

THE 107TH ICR ANNUAL SYMPOSIUM

(7 December 2007)

ORAL PRESENTATIONS

MASUBUCHI, Yuichi (Molecular Rheology)
“Molecular Rheology of Polymers”

SHIRAI, Toshiyuki, et al. (Particle Beam Science)
“One-dimensional Ordering of Proton Beam in the Storage Ring”

HIRATAKE, Jun (Chemistry of Molecular Biocatalysts)
“Molecular Design and Applications of γ -Glutamyl Transpeptidase (GGT) Inhibitors as Chemical Probes to Understand the Physiological Roles of GGT”

KAMISUKI, Shinji, et al. (Chemical Biology)
“A Small Molecule That Blocks Fat Synthesis”

SATO, Naoki (Molecular Aggregation Analysis)
“Studies on Correlation among Structure, Electronic Structure and Properties of Organic Thin Films”

– ICR Award for Young Scientists –
OHNO, Kohji (Chemistry of Polymer Materials)
“A New Family of Colloidal Crystal Constructed by Concentrated Polymer Brush-afforded Fine Particles”

HATAKEYAMA, Takuji (Organic Main Group Chemistry)
“Iron-Catalyzed Selective Biaryl Coupling: Remarkable Suppression of Homocoupling by the Fluoride Anion”

– ICR Award for Graduate Students –
MURAMATSU, Wataru (Synthetic Organic Chemistry)
“A Catalytic One-Step Process for the Chemo- and Regioselective Acylation of Monosaccharides”

– ICR Grants for Young Scientists –
KOBAYASHI, Kensuke (Nanospintronics)
“Development of Magnetic Switch Devices by Using FePt Nanoparticles”

MIHARA, Hisaaki (Molecular Microbial Science)
“Construction of Novel Functional Molecules by Hybridization of Transition Metal Clusters with Biomolecules”

KATO, Utako (Supramolecular Biology)
“Regulation of Cell Polarity in Static Magnetic Fields”

AZUMA, Masaki (Advanced Inorganic Synthesis)
“Search for New Lead-free Ferroelectric Piezoelectric Materials by Means of First Principle Calculations and High-pressure Synthesis”

POSTER PRESENTATIONS

 : Laboratory Whole Presentation
 : Laboratory Topic
 : General Presentation

— Organoelement Chemistry —

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

 KAWAI, Masahiro; SASAMORI, Takahiro; TOKITOH, Norihiro
“Synthesis of Stable Platinum Complexes Bearing Overcrowded Primary Phosphine Ligands and Its Deprotonation Reaction”

 YUASA, Akihiro; SASAMORI, Takahiro; TOKITOH, Norihiro
“Synthesis and Structure of the First Stable 1,2-Diferrocenyldisilene”

 TANABE, Taro; MIZUHATA, Yoshiyuki; TOKITOH, Norihiro
“Syntheses of Silanedichalcogenolato Complexes Utilizing Stable Silanedichalcogenols and Elucidation of Their Structures and Reactivities”

 OZAKI, Shuhei; SASAMORI, Takahiro; TOKITOH, Norihiro
“Synthesis and Properties of a Kinetically Stabilized 1-Hydrosilene and Its Unique [6+6]-Dimerization”

— Structural Organic Chemistry —

 MURATA, Michihisa; OCHI, Yuta; TANABE, Fumiyouki; KOMATSU, Koichi; MURATA, Yasujiro
“NMR Studies of Dianions of Fullerene C₆₀ and Its Cage-Opened Derivatives Encapsulating Molecular Hydrogen”

 KATO, Keisuke; MURATA, Michihisa; KOMATSU, Koichi; MURATA, Yasujiro
“Synthesis and Properties of Novel Open-Cage Fullerenes Having a Lactone Group”

 KUROTOBI, Kei; MURATA, Michihisa; MURATA, Yasujiro
“The Reaction and Property of Open-cage C₆₀ Having an 8-membered-ring Orifice”

— Synthetic Organic Chemistry —

 WATANABE, Toshihide; KAWABATA, Takeo
“Asymmetric Aldol Reaction via Memory of Chirality: Synthesis of β -hydroxy- α -amino Acids with a Tetrasubstituted Carbon Center”

- GE KAN, Keizo; SHIBATA, Takeshi; KAWABATA, Takeo
“Asymmetric Lactonization with C₂-Symmetric Chiral Nucleophilic Catalysts”

— **Advanced Inorganic Synthesis** —

- LW “Recent Research Topics from Advanced Inorganic Synthesis”
- GE NISHIMURA, Kousuke; AZUMA, Masaki; TAKANO, Mikio; SHIMAKAWA, Yuichi
“Synthesis and Physical Properties of Double Perovskite PPb₂FeReO₆”
- GE TENG, Yonghong; AZUMA, Masaki; SHIMAKAWA, Yuichi
“Size-controlled Synthesis of Transition Metal Oxides Particles and Their Catalytic Activity”

