

# PUBLICATIONS

## DIVISION OF SYNTHETIC CHEMISTRY

### — Organoelement Chemistry —

Saito M, Tokitoh N, Okazaki R: Tin-Chalcogen Double-Bond Compounds, Stannanethione and Stannaneselone: Synthesis, Structure, and Reactivities, *J. Am. Chem. Soc.*, **126**, 15572-15582 (2004).

Sasamori T, Mieda E, Nagahora N, Takeda N, Takagi N, Nagase S, Tokitoh N: Systematic Studies on Redox Behavior of Homonuclear Double-bond Compounds of Heavier Group 15 Elements, *Chem. Lett.*, **34**, 166-167 (2005).

Sasamori T, Sasaki T, Takeda N, Tokitoh N: Reactions of a Germacyclopropabenzene with Elemental Chalcogens: Syntheses and Structures of a Series of Stable 2*H*-Benzo[c][1,2]chalcogenagermetes, *Organometallics*, **24**, 612-618 (2005).

Tajima T, Sasaki T, Sasamori T, Takeda N, Tokitoh N: Reactivities of Germacyclopropabenzene toward Some Transition Metal Carbonyl Complexes, *Appl. Organometal. Chem.*, **19**, 570-577 (2005).

Tokitoh N, Shimizu D, Takeda N, Sasamori T: Syntheses of Polythioethers Tethered with Bulky Aryl Groups and Their Complexation with Late-Transition Metals, *Phosphorus, Sulfur and Silicon*, **180**, 1241-1245 (2005).

Sasamori T, Mieda E, Takeda N, Tokitoh N: Telluradistibirane and Telluradibismirane: Three-Membered Heterocycles of Heavier Main Group Elements, *Angew. Chem. Int. Ed.*, **44**, 3717-3720 (2005).

Shinohara A, Takeda N, Sasamori T, Tokitoh N: Synthesis of Kinetically Stabilized 1-Silanaphthalenes and Their Properties, *Bull. Chem. Soc. Jpn.*, **78**, 977-987 (2005).

Nagahora N, Sasamori T, Takeda N, Tokitoh N: Synthesis and Structure of a Stable 1,3-Dihydrotriphosphane and Its Thermal Decomposition Leading to the Formation of the Corresponding Phosphine and Diphosphene, *Organometallics*, **24**, 3074-3080 (2005).

Sasamori T, Sugiyama Y, Takeda N, Tokitoh N: Structure and Properties of an Overcrowded 1,2-Dibromodigermene, *Organometallics*, **24**, 3309-3314 (2005).

Takeda N, Shimizu D, Sasamori T, Tokitoh N: Dichloro[1,2-bis(phenylsulfanyl)benzene]palladium(II), *Acta Cryst. E*, **61**, m1408-m1410 (2005).

Mizuhata Y, Takeda N, Sasamori T, Tokitoh N: Generation of 9-Stannaphenanthrene and Its Reactivities, *Chem. Lett.*, **34**, 1088-1089 (2005).

Tajima T, Takeda N, Sasamori T, Tokitoh N: Generation and Reactions of Overcrowded Diaryldiithiostannane and Diaryldipostannane, *Eur. J. Inorg. Chem.*, **2005**, 4291-4300 (2005).

Takeda N, Shimizu D, Tokitoh N: Synthesis and Structure of a Distorted Octahedral Palladium(II) Complex Coordinated with a New Tetrathioether Ligand Tethered with Bulky Substituents, *Inorg. Chem.*, **44**, 8561-8568 (2005).

Sasamori T, Tokitoh N: Group 14 Multiple Bonding, *In Encyclopedia of Inorganic Chemistry, 2nd Edition, Ed by R. Bruce King, John Wiley & Sons*, 1698-1740 (2005).

Mizuhata Y, Sasamori T, Takeda N, Tokitoh N: Synthesis and Properties of a Stable 6-Stannapentfulvene, *Chem. Commun.*, **2005**, 5876-5878 (2005).

Shinohara A, Takeda N, Sasamori T, Matsumoto T, Tokitoh N: Synthesis and Properties of  $\epsilon\alpha^6$ -Silabenzene-M(CO)<sub>3</sub> Complexes (M= Cr and Mo), *Organometallics*, **24**, 6141-6146 (2005).

Matsuda T, Tsuji K, Kamitanaka T, Harada T, Nakamura K, Ikariya T: Rate Enhancement of Lipase-Catalyzed Reaction in Supercritical Carbon Dioxide, *Chem. Lett.*, **34**, 1102-1103 (2005).

Matsuda T, Harada T, Nakamura K, Ikariya S: Asymmetric Synthesis Using Hydrolytic Enzymes in Supercritical Carbon Dioxide, *Tetrahedron:Asymm.*, **16**, 909-915 (2005).

Matsuda T, Harada T, Nakamura K: Biocatalysis in Supercritical CO<sub>2</sub>, *Current Organic Chemistry*, **9**, 299-315 (2005).

Itoh K, Sakamaki H, Nakamura K, Horiuchi A: Biocatalytic Symmetric Reduction of 3-acetylisoxazoles, *Tetrahedron: Asymmetry*, **16**, 1403-1408 (2005).

Albrycht M, Kielbasinski P, Drabowicz J, Mikolajczyk M, Matsuda T, Nakamura K: Supercritical Carbon Dioxide as a Reaction Medium for Enzymatic Kinetic Resolution of P-chiral Hydroxymethanephosphinates, *Tetrahedron: Asymmetry*, **16**, 2015-2018 (2005).

Matsuda T, Nakamura K: Asymmetric Synthesis Using Biocatalysts, *Chiral Chemistry-Asymmetric Synthesis, Maruzen*, 127-153 (2005).

Matsuda T, Nakamura K: Enzymatic Reactions, *A Handbook for Chemistry, Fundamental Part, 5th Ed, Maruzen*, II-539-547 (2004).

### — Structural Organic Chemistry —

Nishinaga T, Uto T, Komatsu K: Novel Cyclooctatetraene Radical Cation Planarized by Full Annelation with Bicyclo[2.1.1]hexene Units, *Org. Lett.*, **6**, 4611-4613 (2004).

Yamazaki T, Murata Y, Komatsu K, Furukawa K, Morita M, Maruyama N, Yamao T, Fujita S: Synthesis and Electrolytic Polymerization of the Ethylenedioxy-Substituted Terthiophene-Fullerene Dyad, *Org. Lett.*, **6**, 4865-4868 (2004).

Ishida S, Nishinaga T, West R, Komatsu K: Generation and Aromaticity of 2-Silaimidazolium Ion, a New  $\pi$ -Conjugated Silylium Ion, *Chem. Commun.*, 778-780 (2005).

- Stanisky C M, Cross R J, Saunders M, Murata M, Murata Y, Komatsu K: Helium Entry and Escape through a Chemically Opened Window in a Fullerene, *J. Am. Chem. Soc.*, **127**, 299-302 (2005).
- Komatsu K, Murata M, Murata Y: Encapsulation of Molecular Hydrogen in Fullerene C<sub>60</sub> by Organic Synthesis, *Science*, **307**, 238-240 (2005).
- Kitagawa T, Lee Y, Masaoka N, Komatsu K: Generation and Properties of a Novel Alkylated C<sub>70</sub> Cation, *Angew. Chem. Int. Ed.*, **44**, 1398-1401 (2005).
- Sawa H, Wakabayashi Y, Murata Y, Murata M, Komatsu K: Floating Single Hydrogen Molecule in an Open-Cage Fullerene, *Angew. Chem. Int. Ed.*, **44**, 1981-1983 (2005).
- Miyata Y, Nishinaga T, Komatsu K: Synthesis and Structural, Electronic, and Optical Properties of Oligo(thienylfuran)s in Comparison with Oligothiophenes and Oligofurans, *J. Org. Chem.*, **70**, 1147-1153 (2005).
- Ishida S, Nishinaga T, Komatsu K: The First Isolation of 1,3-Diaza-2-sila-4-cyclopentene Radical Cation Salt: The X-ray Structure and Electronic Properties, *Chem. Lett.*, **34**, 486-487 (2005).
- Frankevich V E, Dashtiev D, Zenobi R, Kitagawa T, Lee Y, Murata Y, Yamazaki T, Gao Y, Komatsu K, Oliva J M: MALDI-Fourier Transform Mass Spectrometric and Theoretical Studies of Donor-Acceptor and Donor-Bridge-Acceptor Fullerenes, *Phys. Chem. Chem. Phys.*, **7**, 1036-1042 (2005).
- Wang G-W, Chen A-X, Murata Y, Komatsu K: [60]Fullerene Adducts with 9-Substituted Anthracenes: Mechanochemical Preparation and Retro Diels-Alder Reaction, *Tetrahedron*, **61**, 4851-4856 (2005).
- Yoshimoto S, Honda Y, Murata Y, Murata M, Komatsu K, Ito O, Itaya K: Dependence of Molecular Recognition of Fullerene Derivative on the Adlayer Structure of Zinc Octaethylporphyrin Formed on Au(100) Surface, *J. Phys. Chem. B*, **109**, 8547-8550 (2005).
- Haino T, Seyama J, Fukunaga C, Murata Y, Komatsu K, Fukazawa Y: Calix[5]arene-based Receptor for Dumbbell-Shaped C<sub>120</sub>, *Bull. Chem. Soc. Jpn.*, **78**, 768-770 (2005).
- Horie R, Araki Y, Ito O, Lee Y, Kitagawa T, Komatsu K: Study of Photoinduced Electron Transfer between [60]Fullerene and Proton-sponge by Laser Flash Photolysis: Addition Effects of Organic Acid, *J. Phys. Chem. A*, **109**, 6140-6146 (2005).
- Uto T, Nishinaga T, Matsuura A, Inoue R, Komatsu K: A Naphthalene with Unusual Bond Alternation Made by Annellation with Bicyclo[2.1.1]hexene Units: Aromaticity and Reactivity, *J. Am. Chem. Soc.*, **127**, 10162-10163 (2005).
- Ogawa K, Kitagawa T, Ishida S, Komatsu K: Synthesis and Structure of a New Silver(I) Salt of the Tetrakis(pentafluorophenyl)borate Anion with Novel Tris η<sup>1</sup>-benzene Coordination, *Organometallics*, **24**, 4842-4844 (2005).
- Komatsu K, Nishinaga T: Synthesis and Properties of Cationic π-Conjugated Systems Stabilized by Bicyclo[2.2.2]octene Units, *Synlett*, 187-202 (2005).
- Nishinaga T, Komatsu K: Persistent π Radical Cations: Self-association and Its Steric Control in Condensed Phase, *Org. Biomol. Chem.*, **3**, 561-569 (2005).
- Komatsu K: The Mechanochemical Solid-State Reaction of Fullerenes, *Top. Curr. Chem.*, **254**, 185-206 (2005).
- Komatsu K, Murata Y: A New Route to an Endohedral Fullerene by Way of σ-Framework Transformations, *Chem. Lett. (Highlight Review)*, **34**, 886-891 (2005).
- Sato H, Tashiro K, Shinmori H, Osuka A, Murata Y, Komatsu K, Aida T: Positive Heterotropic Cooperativity for Selective Guest Binding via Electronic Communications through a Fused Zinc Porphyrin Array, *J. Am. Chem. Soc.*, **127**, 13086-13087 (2005).
- Komatsu K: 100% Storage of Hydrogen in Fullerene, *Collection of Hydrogen Utilization Technique, Bookers*, **2**, 223-228 (2005) (in Japanese).
- Komatsu, K: First Chemical Synthesis of H<sub>2</sub>@C<sub>60</sub>, *Electronic Properties of Novel Nanostructures, AIP, NY*, **XIX**, 50-55 (2005).
- Matsuo Y, Isobe H, Tanaka T, Murata Y, Murata M, Komatsu K, Nakamura E: Organic and Organometallic Derivatives of Dihydrogen-Encapsulated [60]Fullerene, *J. Am. Chem. Soc.*, **127**, 17148-17149 (2005).
- Cheng X, Wang G-W, Murata Y, Komatsu K: Solvent-Free Synthesis of Dihydrofuran-Fused [60]Fullerene Derivatives by High-Speed Vibration Milling, *Chin. Chem. Lett.*, **16**, 1327-1329 (2005).

— Synthetic Organic Chemistry —

Kawabata T, Majumdar S, Tsubaki K, Monguchi D: Memory of Chirality in Intramolecular Conjugate Addition of Enolates: A Novel Access to Nitrogen Heterocycles with Contiguous Quaternary and Tertiary Stereocenters, *Org. Biomol. Chem.*, **3**, 1609-1611 (2005).

Kawabata T, Chen J, Suzuki H, Fuji K: Stereochemical Study on α-Alkylation of β-Blanched α-Amino Acid Derivatives via Memory of Chirality, *Synthesis*, 1368-1377 (2005).

Tsubaki K, Kusumoto T, Hayashi N, Tanima D, Fuji K, Kawabata T: Convenient Preparation of Optically Active *N,N*-Bis(4-substituted-4-aminobutyl)amines, *Tetrahedron: Asymmetry*, **16**, 739-743 (2005).

Tsubaki K, Tanima D, Nuruzzaman M, Kusumoto T, Fuji K, Kawabata T: Visual Enantiomeric Recognition of Amino Acid Derivatives in Protic Solvents, *J. Org. Chem.*, **70**, 4609-4616 (2005).

Tsubaki K: Synthesis and Properties of Homooxalix[3]arenes, *New Trend in Structural Organic Chemistry*, 61-83 (2005).

— Advanced Inorganic Synthesis —

Masuno A, Terashima T, Takano M: Epitaxial Growth of Perovskite-Type LaVO<sub>3</sub> Thin Films on Various Substrates by the PLD Method, *Solid State Ionics*, **172**, 275-278 (2004).

Shen K M, Yoshida T, Lu D H, Ronning F, Armitage N P, Lee W S, Zhou X J, Damascelli A, Feng D L, Ingle N J C, Eisaki H, Kohsaka Y, Takagi H, Kakeshita T, Uchida S, Mang P K, Greven M, Onose Y, Taguchi Y, Tokura Y, Komiyama S, Ando Y, Azuma M, Takano M, Fujimori A, Shen Z-X: Fully Gapped Single-Particle Excitations in Lightly Doped Cuprates, *Phys. Rev. B*, **69**, [054503-1]-[054503-5] (2004).

