

# THE 106TH ICR ANNUAL SYMPOSIUM

(15 December 2006)

## ORAL PRESENTATIONS

YAMAGO, Shigeru (Polymer Controlled Synthesis)  
“Development of Organobismuthine-Mediated Living Radical Polymerization”

NAKASE, Ikuhiko (Biofunctional Design-Chemistry)  
“Arginine-rich Peptide: Recognition of Proteoglycans and Effective Cellular Uptake”

HASHIDA, Masaki (Laser Matter Interaction Science)  
“Nano Ablation of Carbon Nanotube Cathode by Femtosecond Laser”

MIZUTANI, Masaharu (Chemistry of Molecular Biocatalysts)  
“Diversity of Cytochrome P450 Monooxygenases and Chemical Evolution in Plants”

– ICR Award for Young Scientists –  
SASAMORI, Takahiro (Organoelement Chemistry)  
“Doubly Bonded Compounds between Heavier Group 15 Elements”

KASAI, Shinya (Nanospintronics)  
“Current-Driven Resonant Excitation of Magnetic Vortices”

– ICR Award for Graduate Students –  
HIMENO, Atsushi (Nanospintronics)  
“Domain Wall Ratchet Effect Induced by an Electric Current”

– ICR Grants for Young Scientists –  
KOBAYASHI, Kensuke (Nanospintronics)  
“Spin-dependent Transport through Ferromagnetic Nano-particles”

TSUJI, Hayato (The University of Tokyo, Former: Organic Main Group Chemistry)  
“Effect of the Molecular Structure and Movement on the Photoelectron Transfer through Silicon Chain”

MATSUDA, Kazunari (Photonic Elements Science)  
“Creation of Organic Spintronics Devices Using Carbon Nanotubes”

YOSHIDA, Hiroyuki (Molecular Aggregation Analysis)  
“Structure of Organic Layers and Metal/organic Interfaces Inorganic Semiconductor Devices”

MIHARA, Hisaaki (Molecular Microbial Science)  
“Exploration of the 23rd Amino Acid by a Collaborative Research of Bioinformatics and Biochemistry”

## POSTER PRESENTATIONS

 : Laboratory Whole Presentation  
 : Laboratory Topic  
 : General Presentation

### — Organoelement Chemistry —

 “Studies on the Synthesis and Properties of Novel Organic Compounds Containing Heavier Elements”

 ISOBE, Toru; TAKEDA, Nobuhiro; TOKITOH, Norihiro  
“Synthesis of Novel Polychalcogenoether Ligands Tethered with Bulky Substituents and Its Application toward the Complexation with Transition Metals”

 MATSUMOTO, Takeshi; SASAMORI, Takahiro; TOKITOH, Norihiro  
“Electrochemical Properties of Kinetically Stabilized Sila-aromatic Compounds”

 NAGAHORA, Noriyoshi; SASAMORI, Takahiro; TOKITOH, Norihiro  
“Reactions of a Kinetically Stabilized 1,1'-Bis(diphospheno)ferrocene with Group 6 Metals”

### — Structural Organic Chemistry —

 YOSHIDA, Ryohei; MURATA, Yasujiro; KITAGAWA, Toshikazu  
“Generation and Trapping of Phenylated C<sub>60</sub> Cation”

 TANABE, Fumiyuki; MURATA, Michihisa; MURATA, Yasujiro  
“Encapsulation of Molecular Deuterium inside an Open-Cage C<sub>60</sub>”

 CHUANG, Shih-Ching; MURATA, Michihisa; MURATA, Yasujiro  
“Fine Tuning of the Orifice Size: Synthesis and Properties of Selenium-containing Open-cage C<sub>60</sub>”

### — Synthetic Organic Chemistry —

 TSUBAKI, Kazunori; TAKAISHI, Kazuto; TANAKA, Hiroyuki; MIURA, Masaya; SUE, Daisuke; KAWABATA, Takeo  
“Determination of Axial Chirality and Optical Properties of Helical Oligonaphthalenes”

