

# PUBLICATIONS

## DIVISION OF SYNTHETIC CHEMISTRY

### — Organoclement Chemistry —

Tokitoh, N.; Mizuhata, Y.; Egawa, Y.; Sasamori, T., Synthesis of 1,2-Dialkynylidisilanes Incorporated in 10-Membered-Ring System, *Heterocycles*, **90**, 1111-1123 (2015).

Sasamori, T.; Sugahara, T.; Agou, T.; Sugamata, K.; Guo, J.-D.; Nagase, S.; Tokitoh, N., Reaction of a Diaryldigermine with Ethylene, *Chem. Sci.*, **6**, 5526-5530 (2015).

Agou, T.; Wasano, T.; Sasamori, T.; Tokitoh, N., Syntheses and Structures of a Stable Gallole Free of Lewis Base Coordination and Its Dianion, *J. Phys. Org. Chem.*, **28**, 104-107 (2015).

Fuku-en, S.; Furukawa, K.; Sasamori, T.; Tokitoh, N.; Abe, M.; Yamamoto, Y., Oxidation of an Allene Compound Bearing 1,8-Dichloroacridene Moieties and Photolysis of the Halogenated Allene Compound for the Generation of Triplet Carbenes, *J. Phys. Org. Chem.*, **28**, 79-87 (2015).

Egawa, Y.; Mizuhata, Y.; Sasamori, T.; Tokitoh, N., Unexpected Photochemical Reactions of 2-Aryl-2-ethynyltrisilane Derivative, *Main Gr. Met. Chem.*, **38**, 51-55 (2015).

Ota, M.; Sasamori, T.; Tokitoh, N.; Onodera, T.; Mizushima, Y.; Kuramochi, K.; Tsubaki, K., Synthesis, Photochemical Properties, and Cytotoxicities of 2*H*-Naphtho[1,2-*b*]pyran and Its Photodimers, *J. Org. Chem.*, **80**, 5687-5695 (2015).

Sasamori, T.; Sugahara, T.; Agou, T.; Guo, J.-D.; Nagase, S.; Streubel, R.; Tokitoh, N., Synthesis and Characterization of a 1,2-Digermabenzene, *Organometallics*, **34**, 2106-2109 (2015).

Miyake, H.; Sasamori, T.; Tokitoh, N., Sulfurization of 4,5,6-Triphospha[3]radialene, *Phosphorus Sulfur Silicon Relat. Elem.*, **190**, 1247-1250 (2015).

Agou, T.; Wasano, T.; Sasamori, T.; Guo, J.-D.; Nagase, S.; Tokitoh, N., Ring Expansion to 1-Bromo-1-alumacyclonona-2,4,6,8-tetraene by Insertion of Two Alkyne Molecules into the Al-C Bonds, *Angew. Chem. Int. Ed.*, **54**, 9568-9571 (2015).

Swarnakar, A. K.; Hering-Junghans, C.; Nagata, K.; Ferguson, M. J.; McDonald, R.; Tokitoh, N.; Rivard, E., Encapsulating Inorganic Acetylene, HBNH, Using Flanking Coordinative Interactions, *Angew. Chem. Int. Ed.*, **54**, 10666-10669 (2015).

Sasamori, T.; Hirano, K.; Miyake, H.; Tokitoh, N., Photochemical (*E*)-(Z) Isomerization of the P=C Double Bond in Triphospha[3]radialene-[M(CO)<sub>5</sub>] (M = W, Cr) Complexes, *Chem. Lett.*, **44**, 1240-1242 (2015).

Nagata, K.; Agou, T.; Sasamori, T.; Tokitoh, N., Formation of a Diaminoalkyne Derivative by Dialumane-mediated Homocoupling of *t*-Butyl Isocyanide, *Chem. Lett.*, **44**, 1610-1612 (2015).

Yamaguchi, K.; Murai, T.; Hasegawa, S.; Miwa, Y.; Kutsumizu, S.; Maruyama, T.; Sasamori, T.; Tokitoh, N., 5-*N*-Arylaminothiazoles as Highly Twisted Fluorescent Monocyclic Heterocycles: Synthesis and Characterization, *J. Org. Chem.*, **80**, 10742-10756 (2015).

### — Structural Organic Chemistry —

Futagoishi, T.; Murata, M.; Wakamiya, A.; Murata, Y., Trapping N<sub>2</sub> and CO<sub>2</sub> on the Sub-Nano Scale in the Confined Internal Spaces of Open-Cage C<sub>60</sub> Derivatives: Isolation and Structural Characterization of the Host-Guest Complexes, *Angew. Chem. Int. Ed.*, **54**, 14791-14794 (2015).