- Masuno A, Terashima T, Shimakawa Y, Takano M: Current-Induced Electroresistive Effect in Mixed-Phase  $\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3$  Thin Films, *Appl. Phys. Lett.*, **85**, 6194-6196 (2004).
- Waku K, Katsufuji T, Kohsaka Y, Sasagawa T, Takagi H, Kishida H, Okamoto H, Azuma M, Takano M: Charge Dynamics of  $\text{Ca}_{2-x}\text{Na}_x\text{CuO}_2\text{Cl}_2$  as a Correlated Electron System with the Ideal Tetragonal Lattice, *Phys. Rev. B*, **70**, [134501-1]-[134501-8] (2004).
- Azuma M, Kohsaka Y, Yamada I, Belik A A, Takagi H, Takano M: Single-Crystal Growth and New-Material Search for Oxides at High Pressures, *Oyobutsuri*, **74**, 27-31 (2005) (in Japanese).
- Shen K M, Ronning F, Lu D H, Baumberger F, Ingle N J C, Lee W S, Meevasana W, Kohsaka Y, Azuma M, Takano M, Takagi M, Shen Z-X: Nodal Quasiparticles and Antinodal Charge Ordering in  $\text{Ca}_{2-x}\text{Na}_x\text{CuO}_2\text{Cl}_2$ , *Science*, **307**, 901-904 (2005).
- Yu R, Xing X, Saito T, Azuma M, Takano M, Wang D, Chen Y, Kumada N, Kinomura N: A Novel Organically Templated Hybrid Open-Framework Manganese Phosphate-Oxalate, *Solid State Sciences*, **7**, 221-226 (2005).
- Rijssenbeek J T, Saito T, Malo S, Azuma M, Takano M, Poeppelmeier K R: Effect of Explicit Cationic Size and Valence Constraints on the Phase Stability of 1:2 B-Site-Ordered Perovskite Ruthenates, *J. Am. Chem. Soc.*, **127**, 675-681 (2005).
- Belik A A, Azuma M, Saito T, Shimakawa Y, Takano M: Crystallographic Features and Tetragonal Phase Stability of  $\text{PbVO}_3$ , a New Member of  $\text{PbTiO}_3$  Family, *Chem. Mater.*, **17**, 269-273 (2005).
- Belik A A, Azuma M, Matsuo A, Kindo K, Takano M: Low-Dimensional Ferromagnetic Properties of  $\text{SrCuV}_2\text{O}_7$  and  $\text{BaCuV}_2\text{O}_7$ , *Inorg. Chem.*, **44**, 3762-3766 (2005).
- Belik A A, Matsuo A, Azuma M, Kindo K, Takano M: Long-Range Magnetic Ordering of  $S=1/2$  Linear Trimers in  $A_3\text{Cu}_3(\text{PO}_4)_4$  ( $A=\text{Ca}, \text{Sr}, \text{and Pb}$ ), *J. Solid State Chem.*, **178**, 709-714 (2005).
- Matsuda M, Kakurai K, Belik A A, Azuma M, Takano M, Fujita M: Magnetic Excitations from the Linear Heisenberg Antiferromagnetic Spin Trimer System  $A_3\text{Cu}_3(\text{PO}_4)_4$  ( $A=\text{Ca}, \text{Sr}, \text{and Pb}$ ), *Phys. Rev. B*, **71**, [144411-1]-[144411-5] (2005).
- Azuma M, Takata K, Saito T, Ishiwata S, Shimakawa Y, Takano M: Designed Ferromagnetic, Ferroelectric  $\text{Bi}_2\text{NiMnO}_6$ , *J. Am. Chem. Soc.*, **127**, 8889-8892 (2005).
- Ishiwata S, Azuma M, Hanawa M, Moritomo Y, Ohishi Y, Kato K, Takata M, Nishibori E, Sakata M, Terasaki I, Takano M: Pressure/Temperature/Substitution-Induced Melting of A-Site Charge Disproportionation in  $\text{Bi}_{1-x}\text{La}_x\text{NiO}_3$  ( $0 \leq x \leq 0.5$ ), *Phys. Rev. B*, **72**, [045104-1]-[045104-7] (2005).
- Kan D, Terashima T, Shimakawa Y, Takano M: Fabrication and  $I$ - $V$  Characteristics of  $p$ - $n$  Junctions Composed of High- $T_c$  Superconductors and La-Doped  $\text{SrTiO}_3$ , *Thin Solid Films*, **486**, 71-74 (2005).
- Yamamoto S, Takano M, Shimakawa Y: Synthesis of Submicron-Sized, Monodisperse Spherical  $\text{V}_2\text{O}_5$  Particles, *Mater. Res. Soc. Symp. Proc.*, **879E**, [Z7.14.1]-[Z7.14.6] (2005).
- Inagaki Y, Narumi Y, Kindo K, Kikuchi H, Kamikawa T, Kunimoto T, Okubo S, Ohta H, Saito T, Azuma M, Takano M, Nojiri H, Kaburagi M, Tonegawa T: Ferro-Antiferromagnetic Delta-Chain System Studied by High Field Magnetization Measurements, *J. Phys. Soc. Jpn.*, **74**, 2831-2835 (2005).
- Shimakawa Y, Azuma M, Takata K, Hashisaka M, Kan D, Masuno A, Sakai M, Terashima T, Mibu K, Takano M: New Ferromagnetic Ferroelectric  $\text{Bi}_2\text{NiMnO}_6$  Compound with Double-Perovskite Structure, *Proceedings of the 12th US-Japan Seminar on Dielectric and Piezoelectric Ceramics, Nov. 6-9, 2005, Annapolis, USA*, 203-206 (2005).
- Belik A A, Izumi F, Azuma M, Kamiyama T, Oikawa K, Pokholok K V, Lazoryak B I, Takano M: Redox Reactions in Strontium Iron Phosphates: Synthesis, Structures, and Characterization of  $\text{Sr}_9\text{Fe}(\text{PO}_4)_7$  and  $\text{Sr}_9\text{FeD}(\text{PO}_4)_7$ , *Chem. Mater.*, **17**, 5455-5464 (2005).
- Belik A A, Azuma M, Matsuo A, Whangbo M-H, Koo H-J, Kikuchi J, Kaji T, Okubo S, Ohta H, Kindo K, Takano M: Investigation of the Crystal Structure and the Structural and Magnetic Properties of  $\text{SrCu}_2(\text{PO}_4)_2$ , *Inorg. Chem.*, **44**, 6632-6640 (2005).
- Qiu Y, Broholm C, Ishiwata S, Azuma M, Takano M, Bewley R, Buyers W J L: Spin-Trimer Antiferromagnetism in  $\text{La}_4\text{Cu}_3\text{MoO}_{12}$ , *Phys. Rev. B*, **71**, [214439-1]-[214439-8] (2005).
- Okubo S, Taketani A, Ohta H, Kunimoto T, Inagaki Y, Saito T, Azuma M, Takano M, Kikuchi H: High Field ESR Measurements of  $S=1/2$  Diamond Chain Substance  $\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2$  at the Magnetization Plateau Region, *Progress of Theoretical Physics Supplement*, **No.159**, 11-16 (2005).
- Shiraki K, Yoshida M, Okubo S, Ohta H, Belik A A, Azuma M, Takano M: High Field ESR Measurements of  $\text{MCuP}_2\text{O}_7$  ( $M=\text{Sr}, \text{Pb}$ ), *Progress of Theoretical Physics Supplement*, **No.159**, 168-172 (2005).
- Belik A A, Azuma M, Takano M: Magnetic Properties of Isostructural  $\text{BaCoP}_2\text{O}_7$ ,  $\text{BaNiP}_2\text{O}_7$  and  $\text{BaCuP}_2\text{O}_7$  Studied with dc and ac Magnetization and Specific Heat, *Inorg. Chem.*, **44**, 7523-7529 (2005).
- Wadati H, Takizawa M, Tran T T, Tanaka K, Mizokawa T, Fujimori A, Chikamatsu A, Kumigashira H, Oshima M, Ishiwata S, Azuma M, Takano M: Valence Changes Associated with the Metal-Insulator Transition in  $\text{Bi}_{1-x}\text{La}_x\text{NiO}_3$ , *Phys. Rev. B*, **72**, [155103-1]-[155103-5] (2005).
- Kan D, Terashima T, Kanda R, Masuno A, Tanaka K, Chu S, Kan H, Ishizumi A, Kanemitsu Y, Shimakawa Y, Takano M: Blue-Light Emission at Room Temperature from  $\text{Ar}^+$ -Irradiated  $\text{SrTiO}_3$ , *Nature Materials*, **4**, 816-819 (2005).
- [Others]
- Azuma M: Solid-Liquid Equilibria and Eutectic Mixtures, *Kagakubinran Kisoheh, Maruzen*, [II-194]-[II-198] (2004) (in Japanese).

## DIVISION OF MATERIALS CHEMISTRY — Chemistry of Polymer Materials —

- Kubo K, Goto A, Sato K, Kwak Y, Fukuda T: Kinetic Study on Reversible Addition-Fragmentation Chain Transfer (RAFT) Process and Random Copolymerizations of Styrene and Methyl Methacrylate, *Polymer*, **46**, 9762-9768 (2005).

- Kwak Y, Goto A, Fukuda T, Yamago S, Ray B: Mechanism and Kinetics of Organostibine-Mediated Living Radical Polymerization of Styrene, *Z. Chem. Phys.*, **219**, 283-294 (2005).
- Ohno K, Morinaga T, Koh K, Tsujii Y, Fukuda T: Synthesis of Monodisperse Silica Particles Coated with Well-Defined, High-Density Polymer Brushes by Surface-Initiated Atom Transfer Radical Polymerization, *Macromolecules*, **38**, 2137-2142 (2005).
- Yoshikawa C, Goto A, Tsujii Y, Fukuda T, Yamamoto K, Kishida A: Fabrication of High-Density Polymer Brush on Polymer Substrate by Surface-Initiated Living Radical Polymerization, *Macromolecules*, **38**, 4604-4610 (2005).
- Koh K, Sugiyama S, Morinaga T, Ohno K, Tsujii Y, Fukuda T, Yamahiro M, Iijima T, Oikawa H, Watanabe K, Miyashita T: Precision Synthesis of a Fluorinated Polyhedral Oligomeric Silsesquioxane-Terminated Polymer and Surface Characterization of Its Blend Film with Poly(methyl methacrylate), *Macromolecules*, **38**, 1264-1270 (2005).
- Norisuye T, Morinaga T, Tang-Cong-Miyata Q, Goto A, Fukuda T, Shibayama M: Comparison of the Gelation Dynamics for Polystyrenes Prepared by Conventional and Living Radical Polymerizations: A Time-Resolved Dynamic Light Scattering Study, *Polymer*, **46**, 1982-1994 (2005).
- Sakakiyama T, Ohkita H, Ohoka M, Ito S, Tsujii Y, Fukuda T: Fabrication and Electrochemical Properties of High-Density Graft Films with Ferrocene Moieties on ITO Substrates, *Chem. Lett.*, **34**, 1366-1367 (2005).
- Barner-Kowollik C, Buback M, Egorov M, Fukuda T, Goto A, Olja O F, Russell G T, Vana P, Yamada B, Zetterlund P B: Critically Evaluated Termination Rate Coefficients for Free-Radical Polymerization: Experimental Methods, *Prog. Polym. Sci.*, **30**, 605-643 (2005).
- Chung H -J, Ohno K, Fukuda T, Composto R J: Self-Regulated Structures in Nanocomposites by Directed Nanoparticle Assembly, *Nano Lett.*, **5**, 1878-1882 (2005).
- Ito S, Kuno J, Yamashita K, Ohoka M, Ohkita H, Tsujii Y, Fukuda T: Photofunctional Ultrathin Films Prepared by High-Density Graft Polymerization, *Trans. Mater. Res. Soc. Jpn.*, **30**, 687-690 (2005).
- Ifuku S, Tsujii Y, Kamitakahara H, Takano T, Nakatsubo F: Preparation and Characterization of Redox Cellulose Langmuir-Blodgett Films Containing a Ferrocene Derivative, *J. Polym. Sci. Part A: Polym. Chem.*, **43**, 5023-5031 (2005).
- Ifuku S, Kamitakahara H, Takano T, Tsujii Y, Nakatsubo F: Preparation and Characterization of 6-O-(4-Stearoyloxytrityl)cellulose Acetate Langmuir-Blodgett Films, *Cellulose*, **12**, 361-369 (2005).
- Ifuku S, Nakai S, Kamitakahara H, Takano T, Tsujii Y, Nakatsubo F: Preparation and Characterization of Monolayer and Multilayer Langmuir-Blodgett Films of a Series of 6-O-Alkylcelluloses, *Biomacromolecules*, **6**, 2067-2073 (2005).
- McNamee C E, Tsujii Y, Matsumoto M: Physicochemical Characterization of an Anatase TiO<sub>2</sub> Surface and the Adsorption of a Nonionic Surfactant: An Atomic Force Microscopy Study, *Langmuir*, **21**, 11283-11288 (2005).
- Arita T, Beuermann S, Buback M, Vana P: RAFT Polymerization of Methyl Acrylate in Carbon Dioxide, *Macromol. Mater. Eng.*, **209**, 283-293 (2005).
- Arita T, Buback M, Vana P: Cumyl Dithiobenzoate Mediated RAFT Polymerization of Styrene at High Temperatures, *Macromolecules*, **38**, 7935-7943 (2005).
- Fukuda T: Growing Polymer Brushes from Solid Surfaces, *Koubunshi*, **54**, 483-488 (2005) (in Japanese).
- Fukuda T: Copolymerization, *Cyclopedia of Polymers, Soc. Polym. Sci. Jpn. Ed., Asakura* (2005) (in Japanese).
- Tsujii Y, Fukuda T: Graft Polymerization from Inorganic Surfaces, *Nano-Composite Materials-Nanocomposites of Metals, Ceramics, and Polymers- Inoue A. Ed., Frontier Publishers, Tokyo*, 261-266 (2005) (in Japanese).
- Tsujii Y: Studies on Precise Surface Modification by Living Radical Polymerization, *Sen-I Gakkaishi*, **61**, 260-263 (2005) (in Japanese).
- Goto A, Kwak Y, Fukuda T: Rate Retardation in Reversible Addition-Fragmentation Chain Transfer (RAFT)-Based Living Radical Polymerization: Precision Analysis in Styrene/Dithiobenzoate System, *Ann. Rep. Res. Inst. Chem. Fib. (Kasen-Kouenshu)*, **62**, 67-72 (2005) (in Japanese).

— Chemistry of Polymeric Functionality Materials —

- Poompradub S, Kohjiya S, Ikeda Y: Natural Rubber/In Situ Silica Nanocomposite of a High Silica Content, *Chem. Lett.*, **34**, 672-673 (2005).
- Steinhart M, Murano S, Schaper A K, Ogawa T, Tsuji M, Goesele U, Weder C, Wendorff J H: Morphology of Polymer/Liquid-Crystal Nanotubes: Influence of Confinement, *Adv. Funct. Mater.*, **15**, 1656-1664 (2005).
- Poompradub S, Tosaka M, Kohjiya S, Ikeda Y, Toki S, Sics I, Hsiao B S: Mechanism of Strain-Induced Crystallization in Filled and Unfilled Natural Rubber Vulcanizates, *J. Appl. Phys.*, **97**, [103529-1]-[103529-9] (2005).
- Bedia E L, Kasai Y, Ikeda Y, Kohjiya S: Effect of Mount Pinatubo Volcanic Ash on the Mechanical Properties of Styrene-Butadiene Rubber Vulcanizates, *J. Appl. Polym. Sci.*, **95**, 68-73 (2005).
- Kojima M, Tosaka M, Ikeda Y, Kohjiya S: Devulcanization of Carbon Black Filled Natural Rubber by Using Supercritical Carbon Dioxide, *J. Appl. Polym. Sci.*, **95**, 137-143 (2005).
- Hirano K, Suzuki K, Nakano K, Tosaka M: Phase Separation Structure in the Polymer Blend of Fluorocarbon Elastomer and Hydrogenated Nitrile Rubber, *J. Appl. Polym. Sci.*, **95**, 149-156 (2005).
- Terashita F, Takagi S, Kohjiya S, Naito Y: Airtight Butyl Rubber under High Pressures in the Storage Tank of CARS-G/T System Power Plant, *J. Appl. Polym. Sci.*, **95**, 173-177 (2005).
- Senoo K, Endo K: Synthesis and Characterization of Syndiotactic Polystyrene-Polyisoprene-Syndiotactic Polystyrene ABA Type Triblock Copolymers, *J. Macromol. Sci., Part A*, **A42**, 463-470 (2005).
- Kohjiya S, Katoh A, Shimanuki J, Hasegawa T, Ikeda Y: Nano-Structural Observation of Carbon Black Dispersion in Natural Rubber Matrix by Three-Dimensional Transmission Electron Microscopy, *J. Mater. Sci.*, **40**, 2553-2555 (2005).

- Saikrasun S, Bualek-Limcharoen S, Kohjiya S, Urayama K: Anisotropic Mechanical Properties of Thermoplastic Elastomers In Situ Reinforced with Thermotropic Liquid-Crystalline Polymer Fibers Revealed by Biaxial Deformations, *J. Polym. Sci.: Part B: Polym. Phys.*, **43**, 135-144 (2005).
- Kojima M, Tosaka M, Funami E, Nitta K, Ohshima M, Kohjiya S: Phase Behavior of Crosslinked Polyisoprene Rubber and Supercritical Carbon Dioxide, *J. Supercrit. Fluids*, **35**, 175-181 (2005).
- Kohjiya S, Katoh A: Visualization of Nanostructure in Soft Materials by 3D-TEM, *Kobunshi Ronbunshu*, **62**, 467-475 (2005) (in Japanese).
- Toki S, Sics I, Hsiao B S, Tosaka M, Poompradub S, Ikeda Y, Kohjiya S: Probing the Nature of Strain-Induced Crystallization in Polyisoprene Rubber by Combined Thermomechanical and In Situ X-ray Diffraction Techniques, *Macromolecules*, **38**, 7064-7073 (2005).
- Tosaka M, Danev R, Nagayama K: Application of Phase Contrast Transmission Microscopic Methods to Polymer Materials, *Macromolecules*, **38**, 7884-7886 (2005).
- Yoshioka T, Tsuji M, Kawahara Y, Kikutani T, Kohjiya S: Internal Fine Structures in the High-Speed-Spun Fibers of Poly(Ethylene 2,6-Naphthalene Dicarboxylate), *Polymer*, **46**, 1886-1892/5429-5432 (2005).
- Kojima M, Kohjiya S, Ikeda Y: Role of Supercritical Carbon Dioxide for Selective Impregnation of Decrosslinking Reagent into Isoprene Rubber Vulcanizate, *Polymer*, **46**, 2016-2019 (2005).
- Kohjiya S, Katoh A, Shimanuki J, Hasegawa T, Ikeda Y: Three-Dimensional Nano-Structure of In Situ Silica in Natural Rubber as Revealed by 3D-TEM/Electron Tomography, *Polymer*, **46**, 4440-4446 (2005).
- Yoshioka T, Tsuji M, Kawahara Y, Kohjiya S, Manabe N, Yokota Y: Morphological Study by TEM on Uniaxially Oriented Thin Films of PBT, *Polymer*, **46**, 4987-4990 (2005).
- Senoo K, Matsuda S, Kohjiya S: Preparation of Physical Gel Consisting of Syndiotactic Polystyrene and Poly(Ethylene Glycol), *Polymer*, **46**, 7819-7822 (2005).
- [Others]
- Kohjiya S: *Butsurigaku Jiten (Dictionary of Physics)*, 3rd Edition, Ed by Editorial Committee of Butsurigaku Jiten, Baifukan, Tokyo (Partial Contribution) (2005) (in Japanese).
- Kohjiya S: Nano-Technology and Soft-Matter, *Nano-Technology and Soft Matter*, Ed by The Society of Rubber Industry, Japan, Posty Corp, Tokyo, **Chap 1**, 1-7 (2005) (in Japanese).
- Kohjiya S, Senoo K, Ikeda Y: Polymer Solid Electrolytes for Lithium-Ion Conduction, *Solid State Ionics for Batteries*, Ed by Minami T, Tatsumisago M, Wakihara M, Iwakura C, Kohjiya S, Tanaka I, Springer Verlag, Tokyo, **Chap 6**, 187-223 (2005).
- Kohjiya S, Tosaka M, Furutani M, Poompradub S, Ikeda Y: Smart In-Situ Nano-Composite: Strain-Induced Crystallization of Natural Rubber, *Ann. Rep. Res. Inst. Chem. Fiber, Jpn.*, **62**, 53-65 (2005) (in Japanese).
- Kohjiya S, Tsuji M, Tosaka M: *Kobunshi Jiten (Dictionary of Polymer Science)*, 3rd Edition, Ed by the Society of Polymer Science, Japan, Asakura Shoten, Tokyo (Partial Contribution) (2005) (in Japanese).
- Senoo K: Structural Control of Soft Materials, *Kobunshi*, **54**, 142 (2005) (in Japanese).
- Tosaka M, Murakami S, Poompradub S, Kohjiya S, Ikeda Y, Toki S, Sics I, Hsiao B S: Orientation and Crystallization of Natural Rubber Network as Revealed by WAXD Using Synchrotron Radiation, *National Synchrotron Light Source 2004 Activity Report*, [2-92]-[2-93] (2005).
- Tsuji M, Yoshioka T: Kaisetsu (Diffraction), *Jikken Kagaku Koza 5th Edition, Vol 26 Kobunshi Kagaku, Section 3.4.1*, Ed by Chem. Soc. Japan, Maruzen, Tokyo, 302-315 (2005) (in Japanese).
- Furutani M, Tosaka M, Kohjiya S, Ikeda Y: Effects of Non-Rubber Components on Strain-Induced Crystallization of Natural Rubber Vulcanizates, Especially of Stearic Acid, *Adhesion and Adhesives*, **49**, 202-207 (2005) (in Japanese).
- Katoh A, Ikeda Y, Kohjiya S: Three-Dimensional Observation of Nano Filler-Filled Natural Rubber Vulcanizates by 3D-Transmission Electron Microscopy (3D-TEM), *The Journal of the Society of Rubber Industry, Japan*, **78**, 180-186 (2005) (in Japanese).
- Inorganic Photonics Materials —
- Miyabe D, Takahashi M, Tokuda Y, Yoko T, Uchino T: Structure and Formation Mechanism of Six-Fold Coordinated Silicon in Phosphosilicate Glasses, *Phys. Rev. B*, **71**, [172202-1]-[172202-4] (2005).
- Mizuno M, Takahashi M, Takaishi T, Yoko T: Leaching of Lead and Connectivity of Plumbate Networks in Lead Silicate Glasses, *J. Am. Ceram. Soc.*, **88**, 2908-2912 (2005).
- Yoshida Y, Fujii J, Muroi K, Otsuka A, Saito G, Takahashi M, Yoko T: Highly Conducting Ionic Liquids Based on 1-Ethyl-3-methylimidazolium Cation, *Synth. Metals*, **153**, 421-424 (2005).
- Yoshida Y, Otsuka A, Saito G, Natsume S, Nishibori E, Takata M, Sakata M, Takahashi M, Yoko T: Conducting and Magnetic Properties of 1-Ethyl-3-methylimidazolium (EMI) Salts Containing Paramagnetic Ions: Liquids [EMI][M<sup>III</sup>Cl<sub>4</sub>] (M = Fe and Fe<sub>0.5</sub>Ga<sub>0.5</sub>) and Solid [EMI]<sub>2</sub>[Fe<sup>II</sup>Cl<sub>4</sub>], *Bull. Chem. Soc. Jpn.*, **78**, 1921-1928 (2005).
- Innocenzi P, Kidchob T, Yoko T: Hybrid Organic-Inorganic Sol-Gel Materials Based on Epoxy-Amine Systems, *J. Sol-Gel Sci. & Tech.*, **35**, 225-235 (2005).
- Dorjpalam E, Takahashi M, Tokuda Y, Yoko T: Controlling Carrier Density and Its Effect on I-V Characteristics of The Anatase-TiO<sub>2</sub> Thin Films Prepared by A Sputter Deposition Method, *Thin Solid Films*, **483**, 147-151 (2005).
- Takaishi T, Takahashi M, Jin J, Uchino T, Yoko T: Structural Study on PbO-SiO<sub>2</sub> Glasses by X-Ray and Neutron Diffraction and Si-29 MAS NMR Measurements, *J. Am. Ceram. Soc.*, **88**, 1591-1596 (2005).
- Mori R, Takahashi M, Yoko T: Gel-Melting Method for Preparation of Organically Modified Siloxane Low-Melting Glasses, *J. Mater. Res.*, **20**, 121-127 (2005).
- Masai H, Takahashi M, Tokuda Y, Yoko T: Gel-Melting Method for Preparation of Organically Modified Siloxane Low-Melting Glasses, *J. Mater. Res.*, **20**, 1234-1241 (2005).