 YOSHIMURA, Tomoyuki; KAWABATA, Takeo  
“Enantioselective Total Synthesis of Trolox via Memory of Chirality”

— **Advanced Inorganic Synthesis** —

- GE KAWAI, Masanori; KAN, Daisuke; ISOJIMA, Seiichi; KURATA, Hiroki; SHIMAKAWA, Yuichi  
“Structural Characterization of Epitaxial BaTiO<sub>3</sub> Thin Films by Synchrotron X-ray Diffraction and STEM”

— **Chemistry of Polymer Materials** —

- LT ARITA, Toshihiko; OHNO, Kohji; TSUJII, Yoshinobu; FUKUDA, Takeshi  
“Developments of Concentrated Polymer Brush”
- GE GAO, Weiping; OHNO, Kohji; TSUJII, Yoshinobu; FUKUDA, Takeshi  
“Phase Transition of Well-Defined Concentrated Poly(N-isopropylacrylamide) Brushes in Water”

— **Polymer Controlled Synthesis** —

- GE KOBAYASHI, Yu; YAMAGO, Shigeru  
“Organotellurium Mediated Stereocontrolled Living Radical Polymerization of N-isopropyl (Meth)acrylamides”
- GE TOGAI, Manabu; PAN, Na; YAMADA, Takeshi; YAMAGO, Shigeru  
“Synthesis of End-Functionalized Polymers Based on Reaction with Azocompounds and Distibine”
- GE TAKEMURA, Kazunobu; YAMAGO, Shigeru  
“A Efficient Strategy for the Synthesis of Chondroitin by Iterative Glycosylation”

— **Inorganic Photonics Materials** —

- LW “Recent Topics in Yoko Laboratory”
- LT UEMURA, Koji; TAKAHASHI, Masahide; TOKUDA, Yomei; YOKO, Toshinobu  
“Formation of Two-dimensionally-structured TiO<sub>2</sub> Film by the Photopolymerization-induced Phase Separation in the TiO<sub>2</sub> Colloid - Photosensitive Monomer Coexisting System”

— **Nanospintronics** —

- LW “Research on Nano Spintronics: 2006”
- GE DELMO, Michael P; TAMADA, Yoshinori; YAMAMOTO, Shinpei; TAKANO, Mikio; KASAI, Shinya; KOBAYASHI, Kensuke; ONO, Teruo  
“Tunneling Magnetoresistance in FePt Nanoparticles”
- GE TAMADA, Yoshinori  
“Synthesis and Easy Axis Alignment of L1<sub>0</sub>-FePt Nanoparticles”
- GE YANO, Kuniaki  
“The Correlation between Threshold Current Density and Pinning Potential on Current-driven Domain Wall Motion”

— **Biofunctional Design-Chemistry** —

- LT NOSHIRO, Daisuke; TONO, Syunsuke; FUTAKI, Shiroh  
“Transmission of Extramembrane Conformational Change into Current: Construction of Metal-gated Ion Channel”
- GE YAN, Wei; IMANISHI, Miki; FUTAKI, Shiroh  
“Distinction of Target DNA Phases by a Designed 6-Zinc Finger Peptide with  $\alpha$  Helical Linker”

— **Chemistry of Molecular Biocatalysts** —

- LT SHIMIZU, Bun-ichi; KAI, Kosuke; MIZUTANI, Masaharu; KAWAMURA, Naohiro; YAMAGUCHI, H; SAKATA, Kanzo  
“Biosynthetic Pathway of Coumarins in Arabidopsis thaliana”
- GE TAI, Liz; HIRATAKE, Jun; MIZUTANI, Masaharu; SHIMIZU, Bun-ichi; SAKATA, Kanzo  
“Inhibitors of IAA-Amino Acid Conjugate Synthetases and Hydrolases as Chemical Probes to Study IAA Homeostasis”
- GE NAKAGAWA, Yuichi; HASEGAWA, Atsuko; HIRATAKE, Jun; SAKATA, Kanzo  
“Directed Evolution of Lipase for Amide Hydrolysis”
- GE CHO, Jeong-Yong; MIZUTANI, Masaharu; SHIMIZU, Bun-ichi; SAKATA, Kanzo  
“Gene Expression Profiling and Chemical Profiling during the Manufacturing Process of Formosa Oolong Tea ‘Oriental Beauty’”