Nishimura, H.; Ishida, N.; Shimazaki, A.; Wakamiya, A.; Saeki, A.; Scott, L. T.; Murata, Y., Hole-Transporting Materials with a Two-Dimensionally Expanded  $\pi$ -System around an Azulene Core for Efficient Perovskite Solar Cells, *J. Am. Chem. Soc.*, **137**, 15656-15659 (2015).

Wakamiya, A.; Yamaguchi, S., Designs of Functional  $\pi$ -Electron Materials based on the Characteristic Features of Boron, *Bull. Chem. Soc. Jpn.*, **88**, 1357-1377 (2015).

Chaolumen, Murata, M.; Sugano, Y.; Wakamiya, A.; Murata, Y., Electron Deficient Tetrabenzo-fused Pyracylene and Conversions into Curved and Planar  $\pi$ -Systems with Distinct Emission Behaviors, *Angew. Chem. Int. Ed.*, **54**, 9308-9312 (2015).

Nishimura, H.; Eliseeva, M. N.; Wakamiya, A.; Scott, L. T., 1,3,5,7-Tetra(Bpin)azulene by Exhaustive Direct Borylation of Azulene and 5,7-Di(Bpin)azulene by Selective Subsequent Deborylation, *Synlett*, **26**, 1578-1580 (2015).

Yamada, Y.; Endo, M.; Wakamiya, A.; Kanemitsu, Y., Spontaneous Defect Annihilation in CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> Thin Films at Room Temperature Revealed by Time-resolved Photoluminescence Spectroscopy, *J. Phys. Chem. Lett.*, **6**, 482-486 (2015).

Uemura, T.; Nakanishi, R.; Mochizuki, S.; Murata, Y.; Kitagawa, S., Radical Polymerization of 2,3-Dimethyl-1,3-butadiene in Coordination Nanochannels, *Chem. Commun.*, **51**, 9892-9895 (2015).

Yamada, Y.; Yamada, T.; Le, P. Q.; Maruyama, N.; Nishimura, H.; Wakamiya, A.; Murata, Y.; Kanemitsu, Y., Dynamic Optical Properties of CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> Single Crystals as Revealed by One- and Two-Photon Excited Photoluminescence Measurements, *J. Am. Chem. Soc.*, **137**, 10456-10459 (2015).

Kaji, H.; Suzuki, H.; Fukushima, T.; Shizu, K.; Suzuki, K.; Kubo, S.; Komino, T.; Oiwa, H.; Suzuki, F.; Wakamiya, A.; Murata, Y.; Adachi, C., Purely Organic Electroluminescent Material Realizing 100% Conversion from Electricity to Light, *Nat. Commun.*, **6**, [8476-1]-[8476-8] (2015).

Yamada, Y.; Nakamura, T.; Endo, M.; Wakamiya, A.; Kanemitsu, Y., Photoelectronic Responses in Solution-Processed Perovskite CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> Solar Cells Studied by Photoluminescence and Photoabsorption Spectroscopy, *J. Photovoltaics*, **5**, 401-405 (2015).

Wang, S.; Yang, D.-T.; Lu, J.; Shimogawa, H.; Gong, S.; Wang, X.; Møllerup, S. K.; Wakamiya, A.; Chang, Y.-L.; Yang, C.; Lu, Z.-H., In Situ Solid-State Generation of (BN)<sub>2</sub>-Pyrenes and Electroluminescent Devices, *Angew. Chem. Int. Ed.*, **54**, 15074-15078 (2015).

Maroto, E. E.; Mateos, J.; Garcia-Borras, M.; Osuna, S.; Filippone, S.; Herranz, M. A.; Murata, Y.; Sola, M.; Martin, N., Enantiospecific cis-trans Isomerization in Chiral Fulleropyrrolidines: H-Bonding Assistance in the Carbanion Stabilization in H<sub>2</sub>O@C<sub>60</sub>, *J. Am. Chem. Soc.*, **137**, 1190-1197 (2015).

[Others]

Murata, Y.; Wakamiya, A.; Murata, M., Laboratory Introduction, *Organometallic News*, 64-65 (2015) (in Japanese).

Murata, Y., Endohedral Fullerene Encapsulating Molecule(s), *Kotai Butsuri*, **50**, 141-147 (2015) (in Japanese).