Masaki H, Takahashi M, Tokuda Y, Yoko T: Enhancement of Polycondensation Reaction by Diethyl Ether-Aqueous NaOH Immiscible Two Phase Liquid Treatment of Phenyl-Modified Polysiloxane Glass, *J. Ceram. Soc. Jpn.*, **113**, 259-262 (2005).

#### — Magnetic Materials —

Yamaguchi A, Nasu S, Tanigawa H, Ono T, Miyake K, Mibu K, Shinjo T: Effect of Joule Heating in Current-driven Domain Wall Motion, *Appl. Phys. Lett.*, **86**, [012511-1]-[012511-3] (2005).

Miyake K, Shigeto K, Yokoyama Y, Ono T, Mibu K, Shinjo T: Exchange Biasing of a Néel Wall in the Nanocontact between NiFe Wires, *J. Appl. Phys.*, **97**, [014309-1]-[014309-6] (2005).

Himeno A, Okuno T, Ono T, Mibu K, Nasu S, Shinjo T: Temperature Dependence of Depinning Fields in Submicron Magnetic Wires with an Artificial Neck, *J. Magn. Magn. Mater.*, **286**, 167-170 (2005).

Miura K, Ono T, Nasu S, Okuno T, Mibu K, Shinjo T: Electrical Spin Injection in Ni<sub>81</sub>Fe<sub>19</sub>/Al/Ni<sub>81</sub>Fe<sub>19</sub> with Double Tunnel Junctions, *J. Magn. Magn. Mater.*, **286**, 142-145 (2005).

Nakamura N, Ogi H, Hirao M, Ono T: Elastic Constants and Magnetic Anisotropy of Co/Pt Superlattice Thin Films, *Appl. Phys. Lett.*, **86**, [111918-1]-[111918-3] (2005).

Nakamura N, Ogi H, Ono T, Hirao M, Nishiyama M: Elastic Constants and Magnetic Anisotropy in Co/Pt Superlattice: Resonance Ultrasound Spectroscopy Method, *Jpn. J. Appl. Phys.*, **44**, 4427-4430 (2005).

Nakamura N, Ogi H, Hirao M, Ono T: Determination of Anisotropic Elastic Constants of Superlattice Thin Films by Resonant-ultrasound Spectroscopy, *J. Appl. Phys.*, **97**, [013532-1]-[013532-6] (2005).

Himeno A, Okuno T, Kasai S, Ono T, Nasu S, Mibu K, Shinjo T: Propagation of a Magnetic Domain Wall in Magnetic Wires with Asymmetric Notches, *J. Appl. Phys.*, **97**, [066101-1]-[066101-3] (2005).

Nakamura N, Ogi H, Ono T, Hirao M: Elastic Constants for Co/Pt Nano-multilayers by Resonance Ultrasound Spectroscopy, *Review of Quantitative Nondestructive Evaluation*, **24**, 1145-1150 (2005).

Yamamoto S, Morimoto Y, Ono T, Takano M: Magnetically Superior and Easy to Handle L<sub>10</sub>-FePt Nanocrystals, *Appl. Phys. Lett.*, **87**, [032503-1]-[032503-3] (2005).

Sato M, Aikawa H, Kobayashi K, Katsumoto S, Iye Y: Observation of the Fano-Kondo Anti-Resonance in a Quantum Wire with a Side-Coupled Quantum Dot, *Phys. Rev. Lett.*, **95**, [1066801-1]-[1066801-4] (2005).

Saitoh E, Kasai S, Miyajima H, Yamaoka T: Electron Coherence and Magnetic Structure in a Nanostructured Ferromagnetic Ring, *J. App. Phys.*, **97**, [10J709-1]-[10J709-3] (2005).

#### DIVISION OF BIOCHEMISTRY

##### — Biofunctional Design-Chemistry —

Futaki S, Masui Y, Nakase I, Sugiura Y, Nakamura T, Kogure K, Harashima H: Unique Features of a pH-sensitive Fusogenic Peptide that Improves the Transfection Efficiency of Cationic Liposomes, *J. Gene Med*, **7**, 1450-1458 (2005).

Noguchi H, Matsumoto S, Okitsu T, Iwanaga Y, Yonekawa Y, Nagata H, Matsushita M, Wei F Y, Matsui H, Minami K, Seino S, Masui Y, Futaki S, Tanaka K: PDX-1 Protein Is Internalized by Lipid Raft-dependent Macropinocytosis, *Cell Transplantation*, **14**, 637-645 (2005).

Yamada Y, Shinohara Y, Kakudo T, Chaki S, Futaki S, Kamiya H, Harashima H: Mitochondrial Delivery of Mastoparan with Transferrin Liposomes Equipped with a pH-sensitive Fusogenic Peptide for Selective Cancer Therapy, *Int. J. Pharm.*, **13**, 1-7 (2005).

Okamura E, Ninomiya K, Futaki S, Nagai Y, Kimura T, Wakai C, Matubayasi N, Sugiura Y, Nakahara M: Real-time In-cell <sup>19</sup>F NMR Study on Uptake of Fluorescent and Nonfluorescent <sup>19</sup>F-Octaarginines into Human Jurkat Cells, *Chem. Lett.*, **34**, 1064-1065 (2005).

Mudhakir D, Akita H, Khalil I A, Futaki S, Harashima H: Pharmacokinetic Analysis of the Tissue Distribution of Octaarginine Modified Liposomes in Mice Drug Metab., *Pharmacokinet.*, **20**, 275-281 (2005).

Moriguchi R, Kogure K, Akita H, Futaki S, Miyagishi M, Taira K, Harashima H: A Multifunctional Envelope-type Nano Device for Novel Gene Delivery of siRNA Plasmids, *Int. J. Pharm.*, **301**, 277-285 (2005).

Noguchi H, Nakai Y, Matsumoto S, Kawaguchi M, Ueda M, Okitsu T, Iwanaga Y, Yonekawa Y, Nagata H, Minami K, Seino S, Masui Y, Futaki S, Tanaka K: Cell Permeable Peptide of JNK Inhibitor Prevents Islet Apoptosis Immediately after Isolation and Improves Islet Graft Function, *Am. J. Transplant.*, **5**, 1848-1855 (2005).

Futaki S: Membrane-permeable Arginine-rich Peptides and the Translocation Mechanisms, *Adv. Drug Deliv. Rev.*, **57**, 547-558 (2005).

Perret F, Nishihara M, Takeuchi T, Futaki S, Lazar A N, Coleman A, Sakai N, Matile S: Anionic Fullerenes, Calixarenes, Coronenes, and Pyrenes Activators of Oligo/Polyarginines in Model Membranes and Live Cells, *J. Am. Chem. Soc.*, **127**, 1114-1115 (2005).

Nishihara M, Perret F, Takeuchi T, Futaki S, Lazar A N, Coleman A, Sakai N, Matile S: Arginine Magic with New Counterions up the Sleeve, *Org. Biomol. Chem.*, **3**, 1659-1669 (2005).

Imanishi M, Yan W, Morisaki T, Sugiura Y: An Artificial Six-zinc Finger Peptide with Polyarginine Linker: Selective Binding to the Discontinuous DNA Sequences, *Biochemical and Biophysical Research Communications*, **333**, 137-173 (2005).

Hirata T, Nomura W, Imanishi M, Sugiura Y: Effects of Linking 15-zinc Finger Domains on DNA Binding Specificity and Multiple DNA Binding Modes, *Bioorg Med Chem Lett*, **15**, 2197-2201 (2005).

Nakatsukasa T, Shiraishi Y, Negi S, Imanishi M, Futaki S, Sugiura Y: Site-specific DNA Cleavage by Artificial Zinc Finger-type Nuclease with Cerium-binding Peptide, *Biochemical and Biophysical Research Communications*, **330**, 247-252 (2005).

Shiraishi Y, Imanishi M, Morisaki T, Sugiura Y: Swapping of the Beta-hairpin Region between Sp1 and GLI Zinc Fingers: Significant Role of the Beta-hairpin Region in DNA Binding Properties of C2H2-type Zinc Finger Peptides, *Biochemistry*, **44**, 2523-2528 (2005).

Sakai N, Takeuchi T, Futaki S, Matile S: Direct Observation of Anion-Mediated Translocation of Fluorescent Oligoarginine Carriers Into and Across Bulk Liquid and Anionic Bilayer Membranes, *ChemBioChem.*, **6**, 114-122 (2005).

Futaki S, Kiwada T, Sugiura Y: Control of Peptide Structure and Recognition by Fe(III)-induced Helix Destabilization, *J. Am. Chem. Soc.*, **126**, 15762-15769 (2004).

Futaki S, Nakase I, Suzuki T, Nameki D, Kodama E: RNase S Complex Bearing Arginine-rich Peptide and Anti-HIV Activity, *J. Mol. Recogn.*, **18**, 169-174 (2004).

#### — Chemistry of Molecular Biocatalysts —

Ueno K, Yoneyama H, Saito S, Mizutani M, Sakata K, Hirai N, Todoroki Y: A Lead Compound for the Development of ABA 8'-Hydroxylase Inhibitors, *Bioorg. Med. Chem. Lett.*, **53**, 5226-5229 (2005).

Ueno K, Araki Y, Hirai N, Saito S, Mizutani M, Sakata K, Todoroki Y: Differences between the Structural Requirements for ABA 8'-Hydroxylase Inhibition and for ABA Activity, *Bioorg. Med. Chem.*, **13**, 3359-3370 (2005).

Sawai Y, Moon J-H, Sakata K, Watanabe N: Effects of Structure on Radical-scavenging Abilities and Antioxidative Activities of Tea Polyphenols: NMR Analytical Approach Using 1,1-Diphenyl-2-picrylhydrazyl Radicals, *J. Agric. Food Chem.*, **53**, 3598-3614 (2005).

Kato M, Uno T, Hiratake J, Sakata K:  $\alpha$ -Glucopranoimidazolines as Intermediate Analogue Inhibitors of Family 20  $\beta$ -N-Acetylglucosaminidases, *Bioorg. Med. Chem.*, **13**, 1563-1571 (2005).

Fujii R, Nakagawa Y, Hiratake J, Sogabe A, Sakata K: Directed Evolution of *Pseudomonas aeruginosa* Lipase for Improved Amide-hydrolyzing Activity, *Protein Engineering, Design and Selection*, **18**, 93-101 (2005).

Hiratake J: Enzyme Inhibitors as Chemical Tools to Study Enzyme Catalysis: Rational Design, Synthesis, and Applications, *The Chemical Record*, **5**, 209-228 (2005).

Fujita K, Oura F, Nagamine N, Katayama T, Hiratake J, Sakata K, Kumagai H, Yamamoto K: Identification and Molecular Cloning of a Novel Glycoside Hydrolase Family of Core 1 Type O-Glycan-specific endo- $\alpha$ -N-Acetylgalactosaminidase from *Bifidobacterium longum*, *J. Biol. Chem.*, **280**, 37415-37422 (2005).

Nakanishi T, Nakatsu T, Matsuoka M, Sakata K, Kato H: Crystal Structures of Pyruvate Phosphate Dikinase from Maize Revealed an Alternative Conformation in the Swiveling-domain Motion, *Biochemistry*, **44**, 1136-1144 (2005).

Kinoshita T, Cho J-Y, Mizutani M, Shimizu B, Tsai H-T, Chen Y-L, Lin M-L, Sakata K: Gene Expression Profiling in the Manufacturing Process of "Oriental Beauty", *Proceedings of 2004 International Conference on O-Cha (tea) Culture and Science*, 161-164 (2005).

Ogura M, Terada I, Shirai F, Tokoro K, Chen K-R, Chen C-L, Lin M-L, Shimizu B, Kinoshita T, Sakata K: Tracing Aroma Characteristics Changes during Processing of the Famous Formosa Oolong Tea "Oriental Beauty", *Proceedings of 2004 International Conference on O-Cha (tea) Culture and Science*, 240-242 (2005).

Sawai Y, Yamaguchi Y, Mizukami Y, Sakata K, Watanabe N: Comparison of Radical-Scavenging Abilities and Influence of Conjugated Double Bond on Antioxidative Activities of Tea Polyphenols, *Proceedings of 2004 International Conference on O-Cha (tea) Culture and Science*, 256-257 (2005).

Cho J-Y, Shimizu B, Kinoshita T, Mizutani M, Chen K-R, Chen C-L, Sakata K: Chemical Profiling in the Manufacturing Process of "Oriental Beauty", *Proceedings of 2004 International Conference on O-Cha (tea) Culture and Science*, 260-262 (2005).

Mizutani M: Diversity of Cytochromes P450 and Chemical Evolution in Plants, *Regulation of Plant Growth and Development*, **40**, 67-82 (2005).

Mizutani M, Saito S: Enhancement of Drought Tolerance by P450 Inhibitors in Plants, *Kagaku to Seibutsu*, **43**, 628-630 (2005).

#### — Molecular Biology —

[Others]

Oka A, Ohashi Y, Aoyama T: Contribution of Phospholipase D to Morphogenesis of Plant Epidermal Cells, *Genes & Genetic Systems*, **79**, 377-377 (2004).

Tsuge T, Dohmae N, Wei N, Oka A: Novel Regulation of COP9 Signalosome (CSN): a Master Regulator of Signal Transduction in Plant Morphogenesis, *Plant Cell Physiol.*, **46**, S241-S241 (2005).

Taniguchi M, Aoyama T, Oka A: Screening for Genes Directly Regulated by ARR1, *Plant Cell Physiol.*, **46**, S38- S38 (2005).

Tsuge T, Oka A: Will the Research in Plant Light Signaling Contribute to the Cure of Cancer? –The Frontier Research of COP9 Signalosome, *Kagaku*, **60**, 72-73 (2005) (in Japanese).

