciplinary Materials Science, University of Tsukuba,

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Mutsumasa Kyotani1, Satoshi Matsushita2, Takuro Nagai3, Yoshio Matsui3, Kazuo Akagi1, 2
1 Tsukuba Research Institute for Interdisciplinary Materials Science, University of Tsukuba,
2 Dep. Polymer Chem., University of Kyoto, Katsura, Kyoto 615-8510, Japan
3 NIMS, Namiki, Tsukuba 305-0044, Japan

P-54 Acceleration of the Z to E photoisomerization of penta-2,4-dieniminium by hydrogen out-of-plane motion: Theoretical study on a model system of retinal protonated Schiff base
Masato Sumita and Kazuya Saito
Department of Chemistry, Graduate School of Pure and Applied Sciences, University of Tsukuba.

P-55 Calorimetric investigation of correlated disordering in [Hdamel]2[CuII(tdpd)2].2THF
Yasuhisa Yamamura,1 Hiroyasu Shimo1, Masato Sumita1, Syuma Yasuzuka1, Keiichi Adachi2, Akira Fuyuhiro2, Satoshi Kawata2 and Kazuya Saito1
1 Department of Chemistry, Graduate School of Pure and Applied Sciences, University of Tsukuba,
2 Department of Chemistry, Graduate School of Science, Osaka University,

P-56 Calorimetric and dielectric study on hydrogen-bonded organic ferroelectrics
Y. Suzuki, M. Amano, M. Sumita, Y. Yamamura, S. Yasuzuka and K. Saito
Department of Chemistry, Graduate School of Pure and Applied Sciences, University of Tsukuba,

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Shogo SUMITANI1, Motoi OISHI1, 2, 3) and Yukio NAGASAKI1, 2, 3, 4), 5) 1) Graduate School of Pure and Applied Sciences, 2) Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), 3) Center for Tsukuba Advanced Research Alliance (TARA), 4) Graduate School of Comprehensive Human Sciences, 5) Satellite Laboratory of International Center for Materials Nanoarchitectonics (MANA), National Institute of Materials Science

P-59 Mechanism analysis of patterned PEG hydrogel surface on cellular adhesiveness changes
Masahiro Ichino1, Keitaro Yoshimoto1, 2, Yukio Nagasaki1, 2, 3, 4, 5 1Graduate School of Pure and Applied Science, University of Tsukuba 2Center for Tsukuba Advanced Research Alliance (TARA), University of Tsukuba 3Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba 4Master's School of Medical Sciences, Graduate School of Comprehensive Human Sciences, University of Tsukuba 5Satellite Laboratory, International Center for Materials Nanoarchitectonics (MANA), National Institute of Materials Science (NIMS)

P-60 Self-Assembled Polyion Complex Nanosphere by PEG-siRNA Block Copolymer –Effect of siRNA Chain Length on Stabilization of Nanosphere–
Taiga Tatsumi1,2,3, Motoi Oishi1,2,3,5, Kazunori Kataoka6,7, and Yukio Nagasaki1,2,3,4,5 1Graduate School of Pure and Applied Sciences, University of Tsukuba, 2Tsukuba Research Center for Interdisciplinary Materials Science, 3Center for Tsukuba Advanced Research Alliance, 4Master's School of Medical Science, Graduate School of Comprehensive Human Science, University of Tsukuba, 5Satellite Laboratory, International Center for Materials Nanoarchitectonics, National Institute of Materials Science, 6Department of Materials Engineering, Graduate School of Engineering, The University of Tokyo, 7Division of Clinical Biotechnology, Center for Disease Biology and Integrative Medicine, Graduate School of Medicine, The University of Tokyo