— **Molecular Biology** —

- LT AKI, Shiori; OKA, Atsuhiko; TSUGE, Tomohiko  
“The Novel Function of COP9 Signalosome Regulation”

— **Chemical Biology** —

- GE SHIMOGAWA, Hiroki; UESUGI, Motonari  
“A Study of Transcriptional Activation with Wrenchnolol Derivatives”

— **Molecular Materials Chemistry** —

- LW “Structure and Dynamics of Functional Molecular Materials”

— **Hydrospheric Environment Analytical Chemistry** —

- LT MOCHAMAD, Lutfi Firdaus; NORISUYE, Kazuhiro; SOHRIN, Yoshiki  
“Dissolved and Acid-dissolvable Zr, Hf, Nb, Ta, Mo and W in the Western North Pacific Ocean”
- GE MINAMI, Tomoharu; URUSHIHARA, Shohei; SHIMIZU, Akiyoshi; NAKAGAWA, Yusuke; SOHRIN, Yoshiki  
“Comparison of Chelating Absorbents for Separation and Determination of Trace Metals in Seawater”

— **Solution and Interface Chemistry** —

- LT WAKAI, Chihiro  
“NMR Study of Ionic Liquids”

- GE KINOSHITA, Tomoko; OKAMURA, Emiko; MATUBAYASI, Nobuyuki; NAKAHARA, Masaru  
“In-situ  $^{23}\text{Na}$ -NMR Study of Ion Transport through Phospholipid Bilayers”

— Molecular Microbial Science —

- LT YAMAMOTO, Kentaro; KAWAMOTO, Jun; SATO, Satoshi; KURIHARA, Tatsuo; ESAKI, Nobuyoshi  
“Physiological Role of Eicosapentaenoic Acid in Cold Adaptation of a Psychrotrophic Bacterium”
- GE YAMAUCHI, Takae; GOTO, Masaru; UO, Takuma; WU, Huiyuan; YOSHIMURA, Tohru; MIHARA, Hisaaki; KURIHARA, Tatsuo; MIYAHARA, Ikuko; HIROTSU, Ken; ESAKI, Nobuyoshi  
“Serine Racemase from *S. pombe*: Properties of Its Modified Form”

— Polymer Materials Science —

- LW “Detailed Structural Analysis of Polymers in a Wide Range of Length and Time”
- LT KAWAI, Takahiko; RAHMAN, Nelly  
“Crystallization of Poly(lactic acid)”
- LT OGAWA, Hiroki  
“Phase Separation and Dewetting in Polymer Blend Thin Films as Studied by Neutron Reflectivity”
- GE ISEKI, Toru  
“Structure Analysis of Organic-inorganic Hybrid Low-melting Glasses as Studied by Light Scattering”

— Molecular Rheology —

- GE SAWADA, Toshiaki; MATSUMIYA, Yumi; WATANABE, Hiroshi  
“Constraint Release and Dynamic Tube Dilation in Entangled Blends of Star Polyisoprene”

— Molecular Aggregation Analysis —

- LT MURDEY, Richard; SATO, Naoki  
“Structure and Electronic Structure of Unoccupied States in Pentacene Thin Films Deposited at Different Substrate Temperatures”
- GE ASAMI, Koji; OKAZAKI, Takashi; NAGAOKA, Yasuo  
“Ion Channels of N-Terminally-Linked Alamethicin Dimers”

— Supramolecular Biology —

- LW “Research Activity at Supramolecular Biology”
- GE KATO, Utako; INADOME, Hironori; UMEDA, Masato  
“Membrane Phospholipid Dynamics and Its Role in Regulation of Cell Motility”
- GE TAKEUCHI, Ken-ichi; TAKAHARA, Keigo; ISODA, Yuka; UMEDA, Masato  
“The Molecular Mechanisms of Temperature Preference in *Drosophila*”