Aoyama T: Experimental System for Protein Function Inducible with Mammalian Steroid Hormones, *A Series of Shokubutu Saibou Kougaku: Experimental Protocol with Model Plants (eds: Shimamoto K, Okada K, Tabata S)*, **21**, 226-229 (2005) (in Japanese).

#### — Chemical Biology —

[Others]

Uesugi M: Small Molecules That Control Gene Expression, *Seikagaku*, **77(9)**, 1177-1180 (2005) (in Japanese).

Kawazoe Y, Uesugi M: Trends in Chemical Libraries for Chemical Genetics, *Tanpakushitsu Kakusan Koso*, **50(9)**, 1043-1048 (2005) (in Japanese).

Tanaka S, Takehashi M, Iida S, Kitajima T, Kamanaka Y, Stedeford T, Banasik M, Ueda K: Mitochondrial Impairment Induced by Poly(ADP-ribose) Polymerase-1 Activation in Cortical Neurons after Oxygen-Glucose Deprivation, *J. Neurochem.*, **95**, 179-190 (2005).

Strosznajder RP, Jesko H, Banasik M, Tanaka S: Effects of p53 Inhibitor on Survival and Death of Cells Subjected to Oxidative Stress, *J. Physiol. Pharmacol.*, **56**, 215-221 (2005).

## DIVISION OF ENVIRONMENTAL CHEMISTRY

### — Molecular Materials Chemistry —

Kaji H, Kusaka Y, Onoyama G, Horii F: Relation between Light-Emitting Properties and Different Isomers in Polymorphs of Tris(8-hydroquinoline) Aluminum(III) (Alq<sub>3</sub>) Analyzed by Solid-State <sup>27</sup>Al NMR and DFT Calculations, *Jap. J. Appl. Phys.*, **44**, 3706-3711 (2005).

Kaji H, Yamada T, Tsukamoto N, Horii F: A Combined Experimental and Theoretical Study of the Conformation of N,N'-Diphenyl-N,N'-Di(m-tolyl)benzidine (TPD) Using Solid-State <sup>15</sup>N NMR and DFT Calculations, *Chem. Phys. Lett.*, **401**, 246-253 (2005).

Kimura F, Kimura T, Tamura M, Hirai A, Ikuno M, Horii F: Magnetic Alignment of the Chiral Nematic Phase of a Cellulose Microfibril Suspension, *Langmuir*, **21**, 2034-2037 (2005).

[Others]

Horii F, Hirai A, Suzuki F: Disordered Structure of Native Cellulose and Its Production Origin, *Cellulose Commun.*, **12**, 179-183 (2005) (in Japanese).

Horii F: Cellulose – New Viewpoints for the Most Abundant Organic Resources on the Earth, *Environ. Preserv.*, **No.20**, 38-46 (2005) (in Japanese).

Horii F, Hirai A, Suzuki F: Hierarchical Structure of Bacterial Cellulose – Structure of Sub-Elementary Fibrils and Their Structural Evolution, *Meet. Rep. Poval Commit.*, **No.127**, 21-28 (2005) (in Japanese).

Horii F: Magnetic Relaxation; Spin-Lattice Relaxation; Spin-Spin Relaxation; Correlation Function; Correlation Time, *Polymer Dictionary*, **3rd Ed**, 253, 311, 311, 341, 341 (2005) (in Japanese).

### — Hydrospheric Environment Analytical Chemistry —

Gamo T, Masuda H, Yamanaka T, Okamura K, Ishibashi J, Nakayama E, Obata H, Shitashima K, Nishio Y, Hasumoto H, Watanabe M, Mitsuzawa K, Seama N, Tsunogai U, Kouzuma F, Sano Y: Discovery of a New Hydrothermal Venting Site in the Southernmost Mariana Arc: Al-Rich Hydrothermal Plumes and White Smoker Activity Associated with Biogenic Methane, *Geochem. J.*, **38**, 527-534 (2004).

Ezoe M, Ishita T, Kinugasa M, Lai X, Norisuye K, Sohrin Y: Distributions of Dissolved and Acid-Dissolvable Bioactive Trace Metals in the North Pacific Ocean, *Geochem. J.*, **38**, 535-550 (2004).

Okamura K, Hatanaka H, Kimoto H, Suzuki M, Sohrin Y, Nakayama E, Gamo T, Ishibashi J: Development of an *In-situ* Manganese Analyzer Using Micro-Diaphragm Pumps and Its Application to Time-Series Observations in a Hydrothermal Field at the Suiyo Seamount, *Geochem. J.*, **38**, 635-642 (2004).

Kinugasa M, Ishita T, Sohrin Y, Okamura K, Takeda S, Nishioka J, Tsuda A: Dynamics of Trace Metals during the Subarctic Pacific Iron Experiment for Ecosystem Dynamics Study (SEEDS 2001), *Prog. Oceanogr.*, **64**, 129-147 (2005).

Umetani S, Matsumoto H, Kurahashi K: Synergistic Extraction of Metal Ions with Novel Bidentate Neutral Ligands, *Proceedings of ISEC2005*, 188-193 (2005).

Minami T, Sohrin Y, Ueda J: Determination of Chromium, Copper and Lead in River Water by Graphite-Furnace Atomic Absorption Spectrometry after Coprecipitation with Terbium Hydroxide, *Anal. Sci.*, **21**, 1519-1521 (2005).

[Others]

Sohrin Y, Okamura K: *Advanced Analytical Methods (Umezawa Y, Sawada T, Terabe S, eds.)*, 861-865 (2004) (in Japanese).

Sohrin Y, Ezoe M, Kinugasa M, Lai X, Norisuye K: Distribution of Bioactive Trace Metals in the Pacific, *Kaiyo Monthly*, **39**, 54-60 (2005) (in Japanese).

Fujinaga T, Sohrin Y, Isshiki K, eds.: *Chemistry of the Ocean and Lakes—Studying with Trace Elements*, (2005) (in Japanese).

Ishibashi J, Nakamura K, Okamura K, Shitashima K, Toki T, Tsunogai U: Development of Sampling Devices and Monitoring System to Study the Geochemical Environment within Active Hydrothermal Fluid, *Umino Kenkyu*, **14**, 251-266 (2005) (in Japanese).

Tsunogai U, Nakagawa F, Okamura K: Geochemical Studies on the Microbial Activities within the Suiyo Seamount Hydrothermal Plume, Izu-Bonin Arc, *Umino Kenkyu*, **14**, 279-296 (2005) (in Japanese).

### — Solution and Interface Chemistry —

Nagai Y, Morooka S, Matubayasi N, Nakahara M: Mechanism and Kinetics of Aldehyde Reaction in Supercritical Water: Non-catalytic Disproportionation, Condensation, and Decarbonylation, *J. Phys. Chem. A*, **108**, 11635-11643 (2004).

Okamura E, Wakai C, Matubayasi N, Sugiura Y, Nakahara M: Limited Slowdown of Endocrine-Disruptor Diffusion in Confined Fluid Lipid Membranes, *Phys. Rev. Lett.*, **93**, [248101-1]-[248101-4] (2004).

Matubayasi N, Nakahara M: Hydrothermal Reactions of Small Compounds: Free-energy Analysis of Equilibrium, *J. Chem. Phys.*, **122**, [074509-1]-[074509-12] (2005).

Nagai Y, Matubayasi N, Nakahara M: Mechanisms and Kinetics of Noncatalytic Ether Reaction in Supercritical Water. 1. Proton-Transferred Fragmentation of Diethyl Ether to Acetaldehyde in Composition to Hydrolysis, *J. Phys. Chem. A*, **109**, 3550-3557 (2005).

Nagai Y, Matubayasi N, Nakahara M: Mechanisms and Kinetics of Noncatalytic Ether Reaction in Supercritical Water. 2. Proton-Transferred Fragmentation of Dimethyl Ether to Acetaldehyde in Composition to Hydrolysis, *J. Phys. Chem. A*, **109**, 3558-3564 (2005).

Morooka S, Wakai C, Matubayasi N, Nakahara M: Hydrothermal Carbon-Carbon Bond Formation and Disproportionations of C1 Aldehydes: Formaldehyde and Formic Acids, *J. Phys. Chem. A*, **109**, 6610-6619 (2005).

Okamura E, Ninomiya K, Futaki S, Nagai Y, Kimura T, Wakai C, Matubayasi N, Sugiura Y, Nakahara M: Real-Time In-Cell <sup>19</sup>F-NMR Study on Uptake of Fluorescent and Nonfluorescent <sup>19</sup>F-Octaarginines into Human Jurkat Cells, *Chem. Lett.*, **34**, 1064-1065 (2005).



Yoshida K, Wakai C, Matubayasi N, Nakahara M: A New High-Temperature Multinuclear Magnetic Resonance Probe and the Self-Diffusion of Light and Heavy Water in Sub- and Supercritical Conditions, *J. Chem. Phys.*, **122**, [164506-1]-[164506-10] (2005).

Wakai C, Oleinikova A, Ott M, Weingärtner H: How Polar Are Ionic Liquids? Determination of the Static Dielectric Constant of an Imidazolium-based Ionic Liquid by Microwave Dielectric Spectroscopy, *J. Phys. Chem. B*, **109**, 17028-17030 (2005).

Nakahara M: Hitoshi Ohtaki-Autobiography, *J. Mol. Liq.*, **119**, 5-6 (2005).

Matubayasi N, Nakahara M: An Approach to the Solvation Free Energy in Terms of the Distributions Functions of the Solute-Solvent Interaction Energy, *J. Mol. Liq.*, **119**, 23-29 (2005).

Yamaguchi T, Matubayasi N, Nakahara M: Nuclear Magnetic Resonance and Molecular Dynamics Simulation Study on the Reorientational Relaxation of Solutes in Supercritical Methanol, *J. Mol. Liq.*, **119**, 119-123 (2005).

Nakahara M: Structure, Dynamics, and Reactions in Supercritical Water Studied by NMR and Computer Simulation, *Water, Steam, and Aqueous Solutions for Electric Power Edited by M. Nakahara, N. Matubayasi, M. Ueno, K. Yasuoka, and K. Watanabe*, 12-23 (2005).

Matubayasi N, Nakahara M: Hydrothermal Reactions of Formic Acid: Free-Energy Analysis of Equilibrium, *Water, Steam, and Aqueous Solutions for Electric Power Edited by M. Nakahara, N. Matubayasi, M. Ueno, K. Yasuoka, and K. Watanabe*, 313-318 (2005).

#### [Others]

Nakahara M: Supercritical Fluid Reactions in Relation to Energy Problem, *News Letter, Society High-Temp. High-Pressure Technol.*, **32**, 1-1 (2004) (in Japanese).

Nakahara M: Roles of Supercritical-Fluid Reactions for 21st Century Energy Problems -Synthesis of Dimethyl Ether and Hydrogen-, *Jasco Report*, **8**, 30-34 (2004) (in Japanese).

Matubayasi N, Nakahara M: Statistical Thermodynamics of Hydration and Supercritical and Hot Water Chemistry for Energy and Environmental Issues, *CHEMISTRY TODAY*, **410**, 40-44 (2005) (in Japanese).

Nakahara M: NMR Studies on Water and Aqueous Solution in Supercritical and High-Pressure Conditions, *The Review of High Pressure Science and Technology*, **15**, 224-237 (2005) (in Japanese).

Nakahara M: Chemical Evolution on the Primitive Earth Learned from Studies on Supercritical Water Reactions, *Transactions of The Research Institute of Oceanchemistry*, **18**, 83-88 (2005) (in Japanese).

Okamura E, Nakahara M: Static and Dynamic NMR Studies of Anesthetics in Membranes, *Anesth. Resus.*, **41**, 21-22 (2005) (in Japanese).

Nakahara M: Measurements of Fluid Properties at High-Pressures, *The Fifth Series of Experimental Chemistry Vol.6 Chemical Thermodynamics and High-Pressure Science Edited by Chemical Society of Japan*, **Chapter 11.4**, 460-461 (2005) (in Japanese).

Nakahara M, et al.: *Chronological Scientific Table 2005 Edited by National Astronomical Observatory*, **78**, 484-491, 496-499 (2005) (in Japanese).

#### — Molecular Microbial Science —

Yoshimune K, Galkin A, Kulakova L, Yoshimura T, Esaki N: Cold-active DnaK of an Antarctic Psychrotroph *Shewanella* sp. Ac10 Supporting the Growth of *dnaK*-Null Mutant of *Escherichia coli* at Cold Temperatures, *Extremophiles*, **9**, 145-150 (2005).

Yoshimune K, Galkin A, Kulakova L, Yoshimura T, Esaki N: DnaK from *Vibrio proteolyticus*: Complementation of a *dnaK*-Null Mutant of *Escherichia coli* and the Role of Its ATPase Domain, *J. Biosci. Bioeng.*, **99**, 136-142 (2005).

Yoshimune K, Esaki N, Moriguchi M: Site-directed Mutagenesis Alters DnaK-dependent Folding Process, *Biochem. Biophys. Res. Commun.*, **326**, 74-78 (2005).

Yamamoto H, Mitsunashi K, Kimoto N, Kobayashi Y, Esaki N: Robust NADH-regenerator: Improved  $\alpha$ -Haloketone-resistant Formate Dehydrogenase, *Appl. Microbiol. Biotechnol.*, **67**, 33-39 (2005).

Muramatsu H, Mihara H, Kakutani R, Yasuda M, Ueda M, Kurihara T, Esaki N: The Putative Malate/Lactate Dehydrogenase from *Pseudomonas putida* Is an NADPH-dependent  $\Delta^1$ -Piperidine-2-Carboxylate/ $\Delta^1$ -Pyrroline-2-Carboxylate Reductase Involved in the Catabolism of D-Lysine and D-Proline, *J. Biol. Chem.*, **280**, 5329-5335 (2005).

Muramatsu H, Mihara H, Goto M, Miyahara I, Hirotsu K, Kurihara T, Esaki N: A New Family of NAD(P)H-dependent Oxidoreductases Distinct from Conventional Rossmann-Fold Proteins, *J. Biosci. Bioeng.*, **99**, 541-547 (2005).

Mihara H, Muramatsu H, Kakutani R, Yasuda M, Ueda M, Kurihara T, Esaki N: *N*-Methyl-L-amino Acid Dehydrogenase from *Pseudomonas putida*. A Novel Member of an Unusual NAD(P)-dependent Oxidoreductase Superfamily, *FEBS J.*, **272**, 1117-1123 (2005).

Kurata A, Kurihara T, Kamachi H, Esaki N: 2-Haloacrylate Reductase, A Novel Enzyme of the Medium Chain Dehydrogenase/reductase Superfamily That Catalyzes the Reduction of a Carbon-carbon Double Bond of Unsaturated Organohalogen Compounds, *J. Biol. Chem.*, **280**, 20286-20291 (2005).

Igarashi M, Maruoka N, Kato S, Mihara H, Kurihara T, Esaki N: Characterization of Slr0077 of *Synechocystis* sp. PCC6803, a Homolog of Chloroplastic Cysteine Desulfurase of Higher Plants, *Trace Nutrients Research*, **21**, 51-58 (2004).

#### DIVISION OF MULTIDISCIPLINARY CHEMISTRY

##### — Polymer Materials Science —

Kanaya T, Kakurai K, Tsukushi I, Inoue R, Watanabe H, Nishi M, Nakajima K, Takemura K, Furuya H: Thermal Neutron Spin-echo Studies on Dynamics of a Glass-forming Polymer in a High Q Range, *J. Phys. Soc. Jpn.*, **74**, 3236-3240 (2005).

Kaji K, Nishida K, Kanaya T, Matsuba G, Konishi T, Imai M: Spinodal Crystallization of Polymers: Crystallization from the Unstable Melt, *Adv. Polym. Sci.*, **191**, 187-240 (2005).

Haefele A, Heck B, Hippler T, Kawai T, Kohn P, Strobl G: Crystallization of Poly(ethylene-co-octene): II - Melt Memory Effects on First Order Kinetics, *Eur. Phys. J. E.*, **16**, 217-224 (2005).

Sharma L, Nishida K, Kanaya T: FT-IR Study of the Morphological Interactions in PHB/PAZO Blends and Their Dependence on Solvent Variation, *Polymers & Polymer Composites*, **13**, 681-686 (2005).

Haefele A, Heck B, Kawai T, Kohn P, Strobl G: Crystallization of a Poly(ethylene-co-octene): I - A Precursor Structure and Two Competing Mechanisms, *Eur. Phys. J. E.*, **16**, 207-216 (2005).

Konishi T, Nishida K, Kanaya T, Kaji K: Effect of Isotacticity on Formation of Mesomorphic Phase of Isotactic Polypropylene, *Macromolecules*, **38**, 8749-8754 (2005).

Sharma L, Nishida K, Kanaya T: The Effect of Solvent on the Miscibility of Blends of Poly 1-[4-(3-carboxy-4-hydroxyphenylazo)benzene sulphonamido-1,2-ethanediy], sodium salt] (PAZO) and Polyhydroxybutyrate, (PHB), *Polymers & Polymer Composites*, **13**, 443-452 (2005).

Inoue R, Kanaya T, Nishida K, Tsukushi I, Shibata K: Inelastic Neutron Scattering Study of Low Energy Excitations in Polymer Thin Films, *Phys. Rev. Lett.*, **95**, [056102-1]-[056102-4] (2005).

Kanaya T, Monkenbusch M, Watanabe H, Nagao M, Richter D: Dynamics of Deuterated Polystyrene-Protonated Butadiene Diblock Copolymer Micelles by Neutron Spin Echo, *J. Chem. Phys.*, **122**, 144905-144913 (2005).