#### — Synthetic Organic Chemistry —

Fujita, D.; Yokoyama, H.; Ueda, Y.; Sato, S.; Fujita, M., Geometrically Restricted Intermediates in the Self-Assembly of an M12L24 Cubooctahedral Complex, *Angew. Chem. Int. Ed.*, **54**, 155-158 (2015).

Lehr, K.; Schulthoff, S.; Ueda, Y.; Mariz, R.; Leseurre, L.; Gabor, B.; Fürstner, A., A New Method for the Preparation of Non-Terminal Alkynes: Application to the Total Syntheses of Tulearin A and C, *Chem. Eur. J.*, **21**, 219-227 (2015).

Yamanaka, M.; Yoshida, U.; Sato, M.; Shigeta, T.; Yoshida, K.; Furuta, T.; Kawabata, T., Origin of High E-Selectivity in 4-Pyrrolidinopyridine-Catalyzed Tetrasubstituted  $\alpha$ ,  $\alpha'$ -Alkenediol: A Computational and Experimental Study, *J. Org. Chem.*, **80**, 3075-3082 (2015).

Takeuchi, H.; Mishiro, K.; Ueda, Y.; Fujimori, Y.; Furuta, T.; Kawabata, T., Total Synthesis of Ellagitannins via Regioselective Sequential Functionalization of Unprotected Glucose, *Angew. Chem. Int. Ed.*, **54**, 6177-6180 (2015).

Ueda, Y.; Furuta, T.; Kawabata, T., Final-Stage Site-Selective Acylation for the Total Syntheses of Multifidosides A-C, *Angew. Chem. Int. Ed.*, **54**, 11966-11970 (2015).

Yokoyama, H.; Ueda, Y.; Fujita, D.; Sato, S.; Fujita, M., Finely Resolved Threshold for the Sharp M12L24/M24L48 Structural Switch in Multi-Component MnL<sub>2</sub>n Polyhedral Assemblies: X-ray, MS, NMR, and Ultracentrifugation Analyses, *Chem. Asian. J.*, **10**, 2292-2295 (2015).

#### — Advanced Inorganic Synthesis —

Veamatahau, A.; Jiang, B.; Seifert, T.; Makuta, S.; Latham, K.; Kanehara, M.; Teranishi, T.; Tachibana, Y., Origin of Surface Trap States in CdS Quantum Dots: Relationship between Size Dependent Photoluminescence and Sulfur Vacancy Trap States, *Phys. Chem. Chem. Phys.*, **17**, 2850-2858 (2015).

Okano, S.; Tanaka, D.; Sakamoto, M.; Teranishi, T.; Majima, Y., Control of Charging Energy in Chemically Assembled Nanoparticle Single-Electron Transistors, *Nanotechnology*, **26**, 45702(1-9) (2015).

Sakamoto, M.; Chen, L.; Okano, M.; Tex, D. M.; Kanemitsu, Y.; Teranishi, T., Photoinduced Carrier Dynamics of Nearly Stoichiometric Oleylamine-protected Copper Indium Sulfide Nanoparticles and Nanodisks, *J. Phys. Chem. C*, **119**, 11100-11105 (2015).

Chen, L.; Sakamoto, M.; Sato, R.; Teranishi, T., Determination of a Localized Surface Plasmon Resonance Mode of Cu<sub>7</sub>S<sub>4</sub> Nanodisks by Plasmon Coupling, *Faraday Discuss.*, **181**, 355-364 (2015).

Serdio, V. M. V.; Muraki, T.; Takeshita, S.; Salinas, D. E. H.; Kano, S.; Teranishi, T.; Majima, Y., Gap Separation-Controlled Nanogap Electrodes by Molecular Ruler Electroless Gold Plating, *RSC Advances*, **5**, 22160-22167 (2015).

Frake, J. C.; Kano, S.; Ciccarelli, C.; Griffiths, J.; Sakamoto, M.; Teranishi, T.; Majima, Y.; Smith, C. G.; Buitelaar, M. R., Radio-frequency Capacitance Spectroscopy of Metallic Nanoparticles, *Sci. Rep.*, **5**, 10858 (2015).

NGUYEN, V. L.; Yang, Y.; Teranishi, T.; Cao, T. M.; Nogami, M., Synthesis and Related Magnetic Properties of CoFe<sub>2</sub>O<sub>4</sub> Cobalt Ferrite Particles by Polyol Method with NaBH<sub>4</sub> and Heat Treatment: New Micro and Nanoscale Structures, *RSC Advances*, **5**, 56560-56569 (2015).