P-61 Fluorescence-based labeling of nucleobases by a hydrogen-bond forming lanthanide chelate complex
Hiroshi Atsumi1, Keitaro Yoshimoto1, 2, 5, 7, Shingo Saito3, 5, Moriya Okuma4, Mizuo Maeda5, and Yukio Nagasaki1, 2, 6, 7, 8, 1Department of Materials Science, Graduate School of Pure and Applied Sciences, University of Tsukuba 2Center for Tsukuba Advanced Research Alliance (TARA), University of Tsukuba 3Graduate School of Science and Engineering, Saitama University,
**P-62** Antigen binding ability of Fab/mixed-poly(ethylene glycol) (PEG) tethered-chain gold surface -A PEG interphase maintains the antibody activity-
Motohiko Nishio1, Takumi Hirase1, Keitaro Yoshimoto1,3,4, Yukio Nagasaki1,2,3,4,5
1 Graduate School of Pure and Applied Science,
2 Graduate School of Comprehensive Human,
3 Tsukuba Research Center for Interdisciplinary Materials Science (TIMS),
4 Center for Tsukuba Advanced Research Alliance (TARA), University of Tsukuba,
5 Satellite Laboratory, International Center for Materials Nanoarchitectonics (MANA), National Institute of Materials Science (NIMS)

**P-63** Application of Rare-Earth Doped Ceramic Nanophosphors for NIR Biophotonics
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**P-64** Chemical reactions in solutions by atmospheric-pressure nonthermal plasmas
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**P-65** Spin Transport in Ultrathin Graphite Films
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**P-66** Conduction-channel analysis of hydrogen molecule junctions by superconducting point-contact spectroscopy
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**P-67** A micro SQUID using small tunnel junctions
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P-68 Local electronic states around conduction band edge of an ultra-thin Al2O3 film on Ni3Al(111)
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P-69 Plasmon-mediated multiple excitations observed in STM-induced light emission from rubrene/Au(111) thin films
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P-70 STM-induced light emission from an organic-LED structure
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P-71 Two-dimensional Electronic Structures Realized in Self-assembled Monolayers of Amino Acids on Cu(100) Surface
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P-72 Investigation of Biotin-Streptavidin Interactions by Dynamic Force Spectroscopy with Precise Force Control
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P-73 Influence of junction geometry on single molecular conductance investigated by STM point contact method
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P-74 Nanoscale imaging of carrier dynamics in semiconductor heterostructures by femtosecond time-resolved STM
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P-75 Four-Probe Scanning Tunneling Microscope with True Atomic Resolution
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P-76 The effect of infiltration on atomic step flow
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P-77 Dielectric characteristics of SiO2 film formed by radical oxygen
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P-78  **Ultrafast dynamics of coherent optical phonons in Ge2Sb2Te5 films**  
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P-79  **Photoconductance imaging of a quantum point contact under local optical excitations**  
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P-80  **Photo voltage response images of a superconductor-normal metal-superconductor junction**  
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P-81  **A low-temperature field near-field scanning optical microscope for imaging electronic states in GaAs/AlGaAs heterostructures**  
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P-82  **Transient band bending in InP/InAs/InP core-multishell nanowires**  
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P-83  **Narrowing of exciton linewidth of a quantum dot with increasing temperature**  
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P-84  **Spin orientation of excitons, trions and tetraons in charge tunable InP quantum dots**  
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P-85  **Single NN pair luminescence and single photon generation in nitrogen 5-doped GaP**  
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P-86  **Femtosecond observation of coherent plasmon-phonon coupled modes in InAs: application to estimation of carrier mobility**
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P-88  **Arbitrary optical waveform generation with ultra-high repetition rate using line-by-line control of spectral phase of broad Raman sidebands**  
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P-89  **Dynamics of the three-leg spin tube system**  
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P-90  **Specific heat measurements of the geometrically frustrated system Cd1-xZnxV2O4**  
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P-91  **NMR study of the geometrically frustrated systems LixVO2 and LiyZn1-yV2O4**  
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P-92  **Substitution effects of the multifunctional composite crystal CuₓV₄O₁₁ system**  
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