Nakamura K, Shikata T, Takahashi N, Kanaya T: Highly Extended Conformation of Polyelectrolytes Incorporated into Hybrid Threadlike Micelles Studied by Small Angle Neutron Scattering, *J. Am. Chem. Soc.*, **127**, 4570-4571 (2005).

Kanaya T, Miyazaki T, Inoue R, Nishida K: Thermal Expansion and Contraction of Polymer Thin Films, *Phys. Status. Solidi (b)*, **242**, 595-606 (2005).

Kanaya T, Takahashi N, Nishida K, Seto H, Nagao M, Takeda T: Neutron Spin-Echo Studies on Dynamic and Static Fluctuations in Two Types of Poly(vinyl alcohol) Gels, *Phys. Rev. E.*, **71**, [011801-1]-[011801-7] (2005).

Fukushima H, Ogino Y, Matsuba G, Nishida K, Kanaya T: Crystallization of Polyethylene Under Shear Flow as Studied by Time Resolved Depolarized Light Scattering. Effects of Shear Rate and Shear Strain, *Polymer*, **46**, 1878-1885 (2005).

Takahashi N, Kanaya T, Nishida K, Kaji K: Small-Angle Neutron Scattering Study of Poly(vinyl alcohol) Gels during Melting Process, *J. Appl. Polym. Sci.*, **47**, 157-160 (2005).

[Others]

Nishida K: Inversion of Interaction in Polyelectrolyte Solution, *SEN-I GAKKAISHI*, **61**, 14-18 (2005) (in Japanese).

Kanaya T: University and Collaborative Research, *SEN-I GAKKAISHI*, **61**, 119 (2005) (in Japanese).

Kanaya T: Polymer Crystallization under Shear Flow, *Seikei-Kakou*, **17**, 479-483 (2005) (in Japanese).

Kanaya T, Miyazaki T, Inoue R, Nishida K: Glass Transition of Polymer Thin Films, *Kasen Kouenshu*, **62**, 39-44 (2005) (in Japanese).

Kanaya T, Ogino Y, Fukushima H, Matsuba G, Nishida K: Polymer Crystallization under Shear Flow, *Structure and Dynamics in Macromolecular Systems with Specific Interactions*, 49-56 (2005).

Kanaya T: Neutron Scattering, *Experimental Lecture of Chemistry*, **26**, 331-341 (2005) (in Japanese).

Kanaya T: Structure of Polymer Crystal, *Experimental Lecture of Chemistry*, **26**, 379-386 (2005) (in Japanese).

#### — Molecular Rheology —

Yoshida T, Kanaoka S, Watanabe H, Aoshima S: Stimuli-Responsive Reversible Physical Networks. II. Design and Properties of Homogeneous Physical Networks Consisting of Periodic Copolymers Synthesized by Living Cationic Polymerization, *J. Polym. Sci. A: Polym. Chem.*, **43**, 2712-2722 (2005).

Watanabe H, Matsumiya Y, Inoue T: Dielectric and Viscoelastic Study of Entanglement Dynamics: A Review of Recent Findings, *Macromolecular Symposia*, **228**, 51-70 (2005).

Watanabe H, Matsumiya Y, Ishida S, Takigawa T, Yamamoto T, Vlassopoulos D, Roovers J: Nonlinear Rheology of Multiarm Star Chains, *Macromolecules*, **38**, 7404-7415 (2005).

Horigome M, Yada M, Koike J, Watanabe H: Viscoelastic Behavior and Its Mechanisms of Aqueous Suspensions of Resin Particles, *J. Jap. Soc. Col. Mat.*, **78**, 299-303 (2005).

Kujawa P, Watanabe H, Tanaka F, Winnik F M: Amphiphilic Telechelic Poly(N-isopropylacrylamide) in Water: From Micelles to Gels, *Euro. Phys. J. E.*, **17**, 129-137 (2005).

Watanabe H: Viscosity, *Nishinari, Okoshi, Kouyama, Yamamoto Eds., "Food Texture Handbook", Science Forum, Tokyo, Chapter 1, Section 2*, 163-168 (2005).

Watanabe H, Matsumiya Y: Rheology of Diblock Copolymer Micellar Dispersions Having Soft Cores, *Macromolecules*, **38**, 3808-3819 (2005).

Watanabe H, Inoue T: Conformational Dynamics of Rouse Chains during Creep/recovery Processes: a Review, *J. Phys. Condensed Matter*, **17**, R607-R636 (2005).

Matsuda Y, Sato T, Oishi Y, Watanabe H: Association of Polybutadiene Living Anions in Cyclohexane, *J. Polym. Sci. B: Polym. Phys.*, **43**, 1401-1407 (2005).

Inoue T, Shikata T: Nonlinear Rheology of Thread-like Micellar Aqueous Solution, *Oleo Sci.*, **5**, 327-334 (2005) (in Japanese).

Kanaya T, Monkenbusch M, Watanabe H, Nagao M, Richter D: Dynamics of Deuterated Polystyrene-Protonated Butadiene Diblock Copolymer Micelles by Neutron Spin Echo, *J. Chem. Phys.*, **122**, [144905-1]-[144905-9] (2005).

Tian P, Uhrig D, Mays J W, Watanabe H, Kilbey II S M: Role of Branching on the Structure of Polymer Brushes Formed From Comb Copolymers, *Macromolecules*, **38**, 2524-2529 (2005).

Inoue T, Inoue Y, Watanabe H: Nonlinear Rheology of CTAB/NaSal Aqueous Solutions: Finite Extensibility of a Network of Wormlike Micelles, *Langmuir*, **21**, 1201-1208 (2005).

Urayama K, Okada S, Nosaka S, Watanabe H, Takigawa T: Kinetics of Shrinkage of Polymer Gels Induced by Ultracentrifugal Fields, *J. Chem. Phys.*, **122**, [024906-1]-[024906-6] (2005).

Yaoita T, Isaki T, Masubuchi Y, Watanabe H, Ianniruberto G, Greco F, Marrucci G: Highly Entangled Polymer Primitive Chain Network Simulations Based on Dynamic Tube Dilution, *J. Chem. Phys.*, **121**, 12650-12654 (2004).

Matsumiya Y, Watanabe H: Nonlinear Relaxation Behavior of Diblock Copolymer Micellar Dispersions: Effects of Corona-Matrix and Corona-Corona Entanglements, *Macromolecules*, **37**, 9861-9871 (2004).

Matsuno K, Inoue T, Watanabe H: Birefringence and Viscoelasticity of Graft Copolymer, *J. Soc. Material. Sci.*, **53**, 1263-1266 (2004).

#### — Molecular Aggregation Analysis —

Sato N, Harada Y, Terashima T, Kanda R, Takano M: Study of Thin Films of Carrier-Doped Strontium Titanate with Emphasis on Their Interfaces with Organic Thin Films, *Appl. Surf. Sci.*, **244**, 588-592 (2005).

Murdey R, Liang S J S, Stuckless J T: An Atom-Transparent Photon Block for Metal-Atom Deposition from High-Temperature Ovens, *Rev. Sci. Instrum.*, **76**, [023911-1]-[023911-6] (2005).

Murdey R J, Salaneck W R: Charge Injection Barrier Heights Across Multilayer Organic Thin Films, *Jpn. J. Appl. Phys.*, **44**, 3751-3756 (2005).

Katoh K, Akutagawa T, Nakamura T: Molecular Design, Synthesis and Functions of Amphiphilic bis-TTF Annulated Macrocycles Forming Molecular Assembly Nanostructures, *J. Synth. Org. Chem., Jpn.*, **63**, 960-969 (2005) (in Japanese).

Asami K: Simulation of Dielectric Relaxation in Periodic Binary Systems of Complex Geometry, *J. Colloid Interface Sci.*, **292**, 228-235 (2005).

Asami K: Dielectric Relaxation in a Water-Oil-Triton X-100 Microemulsion Near Phase Inversion, *Langmuir*, **21**, 9032-9037 (2005).

Sekine K, Watanabe Y, Hara S, Asami K: Boundary-Element Calculations for Dielectric Behavior of Doublet-Shaped Cells, *Biochim. Biophys. Acta*, **1721**, 130-138 (2005).

#### — Supramolecular Biology —

Emoto K, Inadome H, Kanaho Y, Narumiya S, Umeda M: Local Change in Phospholipid Composition at the Cleavage Furrow is Essential for Completion of Cytokinesis, *J. Biol. Chem.*, **280**, 37901-37907 (2005).

Aoyagi K, Sugaya T, Umeda M, Yamamoto S, Terakawa S, Takahashi M: The Activation of Exocytic Sites by the Formation of Phosphatidylinositol-4,5-bisphosphate Microdomains at Syntaxin Clusters, *J. Biol. Chem.*, **280**, 2089-2104 (2005).

Nishibori A, Kusaka J, Hara J, Umeda M, Matsumoto K: Phosphatidylethanolamine Domains and Localization of Phospholipid Synthase in *Bacillus subtilis* Membranes, *J. Bacteriol.*, **187**, 2163-2174 (2005).

Kobayashi H, Umeda M: A Novel Protein Lysenin, *Comp. Physiol. Biochem.*, **22** (2005) (in Japanese).

Takeuchi K, Umeda M: Membrane Lipid Dynamics and Biological Thermosensor: An Approach for Molecular Lipid Biology Using Behavioral Genetics of *Drosophila*, *Jikken-igaku*, **23**, 961-967 (2005) (in Japanese).

Kato U, Inadome H, Umeda M: Transbilayer Movement of Lipids: Asymmetric Lipid Distribution and Flip-flop, *New Applications of Liposome for Approaches to Artificial Cells. Ed. by Akiyoshi K, Tujii K, NTS Inc.*, 190-203 (2005) (in Japanese).

Inadome H, Noda Y, Adachi H, Yoda K: Immunisolaton of the Yeast Golgi Subcompartments and Characterization of a Novel Membrane Protein, Svp26, Discovered in the Sed5-containing Compartments, *Mol. Cell. Biol.*, **25**, 7696-7710 (2005).

Shishioh N, Hong Y, Ohishi K, Ashida H, Maeda Y, Kinoshita T: GPI7 is the Second Partner of PIG-F and Involved in Modification of Glycosylphosphatidylinositol, *J. Biol. Chem.*, **280**, 9728-9734 (2005).

Ashida H, Hong Y, Murakami Y, Shishioh N, Sugimoto N, Kim YU, Maeda Y, Kinoshita T: Mammalian PIG-X and Yeast Pbn1p are the Essential Components of Glycosylphosphatidylinositol-mannosyltransferase I, *Mol. Biol. Cell.*, **16**, 1439-1448 (2005).

Kang JY, Hong Y, Ashida H, Shishioh N, Murakami Y, Morita YS, Maeda Y, Kinoshita T: PIG-V Involved in Transferring the Second Mannose in Glycosylphosphatidylinositol, *J. Biol. Chem.*, **280**, 9489-9497 (2005).

#### ADVANCED RESEARCH CENTER FOR BEAM SCIENCE — Particle Beam Science —

Zhong L, Nakamura S, Fukumi A, Hayashi Y, Orimo S, Nishiuchi M, Sagisaka A, Mori M, Shirai S, Iwashita Y, Noda A, Daido H: Electron Energy Spectrometer for Laser-Driven Energetic Electron Generation, *Japanese Journal of Applied Physics*, **44**, 6796-6800 (2005).

Iwashita Y: Neat Bunching Scheme with Amplitude Modulation, *Nuclear Physics B - Proceedings Supplements*, **149**, 268-270 (2005).

Ohmori C, Aoki M, Kuriyama Y, Yoshida M, Arimoto Y, Sato M, Kuno Y, Iwashita Y, Ninomiya S: Ultra-High Field Gradient RF for Bunch Rotation, *Nuclear Physics B - Proceedings Supplements*, **149**, 280-282 (2005).

Wakasugi M, Emoto T, Koseki T, Ohnishi T, Suda T, Takeda T, Yano Y, Kurita K, Shirai T, Tongu H: R&D Study of a Self-Confining Radioactive Ion Target (SCRIT) in the KSR, *Beam Science and Technology*, **9**, 3-7 (2005).

Fujimoto T, Shibuya S, Noda K, Noda A, Shirai T: Injection System for S-LSR, *Beam Science and Technology*, **9**, 8-11 (2005).

Noda A, Grieser M: Possible Scheme of Tapered Cooling by Combination of Laser Cooling and Wien Filter, *Beam Science and Technology*, **9**, 12-15 (2005).

Grieser M, Fadil H, Noda A, Shirai T: Ion Deflection in a Toroid Magnet, *Beam Science and Technology*, **9**, 16-19 (2005).

Ikegami M, Fadil H, Shirai T, Tongu H, Noda A, Ogawa H, Takeuchi T, Noda K, Shibuya S, Fujimoto T: Field Measurement of Bending Magnets for S-LSR, *Beam Science and Technology*, **9**, 20-30 (2005).

Takeuchi T, Noda K, Shibuya, S, Noda A, Shirai T, Tongu H, Fadil H, Ikegami M: Magnetic Field Measurement and Individual Characteristics of Quadrupole Magnets for S-LSR, *Beam Science and Technology*, **9**, 31-35 (2005).

Takeuchi T, Noda A, Fujimoto S: Magnetic Permeability of Stainless Bent Plate, *Beam Science and Technology*, **9**, 36-37 (2005).

Soda H, Takeuchi T, Ikegami M, Shirai T: Magnets Arrangement of S-LSR, *Beam Science and Technology*, **9**, 38-42 (2005).

Tongu H, Shibuya S, Shirai T, Takeuchi T, Iwashita Y, Noda A, Noda K, Fujimoto S: The Outgassing of the Vacuum Ducts for S-LSR, *Beam Science and Technology*, **9**, 43-44 (2005).

Fujimoto S, Shirai T, Noda A, Tongu H, Takeuchi T: Non-destructive Monitor Development for a Small Ion Storage Ring S-LSR, *Beam Science and Technology*, **9**, 45-47 (2005).

Nokamura S, Noda A, Iwashita Y, Shirai T, Yamazaki A, Takeuchi T, Tanabe M, Tongu H, Ikegami M, Fujimoto S, Sakabe S, Hashida M, Shimizu S: Energetic Ion Generation by Interaction between T<sup>6</sup>-Laser and Thin Foils, *Beam Science and Technology*, **9**, 48-49 (2005).

Syresin E, Smirnov A, Noda A, Noda K, Shirai T, Fadil H: S-LSR Low Ion Energy Mode, *Beam Science and Technology*, **9**, 50-57 (2005).

[Others]

Iwashita Y, Mihara T, Kumada M, Spencer C: Field Quality and Magnetic Center Stability Achieved in a Variable Permanent Magnet Quadrupole for the ILC, *Proceedings of 2005 Particle Accelerator Conference*, 1913-1915 (2005).

Fujimoto S, Shirai T, Noda A, Tongu H, Takeuchi T, Noda K: Static Beam Position Monitor for a Small Ion Storage Ring S-LSR, *Proceedings of the 2nd Annual Meeting of Particle Accelerator Society of Japan*, 60-62 (2005) (in Japanese).

Noda A, Shirai T, Tongu H, Ikegami M, Fujimoto S, Tanabe M, Souda H, Yamada S, Noda K, Shibuya S, Iwata S, Takubo A, Takeuchi T, Fujimoto T, Fujiwara H, Fadil H, Grieser M, Meshkov I, Syresin E, Smirnov A, Sidorin A: Beam Cooling at Ion Accumulation/Cooler Ring, S-LSR, *Proceedings of the 2nd Annual Meeting of Particle Accelerator Society of Japan*, 156-158 (2005).

Tanabe M, Noda A, Shirai T, Tongu H, Ikegami M, Souda H, Noda K, Shibuya S: Experimental Study of Dispersion Control Utilizing Both Magnetic and Electric Field, *Proceedings of the 2nd Annual Meeting of Particle Accelerator Society of Japan*, 731-733 (2005) (in Japanese).

Tongu H, Ikegami M, Tanabe M, Shirai T, Noda A, Fujimoto S, Shibuya S, Takeuchi T, Noda K, Kanakura J, Sano M: Static Beam Position Monitor for a Small Ion Storage Ring S-LSR, *Proceedings of the 2nd Annual Meeting of Particle Accelerator Society of Japan*, 739-741 (2005) (in Japanese).

Ikegami M, Okamoto H, Shirai T, Souda H, Tanabe M, Noda A, Noda K: Beam Dynamics at Ion Storage Ring S-LSR, *Proceedings of the 2nd Annual Meeting of Particle Accelerator Society of Japan*, 742-744 (2005) (in Japanese).

Souda H, Tanabe M, Ikegami M, Noda A: Three Dimensional Laser Cooling with Dispersion Control at S-LSR, *Proceedings of the 2nd Annual Meeting of Particle Accelerator Society of Japan*, 808-810 (2005) (in Japanese).

Iwashita Y: Mitigation of Power Loss due to Skin Effect, *Proceedings of the 2nd Annual Meeting of Particle Accelerator Society of Japan*, 138-140 (2005) (in Japanese).

Mihara T, Iwashita Y, Kumada M, Spencer C: Adjustment of Super-Strong Permanent Magnet Quadrupole, *Proceedings of the 2nd Annual Meeting of Particle Accelerator Society of Japan*, 227-229 (2005) (in Japanese).

#### — Laser Matter Interaction Science —

Sakabe S, Takahashi K, Hashida M, Shimizu S, Iida T: Elements and Their Transitions Feasible for NEET, *Atomic Data and Nuclear Data Tables*, **91**, 1-7 (2005).

Iinuma M, Matsukado K, Endo I, Hashida M, Hayashi K, Kohara A, Matsumoto F, Nakanishi Y, Sakabe S, Shimizu S, Taniuchi T, Yamamoto K, Takahashi T: Observation of Second Harmonics in Laser-Electron Scattering Using Low Energy Electron Beam, *Phys. Lett. A*, **346**, 255-260 (2005).