NGUYEN, V. L.; Yang, Y.; Teranishi, T.; Cao, T. M.; Cao, Y.; Nogami, M., Biomedical Applications of Advanced Multifunctional Magnetic Nanoparticles, *J. Nanosci. Nanotech.*, **15**, (2015).

NGUYEN, V. L.; Yang, Y.; Teranishi, T.; Cao, T. M.; Cao, Y.; Nogami, M., Synthesis and Magnetism of Hierarchical Particles, *Mater. Design*, **86**, 797-808 (2015).

Ge, W.; Sato, R.; Teranishi, T., Simple Surfactant Concentration-dependent Shape Control of Polyhedral Fe<sub>3</sub>O<sub>4</sub> Nanoparticles and Their Magnetic Properties, *ChemPhysChem*, **16**, 3200-3205 (2015).

Trinh, T. T.; Sato, R.; Sakamoto, M.; Fujiyoshi, Y.; Haruta, M.; Kurata, H.; Teranishi, T., Visible to Near-Infrared Plasmon-Enhanced Catalytic Activity of Pd Hexagonal Nanoplates for the Suzuki Coupling Reaction, *Nanoscale*, **7**, 12435-12444 (2015).

Kano, S.; Maeda, K.; Tanaka, D.; Sakamoto, M.; Teranishi, T.; Majima, Y., Chemically Assembled Double-Dot Single-Electron Transistors Analyzed by the Orthodox Model Considering Offset Charges, *J. Appl. Phys.*, **118**, 134304(1-6) (2015).

[Others]

Reguera, J.; Malachosky, E.; Martin, M.; Tebbe, M.; Law, B.; Isa, L.; Moehwald, H.; Liu, Y.; Bresme, F.; Ganeshan, D.; Sorensen, C.; Ghosh, S.; Fery, A.; Kráľ, P.; Widmer-Cooper, A.; Graf, C.; Gallego, A.; Schiffrin, D.; Korgel, B.; Okram, G.; Sankaranarayanan, S.; Wang, Y.; Teranishi, T.; Salerno, K. M.; McBride, S.; Lin, X.-M., Properties of Self-assembled Nanostructures: General Discussion, *Faraday Discuss.*, **181**, 365-381 (2015).

Reguera, J.; Scarabelli, L.; Petit, C.; Siramdas, R.; Wolf, H.; Chanana, M.; Liu, X.; Martin, M.; Tebbe, M.; Lin, X.-M.; Isa, L.; Moehwald, H.; Sshurtenberger, P.; Velev, O.; Liu, Y.; Fattah, A. R. A.; Bumajdad, A.; Ganeshan, D.; Faivre, D.; Bresme, F.; Sorensen, C.; Coll, P. G.; Ghosh, S.; Fery, A.; Haddassi, F. E.; Salerno, K. M.; Graf, C.; Cardinal, M. F.; Schiffrin, D.; Li, Z.; Shevchenko, E.; Teranishi, T.; Shubiao, Z.; Talapin, D.; Alivisatos, A. P.; Duguet, E.; Philipse, A.; Bianchi, E.; Latsuzbaia, R., New Routes to Control Nanoparticle Synthesis: General Discussion, *Faraday Discuss.*, **181**, 147-179 (2015).

## DIVISION OF MATERIALS CHEMISTRY

### — Chemistry of Polymer Materials —

Arafune, H.; Kamijo, T.; Morinaga, T.; Honma, S.; Sato, T.; Tsujii, Y., A Robust Lubrication System Using an Ionic Liquid Polymer Brush, *Adv. Mater. Interfaces*, **2**, 1500187 (2015).

Huang, Y.; Ishige, R.; Tsujii, Y.; Ohno, K., Synthesis of Iron Oxide Rods Coated with Polymer Brushes and Control of Their Assembly in Thin Films, *Langmuir*, **31**, 1172-1179 (2015).

Nomura, K.; Makino, H.; Nakaji-Hirabayashi, T.; Kitano, H.; Ohno, K., Temperature-responsive Copolymer Brush Constructed on a Silica Microparticle by Atom Transfer Radical Polymerization, *Colloid Poly. Sci.*, **293**, 851-859 (2015).