— **Chemistry of Polymer Materials** —

- LT GOTO, Atsushi; HIRAI, Norihiro; WAKADA, Tsutomu; FUKUDA, Takeshi; TSUJII, Yoshinobu
“A New Class of Living Radical Polymerizations with Non-Transition Metal Catalysts—Reversible Chain Transfer Catalyzed Polymerization (RTCP)”
- GE OKAYASU, Kenji; NOMURA, Akihiro; KURAMOTO, Mamoru; OHNO, Kohji; FUKUDA, Takeshi; TSUJII, Yoshinobu
“Tribological Properties of Concentrated Polymer Brushes”
- GE MA, Ying; OHNO, Kohji; FUKUDA, Takeshi; TSUJII, Yoshinobu
“Living Radical Polymerization of Phenylboronic Acid-Carrying Monomer”

— **Polymer Controlled Synthesis** —

- GE HAMANO, Tsubasa; TOSAKA, Masatoshi; TSUJII, Masaki; YAMAGO, Shigeru
“Formation of Stacked-lamella-like Structure in Aromatic Polyester Nanofibers”
- GE KAYAHARA, Eiichi; YAMAGO, Shigeru
“Precision Control of Living Radical Polymerization by Using Organobismuthine Co-catalyst”

— **Inorganic Photonics Materials** —

- LW “Research Activity at Inorganic Photonics Materials”
- GE UEMURA, Koji; TAKAHASHI, Masahide; TOKUDA, Yomei; YOKO, Toshinobu
“Photopolymerisation-Initiated Formation of Ordered Microstructure in Oxide Thin Films from Photo Monomer-Oxide Precursor System”
- GE YAMAMOTO, Hideaki; TOKUDA, Yomei; TAKAHASHI, Masahide; YOKO, Toshinobu
“Fundamental Studies on the Organic-inorganic Hybrid Glass Prepared through Two Phase Solution Treatment”

— **Nanospintronics** —

- GE TANIGAWA, Hironobu; KONDOU, Kouta; KASAI, Shinya; ONO, Teruo
“Domain Wall Motion Induced by a Pulsed-current under an External Magnetic Field”
- GE KONDOU, Kouta; TANIGAWA, Hironobu; KASAI, Shinya; OHSHIMA, Norikazu; NAKATANI, Yoshinobu; KOBAYASHI, Kensuke; ONO, Teruo
“Dynamics of a Magnetic Domain Wall in Submicron Magnetic Wires”
- GE TAMADA, Yoshinori; INOUE, Takanori; YAMAMOTO, Shinpei; TAKANO, Mikio; NASU, Saburo; ONO, Teruo
“Mossbauer Spectroscopy of Easy-axis Aligned LI₀-FePt Nanoparticles”
- GE NAKAMURA, Shuji; HASHISAKA, Masayuki; YAMAUCHI, Yoshiaki; KASAI, Shinya; KOBAYASHI, Kensuke; ONO, Teruo
“Measurement of Conductance in Quantum Point Contacts at Low Temperature”

— **Biofunctional Design-Chemistry** —

- LT KOBAYASHI, Sachiko; NAKASE, Ikuhiko; FUTAKI, Shiroh
“Internalization of Protein by the pH-sensitive Peptide in the Presence of Cationic Lipids”
- GE NOSHIRO, Daisuke; ASAMI, Koji; FUTAKI, Shiroh
“Metal-assisted Stabilization of the His-containing Alamethicin Derivative Assembly”

— **Chemistry of Molecular Biocatalysts** —

- GE TAKEUCHI, Yoshinori; LIZ, Tai; MIZUTANI, Masaharu; SIMIZU, Bun-ichi; HIRATAKE, Jun
“Chemical Tools to Inhibit Auxin Inactivation—Design, Synthesis and *in vivo* Activities of IAA-amino Acid Conjugate Synthetases (GH3)—”
- GE KAI, Kosuke; YAMAMOTO, Ryotaro; KAWAMURA, Naohiro; MIZUTANI, Masaharu; SAKATA, Kanzo; SHIMIZU, Bun-ichi
“*Ortho*-hydroxylation of Cinnamate Unit and Coumarin Biosynthesis in Plants”
- GE NAKAJIMA, Mado; HAN, Ryou; HIRATAKE, Jun
“Substrate Recognition of γ -glutamyl Transpeptidase Probed by Using Transition-state Analogue Inhibitors”