Hashida M, Shimizu S, Sakabe S: Nano-Ablation with Short Pulse Laser, *Rev. Laser Eng.*, **33**, 514-518 (2005) (in Japanese).

Fujita M, Hashida M: Femtosecond-Laser Processing, *J. Plasma Fusion Res.*, **81 suppl.**, 195-201 (2005) (in Japanese).

Nishimura H, Inubushi Y, Ochiai M, Kawamura T, Fujioka S, Hashida M, Shimizu S, Sakabe S, Kodama R, Tanaka K A, Kato S, Koike F, Nakazaki S, Nagatomo H, Johzaki T, Mima K: Study of Fast Electron Transport in Hot Dense Matter Using X-ray Spectroscopy, *Plasma Phys. Control. Fusion*, **47**, B823-B831 (2005).

Shimizu S, Zhakhovskii V, Murakami M, Tanaka M, Yatsuhashi T, Okihara S, Nishihara K, Sakabe S, Izawa Y, Nakashima N: Coulomb Explosion of Hexa-Fluorobenzene Induced by an Intense Laser Field, *Chem. Phys. Lett.*, **404**, 379-383 (2005).

Takagi Y, Yamada Y, Ishikawa K, Shimizu S, Sakabe S: Ultrafast Single-Shot Optical Oscilloscope Based on Time-to-Space Conversion due to Temporal and Spatial Walk-Off Effects in Nonlinear Mixing Crystal, *Jpn. J. Appl. Phys. A*, **44**, 6546-6549 (2005).

Tsukamoto M, Asuka K, Nakano H, Hashida M, Katto M, Abe N, Fujita M: Femtosecond Laser Produced Periodic Microstructures on Titanium Plate, *Adv. Appl. Plasma Sci.*, **5**, 283-288 (2005).

[Others]

Setsuhara Y, Hashida M, Fujita M: Nonequilibrium Activation of Boron-Implanted Ultra-Shallow Junctions by Femtosecond-Laser Induced Phonon Excitation Process, *Proc. 4th International Conference on Silicon Epitaxy and Heterostructures (ICSI-4) Awaji Island, Hyogo, Japan, May 23-26*, 306-307 (2005).

#### — Electron Microscopy and Crystal Chemistry —

Steinhart M, Murano S, Schaper A K, Ogawa T, Tsuji M, Gosele U, Weder C, Wendorff J H: Morphology of Polymer/Liquid-Crystal Nanotubes: Influence of Confinement, *Adv. Funct. Mater.*, **15**, 1656-1664 (2005).

Harada M, Toshima N, Yoshida K, Isoda S: Aggregated Structure Analysis of Polymer-Protected Platinum/Ruthenium Colloidal Dispersions Using EXAFS, HRTEM, and Electron Diffraction Measurements, *J. Colloid Interface Sci.*, **283**, 64-78 (2005).

Koshino M, Masunaga-Hasegawa Y, Nemoto T, Kurata H, Isoda S: Radiation Damage Analysis of 7,7,8,8-Tetracyanoquinodimethane (TCNQ) and 2,3,5,6-Tetrafluoro-7,7,8,8-Tetracyanoquinodimethane (F<sub>4</sub>TCNQ) by Electron Diffraction and Electron Energy Loss Spectroscopy, *Micron*, **36**, 271-279 (2005).

Yoshida K, Yaji T, Koshino M, Isoda S: Structural Analysis of Bis(1,2-benzoquinonedioximato)platinum(II) Polymorphs Formed Epitaxially on Alkali Halides, *Jpn. J. Appl. Phys.*, **44**, 491-494 (2005).

Tsujimoto M, Kurata H, Nemoto T, Isoda S, Terada S, Kaji K: Influence of Nitrogen Vacancies on the N K-ELNES Spectrum of Titanium Nitride, *J. Electron Spectrosc. Relat. Phenom.*, **143**, 159-165 (2005).

Hotta H, Kang S, Umeyama T, Matano Y, Yoshida K, Isoda S, Imahori H: Effects of Fullerene Substituents on Structure and Photoelectrochemical Properties of Fullerene Nanoclusters Electrochemically Deposited on Nanostructured SnO<sub>2</sub> Electrodes, *J. Phys. Chem. B*, **109**, 5700-5706 (2005).

Wang F, Jiu J, Pei L, Nakagawa K, Isoda S, Adachi M: Hydrothermal Synthesis of Highly Crystallized Lepidocrocite Nanosheets of TiO<sub>2</sub> under Low Temperature, *Chem. Lett.*, **34**, 418-419 (2005).

Minari T, Nemoto T, Isoda S: Transport Properties of Single-Grain Organic Field-Effect Transistor, *Proc. Int. Symp. on Super-Functionality Organic Devices, IPAP Conference Series 6*, 136-139 (2005).

Imahori H, Fujimoto A, Kang S, Hotta H, Yoshida K, Umeyama T, Matano Y, Isoda S: Molecular Photoelectrochemical Devices: Supramolecular Incorporation of C<sub>60</sub> Molecules into Tailored Holes on Porphyrin-Modified Gold Nanoclusters, *Adv. Mater.*, **17**, 1727-1730 (2005).

Wang F, Jiu J, Pei L, Nakagawa K, Isoda S, Adachi M: Reconstruction of Lepidocrocite Nanosheets into Anatase TiO<sub>2</sub> by Rolling in Low Temperature, *Chem. Lett.*, **34**, 1238-1239 (2005).

#### — Structural Molecular Biology —

Mima J, Hayashida M, Fujii T, Narita Y, Hayashi R, Ueda M, Hata Y: Structure of the Carboxypeptidase Y Inhibitor I<sup>c</sup> in Complex with the Cognate Proteinase Reveals a Novel Mode of the Proteinase-Protein Inhibitor Interaction, *J. Mol. Biol.*, **346**, 1323-1334 (2005).

Shigeoka N, Oohashi H, Tochio T, Ito Y, Mukoyama T, Vlaicu A M, Yoshikawa H, Fukushima S: [K+L] Double-electron Transition in Fe, *Physica Scripta*, **T115**, 1084-1087 (2005).

Shigeoka N, Oohashi H, Tochio T, Ito Y, Mukoyama T, Vlaicu A M, Yoshikawa H, Fukushima S: Analysis of K $\alpha$ " Spectra in X-ray Emission Spectroscopy, *Physica Scripta*, **T115**, 1080-1083 (2005).

Fukao S, Nakanishi Y, Ito Y, Yoshikado S: Excitation of X-ray Using Polarized LiNbO<sub>3</sub> Single Crystal, *Key Engineering Materials*, **301**, 205-208 (2005).

Uno M, Oritsuka M, Ito Y, Yoshikado S: Synthesis and Evaluation of Pb<sub>1-x</sub>Sn<sub>x</sub>F<sub>2</sub> by a Mechanical Milling Method, *Solid State Ionics*, **176**, 2493-2498 (2005).

[Others]

Hata Y, Hayashida M, Fujii T, Mima J, Hayashi R, Ueda M: Structure and Inhibition Mode of Protein I<sup>c</sup> in Complex with Carboxypeptidase Y, *Acta Cryst.*, **A61 (Supplement)**, C190 (2005).

Horiguchi D, Yokoi K, Mizota H, Sakakura S, Oohashi H, Ito Y, Tochio T, Vlaicu A M, Yoshikawa H, Nakazawa H, Fukushima S, Yamaoka H, Shoji T: Potential of a High-resolution Anti-parallel Two-crystal Spectrometer at BL15XU in SPring-8, *The 24th International Conference on Photonic, Electronic and Atomic Collisions*, 684 (2005).

Oohashi H, Ito Y, Tochio T, Vlaicu A M, Yoshikawa H, Nakazawa M, Fukushima S: Behavior of L $\beta$ <sub>2</sub> Visible Satellites in Gold Using Threshold Excitation, *The 24th International Conference on Photonic, Electronic and Atomic Collisions*, 33 (2005).

Oohashi H, Ito Y, Tochio T, Vlaicu A M, Yoshikawa H, Nakazawa M, Fukushima S: On Satellites Hidden by Diagram Line in Gold, *The 24th International Conference on Photonic, Electronic and Atomic Collisions*, 32 (2005).

Ito Y, Tochio T, Oohashi H, Vlaicu A M: K $\alpha$ <sub>1,2</sub> Emission Spectra in Transition Elements, *The 24th International Conference on Photonic, Electronic and Atomic Collisions*, 31 (2005).

Oohashi H, Ito Y, Tochio T, Vlaicu A M, Yoshikawa H, Nakazawa M, Fukushima S: Appearance of  $\gamma$ <sub>8</sub>Pt L $\beta$ <sub>15</sub> Emission Spectra by Threshold Excitation in SPring-8, *The 24th International Conference on Photonic, Electronic and Atomic Collisions*, 28 (2005).

Mizota H, Oohashi H, Ito Y, Tochio T, Yoshikado S: X-ray Emission from LiTaO<sub>3</sub> Induced by Thermal Changes and Structure Analysis, *The 20th International Conference of X-ray and Inner-shell Processes*, 245 (2005).

Vlaicu A M, Oohashi H, Tochio T, Ito Y, Horiguchi D, Yokoi K, Yoshikawa H, Takekawa S, Kitamura K: Resonant X-ray Emission Spectroscopy Study of LiTaO<sub>3</sub> Compounds, *The 20th International Conference of X-ray and Inner-shell Processes*, 235 (2005).

Vlaicu A M, Oohashi H, Tochio T, Ito Y, Horiguchi D, Yokoi K, Yoshikawa H, Nakazawa H, Fukushima S, Yamaoka H, Shoji T: Anti-parallel Crystal Spectrometer at BL15XU in SPring-8, *The 20th International Conference of X-ray and Inner-shell Processes*, 193 (2005).

Yokoi K, Oohashi H, Ito Y, Tochio T, Shoji T: K $\alpha$ <sub>3,4</sub> Satellites in Na-P Elements, *The 20th International Conference of X-ray and Inner-shell Processes*, 169 (2005).

Vlaicu A M, Tochio T, Oohashi H, Ito Y, Mukoyama T, Fukushima S, Yoshikawa H: The L<sub>3</sub>M<sub>4,5</sub>N<sub>5</sub> Satellite Transition for Z=73-79, *The 20th International Conference of X-ray and Inner-shell Processes*, 168 (2005).

Sakakura S, Oohashi H, Ito Y, Tochio T, Vlaicu A M, Yoshikawa H, Ikenaga E, Kobayashi K: Natural Widths and Coster-Kronig Transitions of L $\alpha$ -ray Spectra in Elements between Pd and Sb, *The 20th International Conference of X-ray and Inner-shell Processes*, 164 (2005).

Oohashi H, Ito Y, Tochio T, Vlaicu A M, Yoshikawa H, Nakazawa H, Fukushima S: On Satellites Hidden by Diagram in Heavy Elements Ir, Pt, Au, *The 20th International Conference of X-ray and Inner-shell Processes*, 158 (2005).

Oohashi H, Ito Y, Tochio T, Vlaicu A M, Yoshikawa H, Nakazawa H, Fukushima S: Behavior of  $L\beta_2$  Visible Satellites in Gold around  $L_1$  Threshold, *The 20th International Conference of X-ray and Inner-shell Processes*, 157 (2005).

Ito Y, Tochio T, Oohashi H, Vlaicu A M: Contribution of the [1s3d] Shake Process to  $K\alpha_{1,2}$  Spectra in 3d Elements, *The 20th International Conference of X-ray and Inner-shell Processes*, 156 (2005).

Oohashi H, Ito Y, Tochio T, Vlaicu A M, Yoshikawa H, Nakazawa H, Fukushima S: The Determination of  $^{78}\text{Pt}$  NIV -  $\gamma$  LIII Transition Energy Using the Threshold Excitation Energy in SPring-8, *The 20th International Conference of X-ray and Inner-shell Processes*, 147 (2005).

Mizota H, Horiguchi D, Yokoi K, Oohashi H, Ito Y, Tochio T, Vlaicu A M, Yoshikawa H, Fukushima S, Nakazawa H, Takekawa S, Kitamura K, Yoshikado S: What is the Driving Force in a Ferroelectric Material,  $\text{LiTaO}_3$ , *The Exciting Symposium on Excited State properties of Solids*, 15 (2005).

Yamaoka H, Ito Y, Oohashi H, Tochio T, Yokoi K, Horiguchi D, Vlaicu A M, Kawatsura K, Yamamoto K, Chainani A, Shin S, Shiga M, Wada H: High-resolution Spectroscopic Study of Atomic and Electronic Structure of Mo Compounds and Rare-earth Compounds, *SPring-8 User Experiment Report*, **14**, 92 (2005).

Fujii T, Takada Y, Uefuji H, Hashimoto H, Ito Y, Tochio T, Oohashi H, Horiguchi D, Vlaicu A M, Yoshikawa H, Fukushima S: Electric Structures of Hematite-ilmenite Solid Solution Films by Selective X-ray Emission or Absorption Spectroscopy, *SPring-8 User Experiment Report*, **14**, 93 (2005).

Oohashi H, Yokoi K, Horiguchi D, Ito Y, Tochio T, Vlaicu A M, Yoshikawa H, Fukushima S: Investigation of Valence States of Catalysts (Ag and Pt Groups) Using X-ray Fluorescence Method, *SPring-8 User Experiment Report*, **14**, 95 (2005).

Vlaicu A M, Ito Y, Yoshikawa H, Fukushima S, Yamaoka H, Okui M, Yagi N, Tochio T, Oohashi H, Sakakura S, Mizota H, Horiguchi D, Yokoi K, Shoji T, Fujimura H: Machine Evaluation of Double-crystal High-resolution X-ray Emission Spectrometer: Testing, Tuning, *SPring-8 User Experiment Report*, **14**, 254 (2005).

Vlaicu A M, Ito Y, Yoshikawa H, Fukushima S, Yamaoka H, Okui M, Yagi N, Tochio T, Oohashi H, Sakakura S, Mizota H, Horiguchi D, Yokoi K, Shoji T, Fujimura H: Investigation of Composition and Photo-induced Changes of Chemical States in  $\text{LiTaO}_3$ , *SPring-8 User Experiment Report*, **14**, 254 (2005).

Yamaoka H, Sugiyama H, Kubozono Y, Nouchi R, Masunari H, Vlaicu A M, Oohashi H, Sakakura S, Ito Y: High-resolution Inelastic X-ray Scattering of Metallofullerenes at LIII Edge, *SPring-8 User Experiment Report*, **15**, 89 (2005).

Terashima T, Mizota H, Sakakura S, Oohashi H, Tochio T, Ito Y, Vlaicu A M, Yoshikawa H, Fukushima S: Elucidation of the Mechanism of the Luminescence in the Carrier-doped  $\text{SrTiO}_3$  Fabricated by Nanoscale Technology, *SPring-8 User Experiment Report*, **15**, 90 (2005).

Horiguchi D, Ito Y, Mizota H, Oohashi H, Tochio T, Vlaicu A M, Yoshikawa H, Fukushima S, Fujimura H, Shoji T: The Property of Ba La in  $\text{BaTiO}_3$ , *SPring-8 User Experiment Report*, **15**, 91 (2005).

Fujii T, Takada Y, Yamashita M, Ito Y, Tochio T, Oohashi H, Vlaicu A M, Yoshikawa H, Fukushima S: Pre-edge Structures in the Ti K Edge for Various Complex Ti Oxides with the Ilmenite Structure, *SPring-8 User Experiment Report*, **15**, 91 (2005).

Vlaicu A M, Yoshikawa H, Wang Y, Mori T, Vayssieres L, Yamaoka H, Yamamoto K, Chainani A, Shin S, Okui M, Yagi N, Ito Y, Tochio T, Oohashi H, Sakakura S, Mizota H, Horiguchi D, Yokoi K: Resonant X-ray Emission Spectroscopy and Partial Fluorescence Yield XAFS Study of Rare Elements and Compounds, *SPring-8 User Experiment Report*, **15**, 255 (2005).

## INTERNATIONAL RESEARCH CENTER FOR ELEMENTS SCIENCE

### — Organic Main Group Chemistry —

Tsuji H, Shibano Y, Takahashi T, Kumada M, Tamao K: Conformation Dependence of Photophysical Properties of  $\sigma$ - $\pi$  Conjugation as Demonstrated by cis- and trans-1,2-Diaryl-1,2-disilacyclohexane Cyclic Systems, *Bull. Chem. Soc. Jpn.*, **78**, 1334-1344 (2005).

Kawachi A, Maeda H, Tamao K: Substituent-control of Two Modes of Intramolecular Reactions of Allyloxy-silyllithiums and Propargyloxy-silyllithiums, *Bull. Chem. Soc. Jpn.*, **78**, 1520-1527 (2005).

Saeki T, Son EC, Tamao K: 2-Methoxy-4-nitrobenzenediazonium Salt as a Practical Diazonium-transfer Agent for Primary Arylamines via Tautomerism of 1,3-diaryltriazenes: Deaminative Iodination and Arylation of Arylamines without Direct Diazotization, *Bull. Chem. Soc. Jpn.*, **78**, 1654-1658 (2005).

Saeki T, Takashima Y, Tamao K: Nickel- and Palladium-catalyzed Cross-coupling Reaction of Polyfluorinated Arenes and Alkenes with Grignard Reagents, *Synlett*, 1771-1774 (2005).

Yamaguchi S, Tamao K: A Key Role of Orbital Interaction in the Main Group Element-containing  $\pi$ -electron Systems, *Chem. Lett.*, **34**, 2-7 (2005).