Sato, T.; Marukane, S.; Morinaga, T.; Kamijo, T.; Arafune, H.; Tsujii, Y., High Voltage Electric Double Layer Capacitor Using a Novel Solid-state Polymer Electrolyte, *J. Power Sources*, **295**, 108-116 (2015).

Ogura, K.; Morioka, K.; Tsujii, Y.; Hsu, S. Y.; Wagner, M. H., Uniaxial Extensional Flow Behavior of Comb-shaped Poly(methyl methacrylate), *Rheologica Acta*, **54**, 637-645 (2015).

Kawata, Y.; Yamamoto, T.; Kihara, H.; Ohno, K., Dual Self-Healing Abilities of Composite Gels Consisting of Polymer-Brush-Afforded Particles and an Azobenzene-Doped Liquid Crystal, *ACS Appl. Mater. Interfaces*, **7**, 4185-4191 (2015).

Sato, O.; Iwata, N.; Kasai, T.; Tsujii, Y.; Kang, S. M.; Watanabe, J.; Tokita, M., Nematic Liquid Crystal Anchoring Strengths of High Density Polymer Brush Surfaces, *Liquid Crystals*, **42**, 181-188 (2015).

Moraes, J.; Ohno, K.; Maschmeyer, T.; Perrier, S., Selective Patterning of Gold Surfaces by Core/Shell, Semisoft Hybrid Nanoparticles, *Small*, **11**, 482-488 (2015).

Mori, Y.; Chen, T.; Fujisawa, T.; Kobashi, S.; Ohno, K.; Yoshida, S.; Tago, Y.; Komai, Y.; Hata, Y.; Yoshioka, Y., From Cartoon to Real Time MRI: in vivo Monitoring of Phagocyte Migration in Mouse Brain, *Sci. Rep.*, **4**, 6697 (2015).

Lin, C.-C.; Ohno, K.; Clarke, N.; Winey, K. I.; Composto, R. J., Macromolecular Diffusion through a Polymer Matrix with Polymer-Grafted Chained Nanoparticles, *Macromolecules*, **47**, 5357-5364 (2015).

[Others]

Sakakibara, K.; Tsujii, Y.; Harada, T., Interface Control of Wood-Derived Nanocelluloses by Using Novel Polymer Dispersant toward High Performance Resin Nanocomposite Materials, *Nippon Gomu Kyokaishi*, **88**, 443-446(2015) (in Japanese).

### — Polymer Controlled Synthesis —

PeñaAlvarez, M.; Burrezob, P. M.; Iwamoto, T.; Taravilloa, M.; Baonzaa, V. G.; Navarreteb, J. T. L.; Yamago, S.; Casado, J., Chameleon-like Behaviour of Cyclo[n]paraphenylenes in Complexes with C<sub>70</sub>. On Their Impressive Electronic and Structural Adaptability as Probed by Raman spectroscopy, *Faraday Discuss.*, **173**, 157-171 (2014).

Nakamura, Y.; Yamago, S., Termination Mechanism in the Radical Polymerization of Methyl Methacrylate and Styrene Determined by the Reaction of Structurally Well-defined Polymer End Radicals, *Macromolecules*, **48**, 6450-6456 (2015).

Nakamura, Y.; Yu, M.; Ukai, Y.; Yamago, S., Organotellurium-mediated Radical Polymerization under Photo Irradiation, *ACS Symp. Ser.*, **1187**, 295-309 (2015).

Kayahara, E.; Patel, V. K.; Xia, J.; Jasti, R.; Yamago, S., Selective and Gram-scale Synthesis of [6]Cycloparaphenylene, *Synlett*, **26**, 1615-1619 (2015).

Fujistuka, M.; Tojo, S.; Iwamoto, T.; Kayahara, E.; Yamago, S.; Majima, T., Radical Ions of Cyclopyrenylene: Comparison of Spectral Properties with Cycloparaphenylene, *J. Phys. Chem. Part A*, **119**, 4136-4141 (2015).

Patel, V. K.; Kayahara, E.; Yamago, S., Practical Synthesis for [n] Cycloparaphenylenes (n = 5, 7-12) by H<sub>2</sub>SnCl<sub>4</sub>-Mediated Aromatization of 1,4-Dihydroxycyclo-2,5-diene Precursors, *Chem. Eur. J.*, **21**, 5742-5749 (2015).