— Particle Beam Science —

- LT IKEGAMI, Masahiro; NODA, Akira; SHIRAI, Toshiyuki; TONGU, Hiromu; TANABE, Mikio; SOUDA, Hikaru  
“Generation of Ultra-low-temperature Beams by Laser Cooling”
- GE SHIRAI, Toshiyuki  
“String Ion Beam Generation by Electron Cooling”

- GE TONGU, Hiromu; NODA, Akira; SHIRAI, Toshiyuki; IKEGAMI, Masahiro; FUJIMOTO, Shinji; TANABE, Mikio; SOUDA, Hikaru  
“Measurement of Beam Lifetime in S-LSR”

— Electron Microscopy and Crystal Chemistry —

- LW “Recent Research Topics in the Division of Electron Microscopy and Crystal Chemistry”
- GE TSUJIMOTO, Masahiko; KURATA, Hiroki; NEMOTO, Takashi; ISODA, Seiji  
“Si  $L_3$ -edge ELNES and Threshold Energy for Si and Its Related Materials Calculated by First Principles Band Calculation”
- GE YOSHIDA, Kaname; KAMIYA, Shoko; SHIMIZU, Toshimi; ISODA, Seiji  
“A Formation of Self-Assembled Glycolipid Nanotube with Bilayer Sheets”
- GE YAJI, Toyonari; YOSHIDA, Kaname; NEMOTO, Takashi; KURATA, Hiroki; ISODA, Seiji  
“STM and STS Study on Pt-chains in bis(1,2-benzoquinone-dioximato) Platinum(II) Thin Films”

— Structural Molecular Biology —

- LT FUJII, Tomomi; HATA, Yasuo  
“Crystal Structures of Protein Molecules from Thermophilic and Psychrophilic Bacteria”

— Organic Main Group Chemistry —

- GE ITO, Shingo; HATAKEYAMA, Takuji; NAKAMURA, Masaharu  
“Development of Some C-C Bond Formations Exploiting Unreactive Haloalkanes”

— Advanced Solid State Chemistry —

- LT OKA, Kengo  
“Charge and Magnetic Orderings in Triangular Lattice Antiferromagnet  $\text{InFe}_2\text{O}_4$ ”

— Organotransition Metal Chemistry —

- LT MUTOH, Yuichiro; MURAKAMI, Hiromi; HAYASHI, Kyohei; OKAZAKI, Masaaki; OZAWA Fumiyuki  
“Highly Reactive Catalysts Bearing Low Coordinate Phosphorus Ligand”

GE TAKANO, Masato; YOSHIMURA, Ken-ichi; OKAZAKI, Masaaki; OZAWA, Fumiyuki  
“Redox Switchable Isomerization of Fe<sub>4</sub>C<sub>4</sub> Clusters”

— **Photonic Elements Science** —

LW “Recent Research Topics in Photonic Elements Science”

— **Bioknowledge Systems** —

LW “KEGG: the Integrated Database for Genomic and Chemical Information”

— **Biological Information Networks** —

GE TAMURA, Takeyuki; AKUTSU, Tatsuya  
“Approximation Algorithms for Optimal RNA Secondary Structures Common to Multiple Sequences”

— **Pathway Engineering** —

LI WAN, Raymond; TAKIGAWA, Ichigaku; MAMITSUKA, Hiroshi  
“Extending Splitting Criteria for Classifying Microarray Expression Data”

— **Bioinformatics Training Unit** —

GE ICHIHARA, Hisako; KUMA, Kei-ichi; TOH, Hiroyuki  
“Positive Selection in the CSP-ComD System of Streptococcal Species”

— **Research Center for Low Temperature and Materials Sciences** —

GE TERASHIMA, Takahito  
“Recent Research Activities in Research Center for Low Temperature and Materials Sciences”