### — Advanced Solid State Chemistry —

Wang D, Yu R, Chen Y, Kumada N, Kinomura N, Takano M: Photocatalysis Property of Needle-Like  $\text{TiO}_2$  Prepared from a Novel Titanium Glycolate Precursor, *Solid State Ionics*, **172**, 101-104 (2004).

Masuno A, Terashima T, Takano M: Epitaxial Growth of Perovskite-Type  $\text{LaVO}_3$  Thin Films on Various Substrates by the PLD Method, *Solid State Ionics*, **172**, 275-278 (2004).

Shen K M, Yoshida T, Lu D H, Ronning F, Armitage N P, Lee W S, Zhou X J, Damascelli A, Feng D L, Ingle N J C, Eisaki H, Kohsaka Y, Takagi H, Kakeshita T, Uchida S, Mang P K, Greven M, Onose Y, Taguchi Y, Tokura Y, Komiyama S, Ando Y, Azuma M, Takano M, Fujimori A, Shen Z-X: Fully Gapped Single-Particle Excitations in Lightly Doped Cuprates, *Phys. Rev. B*, **69**, [054503-1]-[054503-5] (2004).

Masuno A, Terashima T, Shimakawa Y, Takano M: Current-Induced Electroresistive Effect in Mixed-Phase  $\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3$  Thin Films, *Appl. Phys. Lett.*, **85**, 6194-6196 (2004).

Wang D, Yu R, Xing X, Chen Y, Guo Z, Kumada N, Kinomura N, Takano M: Organic Solvent Control of Inorganic Structure: a One-Dimensional Zirconium Phosphate Inorganic Polymer, *Solid State Ionics*, **175**, 751-754 (2004).

- Lebedev O I, Verbeeck J, Tendeloo G V, Hayashi N, Terashima T, Takano M: Structure and Microstructure of Epitaxial  $\text{Sr}_{1-x}\text{Fe}_x\text{O}_{3-x}$  Films, *Philos. Mag.*, **84**, 3825-3841 (2004).
- Waku K, Katsufuji T, Kohsaka Y, Sasagawa T, Takagi H, Kishida H, Okamoto H, Azuma M, Takano M: Charge Dynamics of  $\text{Ca}_{2-x}\text{Na}_x\text{CuO}_2\text{Cl}_2$  as a Correlated Electron System with the Ideal Tetragonal Lattice, *Phys. Rev. B*, **70**, [134501-1]-[134501-8] (2004).
- Azuma M, Kohsaka Y, Yamada I, Belik A A, Takagi H, Takano M: Single-Crystal Growth and New-Material Search for Oxides at High Pressures, *Oyobutsuri*, **74**, 27-31 (2005) (in Japanese).
- Ninjabadgar T, Yamamoto S, Takano M: Thermal Properties of the  $\gamma\text{-Fe}_2\text{O}_3$ /Poly(Methyl Methacrylate) Core/Shell Nanoparticles, *Solid State Sciences*, **7**, 33-36 (2005).
- Shen K M, Ronning F, Lu D H, Baumberger F, Ingle N J C, Lee W S, Meevasana W, Kohsaka Y, Azuma M, Takano M, Takagi M, Shen Z-X: Nodal Quasiparticles and Antinodal Charge Ordering in  $\text{Ca}_{2-x}\text{Na}_x\text{CuO}_2\text{Cl}_2$ , *Science*, **307**, 901-904 (2005).
- Yu R, Xing X, Saito T, Azuma M, Takano M, Wang D, Chen Y, Kumada N, Kinomura N: A Novel Organically Templated Hybrid Open-Framework Manganese Phosphate-Oxalate, *Solid State Sciences*, **7**, 221-226 (2005).
- Rijssenbeek J T, Saito T, Malo S, Azuma M, Takano M, Poeppelmeier K R: Effect of Explicit Cationic Size and Valence Constraints on the Phase Stability of 1:2 B-Site-Ordered Perovskite Ruthenates, *J. Am. Chem. Soc.*, **127**, 675-681 (2005).
- Belik A A, Azuma M, Saito T, Shimakawa Y, Takano M: Crystallographic Features and Tetragonal Phase Stability of  $\text{PbVO}_3$ , a New Member of  $\text{PbTiO}_3$  Family, *Chem. Mater.*, **17**, 269-273 (2005).
- Belik A A, Azuma M, Matsuo A, Kindo K, Takano M: Low-Dimensional Ferromagnetic Properties of  $\text{SrCuV}_2\text{O}_7$  and  $\text{BaCuV}_2\text{O}_7$ , *Inorg. Chem.*, **44**, 3762-3766 (2005).
- Belik A A, Matsuo A, Azuma M, Kindo K, Takano M: Long-Range Magnetic Ordering of  $S=1/2$  Linear Trimers in  $A_3\text{Cu}_3(\text{PO}_4)_4$  ( $A=\text{Ca}$ ,  $\text{Sr}$ , and  $\text{Pb}$ ), *J. Solid State Chem.*, **178**, 709-714 (2005).
- Matsuda M, Kakurai K, Belik A A, Azuma M, Takano M, Fujita M: Magnetic Excitations from the Linear Heisenberg Antiferromagnetic Spin Trimer System  $A_3\text{Cu}_3(\text{PO}_4)_4$  ( $A=\text{Ca}$ ,  $\text{Sr}$ , and  $\text{Pb}$ ), *Phys. Rev. B*, **71**, [144411-1]-[144411-5] (2005).
- Azuma M, Takata K, Saito T, Ishiwata S, Shimakawa Y, Takano M: Designed Ferromagnetic, Ferroelectric  $\text{Bi}_2\text{NiMnO}_6$ , *J. Am. Chem. Soc.*, **127**, 8889-8892 (2005).
- Ishiwata S, Wang D, Saito T and Takano M: High-Pressure Synthesis, Structure of  $\text{SrCo}_6\text{O}_{11}$ : Pillared Kagomé Lattice System with a 1/3 Magnetization Plateau, *Chem. Mater.*, **17**, 2789-2791 (2005).
- Sato N, Harada Y, Terashima T, Kanda R, Takano M: Study of Thin Films of Carrier-Doped Strontium Titanate with Emphasis on their Interfaces with Organic Thin Films, *Applied Surface Science*, **244**, 588-592 (2005).
- Ishiwata S, Azuma M, Hanawa M, Morimoto Y, Ohishi Y, Kato K, Takata M, Nishibori E, Sakata M, Terasaki I, Takano M: Pressure/Temperature/Substitution-Induced Melting of A-Site Charge Disproportionation in  $\text{Bi}_{1-x}\text{La}_x\text{NiO}_3$  ( $0 \leq x \leq 0.5$ ), *Phys. Rev. B*, **72**, [045104-1]-[045104-7] (2005).
- Kan D, Terashima T, Shimakawa Y, Takano M: Fabrication and  $I$ - $V$  Characteristics of  $p$ - $n$  Junctions Composed of High- $T_c$  Superconductors and La-Doped  $\text{SrTiO}_3$ , *Thin Solid Films*, **486**, 71-74 (2005).
- Yamamoto S, Takano M, Shimakawa Y: Synthesis of Submicron-Sized, Monodisperse Spherical  $\text{V}_2\text{O}_5$  Particles, *Mater. Res. Soc. Symp. Proc.*, **879E**, [Z7.14.1]-[Z7.14.6] (2005).
- Yamamoto S, Morimoto Y, Ono T, Takano M: Magnetically Superior and Easy to Handle  $\text{Li}_0\text{-FePt}$  Nanocrystals, *Appl. Phys. Lett.*, **87**, [032503-1]-[032503-3] (2005).
- Inagaki Y, Narumi Y, Kindo K, Kikuchi H, Kamikawa T, Kunimoto T, Okubo S, Ohta H, Saito T, Azuma M, Takano M, Nojiri H, Kaburagi M, Tonegawa T: Ferro-Antiferromagnetic Delta-Chain System Studied by High Field Magnetization Measurements, *J. Phys. Soc. Jpn.*, **74**, 2831-2835 (2005).
- Kobayashi W, Ishiwata S, Terasaki I, Takano M, Grigoraviciute I, Yamauchi H, Karppinen M: Room-Temperature Ferromagnetism in  $\text{Sr}_{1-x}\text{Y}_x\text{CoO}_{3-\delta}$  ( $0.2 \leq x \leq 0.25$ ), *Phys. Rev. B*, **72**, [104408-1]-[104408-5] (2005).
- Shimakawa Y, Azuma M, Takata K, Hashisaka M, Kan D, Masuno A, Sakai M, Terashima T, Mibu K, Takano M: New Ferromagnetic Ferroelectric  $\text{Bi}_2\text{NiMnO}_6$  Compound with Double-Perovskite Structure, *Proceedings of the 12th US-Japan Seminar on Dielectric and Piezoelectric Ceramics*, Nov. 6-9, 2005, Annapolis, USA, 203-206 (2005).
- Belik A A, Izumi F, Azuma M, Kamiyama T, Oikawa K, Pokholok K V, Lazoryak B I, Takano M: Redox Reactions in Strontium Iron Phosphates: Synthesis, Structures, and Characterization of  $\text{Sr}_9\text{Fe}(\text{PO}_4)_7$  and  $\text{Sr}_9\text{FeD}(\text{PO}_4)_7$ , *Chem. Mater.*, **17**, 5455-5464 (2005).
- Belik A A, Azuma M, Matsuo A, Whangbo M-H, Koo H-J, Kikuchi J, Kaji T, Okubo S, Ohta H, Kindo K, Takano M: Investigation of the Crystal Structure and the Structural and Magnetic Properties of  $\text{SrCu}_2(\text{PO}_4)_2$ , *Inorg. Chem.*, **44**, 6632-6640 (2005).
- Qiu Y, Broholm C, Ishiwata S, Azuma M, Takano M, Bewley R, Buyers W J L: Spin-Trimer Antiferromagnetism in  $\text{La}_4\text{Cu}_3\text{MoO}_{12}$ , *Phys. Rev. B*, **71**, [214439-1]-[214439-8] (2005).
- Okubo S, Taketani A, Ohta H, Kunimoto T, Inagaki Y, Saito T, Azuma M, Takano M, Kikuchi H: High Field ESR Measurements of  $S=1/2$  Diamond Chain Substance  $\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2$  at the Magnetization Plateau Region, *Progress of Theoretical Physics Supplement*, **No.159**, 11-16 (2005).
- Shiraki K, Yoshida M, Okubo S, Ohta H, Belik A A, Azuma M, Takano M: High Field ESR Measurements of  $\text{MCuP}_2\text{O}_7$  ( $M=\text{Sr}$ ,  $\text{Pb}$ ), *Progress of Theoretical Physics Supplement*, **No.159**, 168-172 (2005).
- Belik A A, Azuma M, Takano M: Magnetic Properties of Isostructural  $\text{BaCoP}_2\text{O}_7$ ,  $\text{BaNiP}_2\text{O}_7$  and  $\text{BaCuP}_2\text{O}_7$  Studied with dc and ac Magnetization and Specific Heat, *Inorg. Chem.*, **44**, 7523-7529 (2005).

Wadati H, Takizawa M, Tran T T, Tanaka K, Mizokawa T, Fujimori A, Chikamatsu A, Kumigashira H, Oshima M, Ishiwata S, Azuma M, Takano M: Valence Changes Associated with the Metal-Insulator Transition in  $\text{Bi}_{1-x}\text{La}_x\text{NiO}_3$ , *Phys. Rev. B*, **72**, [155103-1]-[155103-5] (2005).

Kan D, Terashima T, Kanda R, Masuno A, Tanaka K, Chu S, Kan H, Ishizumi A, Kanemitsu Y, Shimakawa Y, Takano M: Blue-Light Emission at Room Temperature from  $\text{Ar}^+$ -Irradiated  $\text{SrTiO}_3$ , *Nature Materials*, **4**, 816-819 (2005).

#### — Organotransition Metal Chemistry —

Katayama H, Nagao M, Nishimura T, Matsui Y, Umeda K, Akamatsu K, Tsuruoka T, Nawafune H, Ozawa F: Stereocontrolled Synthesis and Optical Properties of All-cis Poly(phenylene vinylene)s (PPVs): A Method for Direct Patterning of PPVs, *J. Am. Chem. Soc.*, **127**, 4350-4353 (2005).

Gajare A S, Jensen R S, Toyota K, Yoshifuji M, Ozawa F: Low-Coordinated Diphosphinidene-cyclobutene Ligands: A New Entry for Stille Cross-Coupling of Aryl Bromides, *Synlett*, 144-148 (2005).

Sagawa T, Ohtsuki K, Ishiyama T, Ozawa F: Insertion of Phenylacetylene into  $\text{Pt}(\text{SnMe}_3)_2(\text{PMe}_2\text{Ph})_2$ , *Organometallics*, **24**, 1470-1477 (2005).

Ozawa F, Tani T, Katayama H: C-Si Reductive Elimination from cis-Vinyl(silyl)platinum(II) Complexes, *Organometallics*, **24**, 2511-2515 (2005).

Katayama H, Yari H, Tanaka M, Ozawa F: (Z)-Selective Cross-Dimerization of Arylacetylenes with Silylacetylenes Catalyzed by Vinylideneruthenium Complexes, *Chem. Commun.*, 4336-4338 (2005).

Koshikawa H, Okazaki M, Matsumoto S, Ueno K, Tobita H, Ogino H: Synthesis and Structure of a Base-Stabilized Silyl(silylene)tantalum Complex, *Chem. Lett.*, **34**, 1412-1413 (2005).

Suzuki E, Okazaki M, Tobita H: Reversible 1,2-Migration of Aryl Groups on Silyl Ligands: Formation and Properties of Silylenetungsten Complexes Stabilized by an External Base, *Chem. Lett.*, **34**, 1026-1027 (2005).

Okazaki M, Jung K A, Tobita H: Reactivity of Phosphasilametal-lacyclop propane Toward Substrates with Polarized E-H Bonds (E = O, N, S, and P): Formation and Structures of Ring-Opening Products, *Organometallics*, **24**, 659-664 (2005).

Okazaki M, Jung K A, Tobita H: Regioselective Silylphosphination of Methyl Vinyl Ketone with Complexes Containing Cyclic and Linear Iron-Silicon-Phosphorus Reacting Sites, *Chem. Commun.*, 912-914 (2005).

Jensen R S, Gajare A S, Toyota K, Yoshifuji M, Ozawa F: Low-Coordinated Diphosphinidene-cyclobutene Ligands: A New Entry for Palladium-Catalyzed Cyanation of Aryl Bromides, *Tetrahedron Lett.*, **46**, 8645-8647 (2005).

Nagao M, Asano K, Umeda K, Katayama H, Ozawa F: Highly (Z)-Selective Hydrosilylation of Terminal Alkynes Catalyzed by a Diphosphinidene-cyclobutene-coordinated Ruthenium Complex: Application to the Synthesis of (Z,Z)-Bis(2-bromoethenyl)arenes, *J. Org. Chem.*, **70**, 10511-10514 (2005).

Ozawa F, Katayama H, Toyota K, Yoshifuji M: Catalytic Applications of Transition Metal Complexes Bearing  $\text{sp}^2$ -Hybridized Phosphorus Compounds, *Shokubai (Catalysts & Catalysis)*, **47**, 544-549 (2005).

Okazaki M, Takano M, Yoshimura K: Synthesis and Property of  $\text{BrCCH-}$  and  $\text{BrCCBr-}$  Coordinated Tetrairon Clusters (Organometallic Chemistry - The Next Generation - Including the 2005 Best Paper Award for a Young Investigator), *J. Organomet. Chem.*, **690**, 5318-5352 (2005).

#### — Photonic Elements Science —

Ishizumi A, Kanemitsu Y: Structural and Luminescence Properties of Eu-doped ZnO Nanorods Fabricated by a Microemulsion Method, *Appl. Phys. Lett.*, **86**, [253106-1]-[253106-3] (2005).

Ishizumi A, Matsuda K, Saiki T, White C W, Kanemitsu Y: Photoluminescence Properties of Single Mn-doped CdS Nanocrystals Studied by Scanning Near-Field Optical Microscopy, *Appl. Phys. Lett.*, **87**, [133104-1]-[133104-3] (2005).

Kan D, Terashima T, Kanda R, Masuno A, Tanaka K, Chu S, Kan H, Ishizumi A, Kanemitsu Y, Shimakawa Y, Takano M: Blue-Light Emission at Room Temperature from  $\text{Ar}^+$ -irradiated  $\text{SrTiO}_3$ , *Nature Materials*, **4**, 816-819 (2005).

Matsuda K, Saiki T, Nomura S, Aoyagi Y: Local Density of States Mapping of a Field-induced Quantum Dot by Near-field Photoluminescence Microscopy, *Appl. Phys. Lett.*, **87**, [043112-1]-[043112-3] (2005).

Matsuda K, Kanemitsu Y, Irie K, Saiki T, Someya T, Miyauchi Y, Maruyama S: Photoluminescence Intermittency in an Individual Single-walled Carbon Nanotube at Room Temperature, *Appl. Phys. Lett.*, **86**, [123116-1]-[123116-3] (2005).

Chollet M, Guerin L, Uchida N, Fukaya S, Shimoda H, Ishikawa T, Matsuda K, Hasegawa T, Ota A, Yamochi H, Saito G, Tazaki R, Adachi S, Koshihara S: Gigantic Photoresponse in 1/4-filled-Band Organic Salt, *Science*, **307**, 86-89 (2005).

Nagai T, Yamamoto A, Kanemitsu Y: Photoluminescence Dynamics of GaN under Intense Band-to-band and Exciton Resonant Excitation, *Phys. Rev. B*, **71**, [121201(R)-1]-[121201(R)-4] (2005).