Toriumi, N.; Muranaka, A.; Kayahara, E.; Yamago, S.; Uchiyama, M., In-Plane Aromaticity in Cycloparaphenylene Dications: A Magnetic Circular Dichroism and Theoretical Study, *J. Am. Chem. Soc.*, **137**, 82-85 (2015).

Tien, N.-D.; Nishikawa, Y.; Hashimoto, M.; Tosaka, M.; Sasaki, S.; Sakurai, S., Three-dimensional Analyses of Spherulite Morphology in Poly(oxyethylene) and Its Blends with Amorphous Poly(d,l-lactic acid) Using X-ray Computerized Tomography, *Polymer J.*, **47**, 37-44 (2015).

Gros, A.; Tosaka, M.; Huneau, B.; Verron, E.; Poompradub, S.; Senoo, K., Dominating Factor of Strain-induced Crystallization in Natural Rubber, *Polymer*, **76**, 230-236 (2015).

Sugihara, Y.; Yamago, S.; Zetterlund, P., An Innovative Approach to Implementation of Organotellurium-Mediated Radical Polymerization (TERP) in Emulsion Polymerization, *Macromolecules*, **48**, 4312-4318 (2015).

Nakagawa, H.; Yamago, S.; Ishihara, K.; Yusa, S., Preparation of Biocompatible Poly(2-methacryloyloxyethyl phosphorylcholine) (PMPC) via Organotellurium-Mediated Radical Polymerization (TERP), *Kobunshi Ronbunshu*, **72**, 335-340 (2015).

Kayahara, E.; Qu, R.; Kojima, M.; Iwamoto, T.; Suzuki, T.; Yamago, S., Ligand-controlled Synthesis of [3]- and [4]Cyclo-9,9-dimethyl-2,7-fluorenes through Triangle- and Square-shaped Platinum Intermediates, *Chem. Eur. J.*, **21**, 18939-18943 (2015).

Fujita, T.; Yamago, S., Lewis-acid-mediated Stereospecific Radical Polymerization of Acrylamides Bearing Chiral Oxazolidinones, *Chem. Eur. J.*, **21**, 18547-18550 (2015).

Yamago, S.; Nakamura, Y., Photo-Induced Living/Controlled Radical Polymerization Reaction, *Kobunshi (High Polymers, Japan)*, **64**, 103-106 (2015) (in Japanese).

Tosaka, M., Kinetics of Strain-induced Crystallization in Cross-linked Natural Rubber, *J. Adhesion Soc. Jpn.*, **51**, 450-455 (2015) (in Japanese).

Nakamura, Y.; Yamago, S., Organotellurium-mediated Living Radical Polymerization, *Finechemical*, **44**, 25-31 (2015) (in Japanese).

Iwamoto, T.; Takaya, H.; Yamago, S., Structural Investigation of Cycloparaphenylene – Fullerene Supramolecular Complexes Using Synchrotron Radiation and Theoretical Calculation, *J. Cryst. Soc. Jpn.*, **57**, 239-244 (2015) (in Japanese).

#### — Inorganic Photonics Materials —

Masai, H.; Yamada, Y.; Okumura, S.; Yanagida, T.; Fujimoto, Y.; Kanemitsu, Y.; Ina, T., Photoluminescence of Monovalent Indium Centres in Phosphate Glass, *Scientific Reports*, **5**, 13646 (2015).

Ueda, Y.; Tokuda, Y.; Nihei, N.; Sugiyama, A.; Ogawa, Y., Fine Bubble Technology as an Adhesive Agent with Gas-liquid Interface, *Journal of the Adhesion Society of Japan*, **50**, 58-65 (2015).

Ueda, Y.; Tokuda, Y.; Nihei, N.; Sugiyama, A.; Ogawa, Y.; Shiraga, K., Electric and Electrochemical Properties of Fine Bubble Water and Analysis of the Correlation with Applied Research, *THE JAPANESE SOCIETY FOR MULTIPHASE FLOW*, **28**, 555-562 (2015).

Masai, H.; Hino, Y.; Yanagida, T.; Fujimoto, Y.; Tokuda, Y., High Energy-transfer Rate from  $\text{Sn}^{2+}$  to  $\text{Mn}^{2+}$  in Phosphate Glasses, *Optical Materials Express*, **5**, 617-622 (2015).

Ueda, Y.; Tokuda, Y.; Goto, H., Remediation Technology of Cesium Using a Micro-bubble Water Containing Sodium Silicate, *Radiological Issues for Fukushima's Revitalized Future*, Springer, 79-88 (2015).