— **Molecular Biology** —

- LT KUSANO, Hiroaki; TESTERINK, Christa; VERMEER, Joop E M; YASUDA, Keiko; TSUGE, Tomohiko; SHIMADA, Hiroaki; OKA, Atsuhiko; MUNNIK, Teun; AOYAMA, Takashi
“The *Arabidopsis* Phosphatidylinositol Phosphate 5-kinase PIP5K3 Is a Key Regulator for Root Hair Tip Growth”
- LT TANIGUCHI, Yukimi; AOYAMA, Takashi; OKA, Atsuhiko
“Functional Analysis of AtPLD ζ 2”

— **Chemical Biology** —

- [LW] “Chemical Biology”

— **Molecular Materials Chemistry** —

- [LT] KUSAKA, Masafumi; QING, Luo; KANIE, Yasumasa; IWATA, Daiki; HIRAI, Asako; HORII, Fumitaka
“Surface High Resolution NMR - Observations of the Surface Structure of Different Polymer Materials and Their Mechanisms”
- [LT] YAMADA, Tomonori; KAJI, Hironori; HORII, Fumitaka
“Molecular and Electronic Structure Analyses of TPD, a Hole Transport Material in Organic LEDs”
- [LT] HIRAI, Asako; INUI, Osamu; HORII, Fumitaka; TSUJI, Masaki
“Liquid Crystal Formation in Aqueous Suspensions of Bacterial Cellulose Microfibrils and Effects of Added Electrolytes on Phase Behavior of the Suspensions”

— **Hydrospheric Environment Analytical Chemistry** —

- [LT] NORISUYE, Kazuhiro; MINAMI, Tomoharu; NAKATSUKA, Seiji; SOHRIN, Yoshiki; FIRDAUS, Mochamad Lutfi
“Method for Determination of Trace Elements in Seawater and Its Application to Observation of Their Distributions in the Oceans”
- [GE] NAKAGAWA, Yusuke; FIRDAUS, Mochamad Lutfi; NORISUYE, Kazuhiro; SOHRIN, Yoshiki
“Development of Chelate Resin Column Preconcentration Method for Precise Isotope Analysis of Mo in Seawater”

— **Solution and Interface Chemistry** —

- [LT] YASAKA, Yoshiro
“Slowdown of H/D Exchange Reaction Rate and Water Dynamics in Ionic Liquid: Deactivation of Solitary Water Solvated by Small Anions in 1-Butyl-3-Methylimidazolium Chloride”
- [GE] YOSHIDA, Ken; MATUBAYASI, Nobuyuki; NAKAHARA, Masaru
“High-temperature NMR and MD Simulation Study on the Self-diffusion and Rotation in Supercritical Water in Relation to the Solvation Shell State and Lifetime”

— **Molecular Microbial Science** —

- [LT] KAWAMOTO, Jun; KURIHARA, Tatsuo; ESAKI, Nobuyoshi
“Physiological Role of Eicosapentaenoic Acid in High-pressure Adaptation of *Shewanella violacea* DSS12”
- [LT] ZHANG, Wanjiao; MIHARA, Hisaaki; KURIHARA, Tatsuo; ESAKI, Nobuyoshi
“Biosynthesis of Molybdopterin”

— **Polymer Materials Science** —

- [LW] “Progress of Precise Analysis of Polymer Structure”

- [GE] TOMOHISA, Hiroshi; MATSUBA, Go; NISHIDA, Koji; KANAYA, Toshiji
“Crystallization Process of Poly(ethylene terephthalate) under Shear Flow”

- [GE] RAHMAN, Nelly; KAWAI, Takahiko; MATSUBA, Go; NISHIDA, Koji; KANAYA, Toshiji
“Effect of Polylactide Stereocomplex Crystallites on Poly(L-Lactic Acid) Crystallization Behavior”

— **Molecular Rheology** —

- [LW] “Progress in Molecular Rheology”
- [GE] IWASHIGE, Tomohito; MATSUMIYA, Yumi; WATANABE, Hiroshi; INOUE, Tadashi
“Dielectric Relaxation and Dynamics of Poly(lactic acid) in Carbon Dioxide at High Pressure”
- [GE] HORIO, Kazushi; MASUBUCHI, Yuichi; WATANABE, Hiroshi; KHALIULLIN, Renat; SCHIEBER, Jay D
“A Free Energy of Entangled Polymers on Segment Interaction”
- [GE] IWAMOTO, Tatsuya; SAWADA, Toshiaki; MATSUMIYA, Yumi; WATANABE, Hiroshi
“Rheological and Dielectric Behavior of Dipole-Inverted (SIS)_p-Type Multiblock Copolymers”
- [GE] SATO, Hiroki; MASUBUCHI, Yuichi; WATANABE, Hiroshi
“Direct Observation of DNA Dynamics in Suspensions with Various Micro-sphere Concentrations”
- [GE] NAOI, Azusa; MASUBUCHI, Yuichi; WATANABE, Hiroshi; TSUKAHARA, Noboru; KOJIMA, Yuya; YOSHIKAWA, Hideo; TATSUMI, Masanori
“Effect of Viscoelasticity on Extrusion for Low Density Polyethylenes”