Kanemitsu Y, Tomita K, Inouye H: Subpicosecond Luminescence Spectroscopy of Exciton Localization in  $\text{In}_x\text{Ga}_{1-x}\text{N}$  Films, *Appl. Phys. Lett.*, **87**, [151120-1]-[151120-3] (2005).

Ohno Y, Shirahama T, Takeda S, Ishizumi A, Kanemitsu Y: Fe-catalytic Growth of ZnSe Nanowires on a ZnSe(001) Surface at Low Temperatures by Molecular-beam Epitaxy, *Appl. Phys. Lett.*, **87**, [43105-1]-[43105-3] (2005).

Yamamoto A, Atsuta S, Kanemitsu Y: Fabrication and Photoluminescence Studies of ZnO Nanocrystals Dispersed in Glass Films, *J. Lumin.*, **112**, 169-172 (2005).

Ishizumi A, White C W, Kanemitsu Y: Photoluminescence Properties of Impurity-Doped ZnS Nanocrystals Fabricated by Sequential Ion Implantation, *Physica E*, **26**, 24-27 (2005).



Yamamoto A, Atsuta S, Kanemitsu Y: Fabrication of ZnO Nanocrystals Dispersed in Glass Films for Low-Temperature Optical Studies, *Physica E*, **26**, 96-99 (2005).

Taniguchi K, Kanemitsu Y: Development of an Apertureless Near-Field Optical Microscope for Nanoscale Optical Imaging at Low Temperatures, *Jpn. J. Appl. Phys.*, **44**, 575-577 (2005).

Ishizumi A, Taguchi Y, Yamamoto A, Kanemitsu Y: Luminescence Properties of ZnO and Eu<sup>3+</sup>-Doped ZnO Nanorods, *Thin Solid Films*, **486**, 50-52 (2005).

Chollet M, Guerin L, Uchida N, Fukaya S, Ishikawa T, Koshihara S, Matsuda K, Yamochi Y, Ota A, Saito G: Ultra-Fast and Sensitive Photo-Induced Phase Switching in (EDO-TTF)<sub>2</sub>PF<sub>6</sub>, *J. Lumin.*, **112**, 275-278 (2005).

## BIOINFORMATICS CENTER

### — Bioknowledge Systems —

Nacher J C, Yamada T, Goto S, Kanehisa M, Akutsu T: Two Complementary Representations of a Scale-free Network, *Physica A*, **349**, 349-363 (2005).

Itoh M, Goto S, Akutsu T, Kanehisa M: Fast and Accurate Database Homology Search Using Upper Bounds of Local Alignment Scores, *Bioinformatics*, **21**, 912-921 (2005).

Aoki K F, Mamitsuka H, Akutsu T, Kanehisa M: A Score Matrix to Reveal the Hidden Links in Glycans, *Bioinformatics*, **21**, 1457-1463 (2005).

Nacher J C, Ueda N, Kanehisa M, Akutsu T: Flexible Construction of Hierarchical Scale-free Networks with General Exponent, *Phys. Rev. E.*, **71**, 36132 (2005).

Kucho K, Okamoto K, Tsuchiya Y, Nomura S, Nango M, Kanehisa M, Ishiura M: Global Analysis of Circadian Expression in the Cyanobacterium *Synechocystis* sp. Strain PCC 6803, *J. Bacteriol.*, **187**, 2190-2199 (2005).

Osanai T, Kanesaki Y, Nakano T, Takahashi H, Kanehisa M, Suzuki I, Murata N, Tanaka K: Positive Regulation of Sugar Catabolic Pathways in the Cyanobacterium *Synechocystis* sp. PCC 6803 by the Group 2 Sigma Factor SigE, *J. Biol. Chem.*, **280**, 30653-30659 (2005).

Yamanishi Y, Vert J-P, Kanehisa M: Supervised Enzyme Network Inference from the Integration of Genomic Data and Chemical Information, *Bioinformatics*, **21**, i486-i477 (2005).

Sato T, Yamanishi Y, Kanehisa M, Toh H: The Inference of Protein-protein Interactions by Co-evolutionary Analysis is Improved by Excluding the Information about the Phylogenetic Relationships, *Bioinformatics*, **21**, 3482-3489 (2005).

Hizukuri Y, Yamanishi Y, Nakamura O, Yagi F, Goto S, Kanehisa M: Extraction of Leukemia Specific Glycan Motifs in Humans by Computational Glycomics, *Carbohydr Res.*, **340**, 2270-2278 (2005).

Okuda S, Kawashima S, Goto S, Kanehisa M: Conservation of Gene Co-regulation between Two Prokaryotes: *Bacillus subtilis* and *Escherichia coli*, *Genome Informatics*, **16**, 116-124 (2005).

Fujita M, Kanehisa M: Comparative Analysis of DNA-binding Proteins between Thermophilic and Mesophilic Bacteria, *Genome Informatics*, **16**, 174-181 (2005).

Yamada T, Kawashima S, Mamitsuka H, Goto S, Kanehisa M: Comprehensive Analysis and Prediction of Synthetic Lethality Using Subcellular Locations, *Genome Informatics*, **16**, 140-158 (2005).

Hashimoto K, Kawano S, Goto S, Aoki-Kinoshita KF, Kawashima M, Kanehisa M: A Global Representation of the Carbohydrate Structures: a Tool for the Analysis of Glycan, *Genome Informatics*, **16**, 214-222 (2005).

Honda W, Kawashima S, Kanehisa M: Autoimmune Diseases and Peptide Variations, *Genome Informatics*, **16**, 272-280 (2005).

Noguchi T, Ren X Q, Aoki S, Igarashi Y, Che X F, Nakajima Y, Takahashi H, Mitsuo R, Tsujikawa K, Sumizawa T, Haraguchi M, Kobayashi M, Goto S, Kanehisa M, Aikou T, Akiyama S, Furukawa T: MRP1 Mutated in the L0 Region Transports SN-38 but not Leukotriene C4 or Estradiol-17 (beta-D-glucuronate), *Biochem Pharmacol*, **70**, 1056-1065 (2005).

Tamori A, Yamanishi Y, Kawashima S, Kanehisa M, Enomoto M, Tanaka H, Kubo S, Shiomi S, Nishiguchi S: Alteration of Gene Expression in Human Hepatocellular Carcinoma with Integrated Hepatitis B Virus DNA, *Clin. Cancer Res.*, **11**, 5821-5826 (2005).

Kawano S, Hashimoto K, Miyama T, Goto S, Kanehisa M: Prediction of Glycan Structures from Gene Expression Data Based on Glycosyltransferase Reactions, *Bioinformatics*, **21**, 3976-3982 (2005).

Schwartz J M, Kanehisa M: A Quadratic Programming Approach for Decomposing Steady-state Metabolic Flux Distributions onto Elementary Modes, *Bioinformatics*, **21**, ii202-ii205 (2005).

### — Biological Information Networks —

Aoki K F, Mamitsuka H, Akutsu T, Kanehisa M: A Score Matrix to Reveal the Hidden Links in Glycans, *Bioinformatics*, **21**, 1457-1463 (2005).

Ching W-K, Ng M K, Fung E S, Akutsu T: On Construction of Stochastic Genetic Networks Based on Gene Expression Sequences., *International Journal of Neural Systems*, **15**, 297-310 (2005).

Fukagawa D, Akutsu T: Performance Analysis of a Greedy Algorithm for Inferring Boolean Functions, *Information Processing Letters*, **93**, 7-12 (2005).

Hayashida M, Ueda N, Akutsu T: A Fast Method for Inferring Strengths of Protein-protein Interactions and a Hardness Result, *The IEICE Transactions*, **J88-A**, 83-90, (2005) (in Japanese).

Itoh M, Goto S, Akutsu T, Kanehisa M: Fast and Accurate Database Homology Search Using Upper Bounds of Local Alignment Scores, *Bioinformatics*, **21**, 912-921 (2005).

K.C. D, Tomita E, Suzuki J, Akutsu T: Protein Side-chain Packing Problem: A Maximum Common Edge-weight Clique Algorithmic Approach, *Journal of Bioinformatics and Computational Biology*, **3**, 103-126 (2005).

Mahé P, Ueda N, Akutsu T, Perret J-L, Vert J-P: Graph Kernels for Molecular Structure-Activity Relationship Analysis with Support Vector Machines, *Journal of Chemical Information and Modeling*, **45**, 939-951 (2005).

Matsuda S, Vert J-P, Saigo H, Ueda N, Toh H, Akutsu T: A Novel Representation of Protein Sequences for Prediction of Subcellular Location Using Support Vector Machines, *Protein Science*, **14**, 2804-2813 (2005).

Nacher J C, Yamada T, Goto S, Kanehisa M, Akutsu T: Two Complementary Representations of a Scale-free Network, *Physica A*, **349**, 349-363 (2005).

Nacher J C, Ueda N, Kanehisa M, Akutsu T: Flexible Construction of Hierarchical Scale-free Networks with General Exponent, *Physical Review E*, **71**, [036132-1]-[036132-7] (2005).

Ochiai T, Nacher J C, Akutsu T: A Stochastic Approach to Multi-Gene Expression Dynamics, *Physics Letters A*, **339**, 1-9 (2005).

Ueda N, Aoki-Kinoshita K F, Yamaguchi A, Akutsu T, Mamitsuka H: A Probabilistic Model for Mining Labeled Ordered Trees: Capturing Patterns in Carbohydrate Sugar Chains, *IEEE Transactions on Knowledge and Data Engineering*, **17**, 1051-1064 (2005).

Akutsu T, Fukagawa D: Inferring a Graph from Path Frequency, *Lecture Notes in Computer Science*, **3537**, 371-382 (2005).

Akutsu T, Fukagawa D: On Inference of a Chemical Structure from Path Frequency, *Proc. 2005 International Joint Conference of InCoB, AASBi and KSBI (BIOINFO2005)*, 96-100 (2005).

K.C. D, Tomita E, Suzuki J, Horimoto K, Akutsu T: Clique based Algorithms for Protein Threading with Profiles and Constraints, *Proc. 3rd Asia-Pacific Bioinformatics Conference (APBC 2005)*, 51-64 (2005).

K.C. D, Brown JB, Tomita E, Suzuki J, Akutsu T: Large Scale Protein Side-chain Packing Based on Maximum Edge-Weight Clique Finding Algorithm, *Proc. 2005 International Joint Conference of InCoB, AASBi and KSBI (BIOINFO2005)*, 228-233 (2005).

Meireles L M C, Akutsu T: A Gibbs Sampling Approach to Detection of Tree Motifs, *Genome Informatics*, **16**, 34-43 (2005).

Moesa H A, K. C. D, Akutsu T: Efficient Determination of Cluster Boundaries for Analysis of the Gene Expression Profile Data Using Hierarchical Clustering and Wavelet Transform, *Genome Informatics*, **16**, 132-141 (2005).

Zhang S-Q, Ng M K, Ching W-K, Akutsu T: A Linear Control Model for Gene Intervention in a Genetic Regulatory Network, *Proc. IEEE International Conference on Granular Computing (GrC 2005)*, 354-358 (2005).

[Others]

Akutsu T: Computational and Statistical Methods in Bioinformatics, *Lecture Notes in Computer Science*, **3430**, 11-33 (2005).

Akutsu T: Mathematical Models of Gene Regulatory Networks and their Inference Algorithms, *Applied Complexity Engineering*, 173-187, (2005) (in Japanese).

Akutsu T: Computational Analysis in Network Biology, *Experimental Medicine*, **23**, 609-614 (2005) (in Japanese).

## — Pathway Engineering —

Mamitsuka H: Finding the Biologically Optimum Alignment of Multiple Sequences, *Artificial Intelligence in Medicine*, **35(1)**, 9-18 (2005).

Zhu S, Okuno Y, Tsujimoto G, Mamitsuka H: A Probabilistic Model for Mining Implicit "Chemical Compound - Gene" Relations from Literature, *Bioinformatics (Proceedings of the Fourth European Conference on Computational Biology (ECCB/JBI2005))*, **21, Supplement 2**, ii245-ii251 (2005).

Ueda N, Aoki-Kinoshita K F, Yamaguchi A, Akutsu T, Mamitsuka H: A Probabilistic Model for Mining Labeled Ordered Trees: Capturing Patterns in Carbohydrate Sugar Chains, *IEEE Transactions on Knowledge and Data Engineering*, **17(8)**, 1051-1064 (2005).

Mamitsuka H: Mining New Protein-Protein Interactions - Using a Hierarchical Latent-variable Model to Determine the Function of a Functionally Unknown Protein, *IEEE Engineering in Medicine and Biology Magazine*, **24(3)**, 103-108 (2005).

Mamitsuka H: Essential Latent Knowledge for Protein-Protein Interactions: Analysis by Unsupervised Learning Approach, *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, **2(2)**, 119-130 (2005).

Mamitsuka H: Efficient Unsupervised Mining from Noisy Co-occurrence Data, *New Mathematics and Natural Computation*, **1(1)**, 173-193 (2005).

Aoki K F, Mamitsuka H, Akutsu T, Kanehisa M: A Score Matrix to Reveal the Hidden Links in Glycans, *Bioinformatics*, **21(8)**, 1457-1463 (2005).

Yamada T, Kawashima S, Mamitsuka H, Goto S, Kanehisa M: Comprehensive Analysis and Prediction of Synthetic Lethality Using Subcellular Locations, *Genome Informatics*, **16(1)**, 150-158 (2005).

Wan R, Mamitsuka H, Aoki K F: Clearing Microarray Expression Data Using Markov Random Field Based on Profile Similarity, *Proceedings of the Twentieth ACM Symposium on Applied Computing (SAC2005)*, 206-207 (2005).

Takigawa I, Kudo M, Nakamura A: The Convex Subclass Method: Combinatorial Classifier Based on a Family of Convex Sets, *Lecture Notes in Computer Science*, **3587**, 90-99 (2005).

[Others]

Cios J. K, Mamitsuka H, Nagashima T, Tadeusiewicz R: Computational Intelligence in Solving Bioinformatics Problems, *Artificial Intelligence in Medicine*, **35(1)**, 1-8 (2005).

Wan R: Book Review of 'Genomic Perl: From Bioinformatics Basics to Working Code by Rex A. Dwyer', *ACM SIGACT News*, **36(4)**, 12-Sep (2005).

Zhu S, Okuno Y, Tsujimoto G, Mamitsuka H: Mining Implicit Biological Related Entities from Literature Using a Probabilistic Model, *Poster and Software Demonstrations, Sixteenth International Conference and Genome Informatics 2005 (GIW2005)*, **16**, [P006-1] - [P006-2] (2005).

Takigawa I, Mamitsuka H: Ranking Metabolic Paths with Expression Similarities, *Poster and Software Demonstrations, Sixteenth International Conference and Genome Informatics 2005 (GIW2005)*, **16**, [P046-1] - [P046-2] (2005).

Wan R, Wheelock A M, Bartosiewicz M J, Mamitsuka H: Classifying Microarray Data Using Pairwise Similarity between Gene Profiles, *Poster and Software Demonstrations, Sixteenth International Conference on Genome Informatics 2005 (GIW2005)*, **16**, [P047-1] - [P047-2] (2005).

— **Bioinformatics Training Unit** —

Daiyasu H, Kuma K, Yokoi T, Morii H, Koga Y, Toh H: A Study of Archaeal Enzymes Involved in Polar Lipid Synthesis Linking Amino Acid Sequence Information, Genomic Contexts and Lipid Composition, *Archaea*, **1**, 399-410 (2005).

Fujiwara H, Osanai M, Matsumoto T, Kojima KK: Telomere-Specific Non-LTR Retrotransposons and Telomere Maintenance in the Silkworm, *Bombyx mori*, *Chromosome Res.*, **13**, 455-467 (2005).

Katoh K, Kuma K, Toh H, Miyata T: MAFFT Version 5: Improvement in Accuracy of Multiple Sequence Alignment, *Nucleic Acids Res.*, **33**, 511-518 (2005).

Katoh K, Kuma K, Miyata T, Toh H: Improvement in the Accuracy of Multiple Sequence Alignment Program MAFFT, *Genome Informatics*, **16**, 22-33 (2005).

Kojima KK, Fujiwara H: An Extraordinary Retrotransposon Family Encoding Dual Endonucleases, *Genome Res.*, **15**, 1106-1117 (2005).

Kojima KK, Matsumoto T, Fujiwara H: Eukaryotic Translational Coupling in UAAUG Stop-Start Codons for the Bicistronic RNA Translation of Non-LTR Retrotransposon SART1, *Mol. Cell. Biol.*, **25**, 7675-7686 (2005).

Kojima KK, Fujiwara H: Long-Term Inheritance of the 28S rDNA-Specific Retrotransposon R2, *Mol. Biol. Evol.*, **22**, 2157-2165 (2005).

Nemoto W, Toh H: Prediction of Interfaces for Oligomerizations of G-protein Coupled Receptors, *Proteins*, **58**, 644-660 (2005).

Sato T, Yamanishi Y, Kanehisa M, Toh H: The Inference of Protein-protein Interactions by Co-evolutionary Analysis is Improved by Excluding the Information about the Phylogenetic Relationships, *Bioinformatics*, **21**, 3482-3489 (2005).

Thompson JD, Holbrook SR, Katoh K, Koehl P, Moras D, Eric Westhof, Poch O: MAO: a Multiple Alignment Ontology for Nucleic Acid and Protein Sequences, *Nucleic Acids Res.*, **33**, 4164-4171 (2005).

[Others]

Nemoto W, Toh H: Interface Prediction for Class A GPCR Oligomers, *Tanpakushitsu Kakusan Koso*, **50**, 1382-1387 (2005) (in Japanese).

Nemoto W, Toh H: Bioinformatics, *Nippon Yakurigaku Zasshi*, **125**, 159-64 (2005) (in Japanese).