Tokuda, Y.; Norikawa, Y.; Masai, H.; Ueda, Y.; Nihei, N.; Fujimura, S.; Ono, Y., Nuclear Magnetic Resonance Study of Cs Adsorption onto Clay Minerals, *Radiological Issues for Fukushima's Revitalized Future*, Springer, 3-12 (2015).

Tokuda, Y.; Takahashi, Y.; Masai, M.; Kaneko, S.; Ueda, Y.; Fujimura, S.; Yoko, T., Local Structure of Alkalis in Mixed Alkali Borate Glass to Elucidate the Origin of Mxed-alkali Effect, *J. Asian Ceram. Soc.* (2015).

Masai, H.; Yanagida, T.; Mizoguchi, T.; Ina, T.; Miyazaki, T.; Kawaguti, N.; Fukuda, K., Local Coordination State of Rare Earth in Eutectic Scintillators for Neutron Detector Applications, *Scientific Reports*, **5**, 13332 (2015).

Masai, H.; Suzuki, Y.; Yanagida, T.; Mibu, K., Luminescence of  $\text{Sn}^{2+}$  Center in  $\text{ZnO-B}_2\text{O}_3$  Glasses Melted in Air and Ar Condition, *Bulletin of the Chemical Society of Japan*, **88**, 1047-1053 (2015).

Masai, H.; Yanagida, T., Emission Property of  $\text{Ce}^{3+}$ -doped  $\text{Li}_2\text{O-B}_2\text{O}_3\text{-SiO}_2$  Glasses, *Optical Materials Express*, **5**, 1851-1858 (2015).

Kinoshita, M.; Takahashi, Y.; Terakado, N.; Masai, H.; Fujiwara, T., Controllable Photoluminescence by Melting-process Temperature in  $\text{SnO}$ -containing Glass, *Journal of the Ceramic Society of Japan*, **123**, 614-617 (2015).

Masai, H.; Miyata, H.; Yamada, Y.; Okumura, S.; Yanagida, T.; Kanemitsu, Y., Tin-Doped Inorganic Amorphous Films for Use as Transparent Monolithic Phosphors, *Scientific Reports*, **5**, 11224 (2015).

Nanto, H.; Nakagawa, R.; Takei, Y.; Hirasawa, K.; Miyamoto, Y.; Masai, H.; Kurobori, T.; Yanagida, T.; Fujimoto, Y., Optically Stimulated Luminescence in X-ray Irradiated  $\text{xSnO-(25-x)SrO-75B}_2\text{O}_3$  Glass, *Nuclear Instruments and Methods in Physics Research Section A*, **784**, 14-16 (2015).

Masai, H.; Yanagida, T.; Fujiwara, T., Photo- and Radioluminescence of  $\text{ZnO}$ -precipitated Glass-Ceramics, *Sensors and Materials*, **37**, 237-245 (2015).

Masai, H.; Hino, Y.; Yanagida, T.; Fujimoto, Y., Photoluminescence and Radioluminescence Properties of  $\text{MnO}$ -doped  $\text{SnO-ZnO-P}_2\text{O}_5$  Glasses, *Optical Materials*, **42**, 381-384 (2015).

Masai, H.; Miyazaki, T.; Mibu, K.; Takahashi, Y.; Fujiwara, T., Nano-phase Separation and the Effect of  $\text{SnO}$  Addition in  $\text{TiO}_2$ -precipitated Glass-ceramics, *Journal of European Ceramic Society*, **35**, 2139-2144 (2015).

Masai, H.; Hino, Y.; Yanagida, T.; Fujimoto, Y.; Tokuda, Y., High Energy-transfer Rate from  $\text{Sn}^{2+}$  to  $\text{Mn}^{2+}$  in Phosphate Glasses, *Optical Materials Express*, **5**, 617-622 (2015).

#### — Nanospintronics —

Hiramatsu, R.; Kim, K.; Taniguchi, T.; Tono, T.; Moriyama, T.; Fukami, S.; Yamanouchi, M.; Ohno, H.; Nakatani, Y.; Ono, T., Localized Precessional Mode of Domain Wall Controlled by Magnetic Field and dc Current, *Appl. Phys. Exp.*, **8**, [023003-1]-[023003-4] (2015).

Arakawa, T.; Shiogai, J.; Ciorga, M.; Utz, M.; Schuh, D.; Kohda, M.; Nitta, J.; Bougeard, D.; Weiss, D.; Ono, T.; Kobayashi, K., Shot Noise Induced by Nonequilibrium Spin Accumulation, *Phys. Rev. Lett.*, **114**, [016601-1]-[016601-4] (2015).