— **Molecular Aggregation Analysis** —

- [LT] TSUTSUMI, Jun'ya; YOSHIDA, Hiroyuki; SATO, Naoki; KATO, Shigeki
“Contribution of Electronic Polarization to Lattice Energies and Permittivities of Organic Molecular Crystals”
- [LT] ASAMI, Koji; KANEKO, Hideo
“Death of Biological Cells Monitored by Dielectric Spectroscopy”

— **Supramolecular Biology** —

- [LW] “Progress in Supramolecular Biology”
- [GE] KATO, Utako
“Membrane Phospholipid Flip-flop and Its Role in Cell Motility”

— **Particle Beam Science** —

- [LW] “Recent Research Topics for Particle Beam Science”

LT IKEGAMI, Masahiro; NODA, Akira; IWASHITA, Yoshihisa; SHIRAI, Toshiyuki; SOUDA, Hikaru; TAJIMA, Yujiro; TONGU, Hiromu; TANABE, Mikio; DAIDO, Hiroyuki
“Quality Improvement of Laser Produced Proton Beam by Synchronous RF Field”

GE SOUDA, Hikaru; TANABE, Mikio; ISHIKAWA, Takehiro; NAKAO, Masao; IKEGAMI, Masahiro; TONGU, Hiromu; SHIRAI, Toshiyuki; NODA, Akira
“Laser Cooling of Mg⁺ Beam at Storage Ring S-LSR”

— Laser Matter Interaction Science —

GE HASHIDA, Masaki; MISHIMA, Hidehiko; TOKITA, Shigeki; MASUNO, Shinichiro; NAMBA, Shin; SAKABE, Shuji
“Femtosecond Laser Ablation of Polytetrafluoroethylene”

— Electron Microscopy and Crystal Chemistry —

LT ISOJIMA, Seiichi; KURATA, Hiroki; CHOU, Li-Jen; ISODA, Seiji
“LAADF Observation of Iron Oxide Nanowire”

— Structural Molecular Biology —

GE TOCHIO, Tatsunori; OHASHI, Hirofumi; HORIGUCHI, Daisuke; SAKAKURA, Shusuke; ITO, Yoshiaki; FUKUSHIMA, Sei; SHOJI, Takashi
“Quantitative Chemical Analysis of Cr Compounds Using Cr K α Emission Lines”

GE IDE, Junko; HANDA, Katsumi; TOCHIO, Tatsunori; ITO, Yoshiaki
“Chemical State Analysis of Si in Minerals Using X-ray Spectroscopy”

— Organic Main Group Chemistry —

GE ITOH, Takuma; ITO, Shingo; NAKAMURA, Eiichi; NAKAMURA, Masaharu
“Iron-Catalyzed Asymmetric Carbozincation of Oxabicyclic Alkenes”

GE KONDO, Yoshiyuki; HATAKEYAMA, Takuji; FUJIWARA, Yuichi; ITO, Shingo; NAKAMURA, Eiichi; NAKAMURA, Masaharu
“Polyfluoroarylation of Haloalkanes via the Selective Iron-Catalyzed Cross-Coupling”

GE YOSHIMOTO, Yuya; HATAKEYAMA, Takuji; TOMA, Gabriel; NAKAMURA, Masaharu
“Iron-Catalyzed Ene-yne Cross-Coupling Reaction”

— Organotransition Metal Chemistry —

LW “Activity Report: Organotransition Metal Chemistry Laboratory”

GE TAKADA, Yuko; JENSEN, Rader S; TAKITA, Ryo; OKAZAKI, Masaaki; OZAWA, Fumiyuki
“Synthesis and Application of Ferrocene-based Phosphoalkene Ligands and their Complexes”

— Photonic Elements Science —

LW “Recent Research Topics in Photonic Elements Science”

— Bioknowledge Systems —

LW “Bioknowledge Database KEGG and Drug Database”

GE HASHIMOTO, Kosuke
“The Repertoire of Desaturases and Elongases Reveals Fatty Acid Variations”

— Biological Information Networks —

LW “Subcellular Location Prediction of Proteins Using Support Vector Machines with Alignment and Amino Acid Composition”

— Pathway Engineering —

LT SHIGA, Motoki; TAKIGAWA, Ichigaku; MAMITSUKA, Hiroshi
“A New Method for Clustering Genes by Optimally Combining Expression Data with a Modular Gene Network”

— Research Center for Low Temperature and Materials Sciences —

LT TERASHIMA, Takahito; SHISHIDO, Hiroaki; IZAKI, Manabu; KATO, Tomonari; SHIBAUCHI, Takasada; MATSUDA, Yuji
“Preparation and Characterization of Two-dimensional Heavy-Fermion Superlattices”