Ueda, K.; Hiramatsu, R.; Kim, K.; Taniguchi, T.; Tono, T.; Moriyama, T.; Ono, T., Temperature Dependence of Current-induced Magnetic Domain Wall Motion in an Asymmetric Co/Ni Nanowire, *J.J. of Appl. Phys.*, **54**, [038004-1]-[038004-3] (2015).

Madami, M.; Gubbiotti, G.; Moriyama, T.; Tanaka, K.; Siracusano, G.; Carpentieri, M.; Finocchio, G.; Tacchi, S.; Ono, T.; Carlotti, G., Micro-focused Brillouin Light Scattering Study of the Magnetization Dynamics Driven by Spin Hall Effect in a Transversely Magnetized Rectangular NiFe Nanowire, *J. of Appl. Phys.*, **447**, [17D504-1]-[17D504-4] (2015).

Gubbiotti, G.; Nguyen, H.; Hiramatsu, R.; Tacchi, S.; Cottam, M.; Ono, T., Resonant Spin-wave Modes in Trilayered Magnetic Nanowires Studied in the Parallel and Antiparallel Ground State, *J. Magn. Magn. Mater.*, **384**, 45-48 (2015).

Ueda, K.; Kim, K.; Taniguchi, T.; Tono, T.; Moriyama, T.; Ono, T., In-plane Field-driven Crossover in the Spin-torque Mechanism Acting on Magnetic Domain Walls in Co/Ni, *Phys. Rev. B*, **91**, [060405-1]-[060405-5] (2015).

Tono, T.; Taniguchi, T.; Kim, K.; Moriyama, T.; Tsukamoto, A.; Ono, T., Chiral Magnetic Domain Wall in Ferrimagnetic GdFeCo Wires, *Appl. Phys. Exp.*, **8**, [073001-1]-[073001-4] (2015).

Mizuno, H.; Moriyama, T.; Kawaguchi, M.; Nagata, M.; Tanaka, K.; Koyama, T.; Chiba, D.; Ono, T., Ferromagnetic Resonance Measurements in Sub-nanometer Fe Films, *Appl. Phys. Exp.*, **8**, [073003-1]-[073003-4] (2015).

Taniguchi, T.; Kim, K.; Tono, T.; Kim, S.; Moriyama, T.; Ono, T., Dimensional Crossover Characterized by Distribution of Magnetic Domain Wall Creep Velocity, *Appl. Phys. Exp.*, **8**, [073004-1]-[073004-4] (2015).

Taniguchi, T.; Kim, K.; Tono, T.; Moriyama, T.; Nakatani, Y.; Ono, T., Precise Control of Magnetic Domain Wall Displacement by a Nanosecond Current Pulse in Co/Ni Nanowires, *Appl. Phys. Exp.*, **8**, [073008-1]-[073008-4] (2015).

Hata, H.; Moriyama, T.; Tanabe, K.; Kobayashi, K.; Matsumoto, R.; Murakami, S.; Ohe, J.; Chiba, D.; Ono, T., Micromagnetic Simulation of Spin Wave Propagation in a Ferromagnetic Film with Different Thicknesses, *J. of Magn. Soc. Japan*, **39**, 151-154 (2015).

Moriyama, T.; Yoon, S.; McMichael, R. D., Ferromagnetic Resonance Measurement Using Stroboscopic Magneto-optical Kerr, *J. of Appl. Phys.*, **117**, [213908-1]-[213908-4] (2015).

Matsuzaki, N.; Moriyama, T.; Nagata, M.; Kim, K.; Suzuki, I.; Taniyama, T.; Ono, T., Current Induced Antiferro-ferromagnetic Transition in FeRh Nanowires, *J.J. of Appl. Phys.*, **54**, 54- (2015).

Moriyama, T.; Takei, S.; Nagata, M.; Yoshimura, Y.; Matsuzaki, N.; Terashima, T.; Tserkovnyak, Y.; Ono, T., Anti-damping Spin Transfer Torque through Epitaxial Nickel Oxide, *Appl. Phys. Lett.*, **106**, [162406-1]-[162406-4] (2015).

Kawaguchi, M.; Moriyama, T.; Koyama, T.; Chiba, D.; Ono, T., Layer Thickness Dependence of Current Induced Effective Fields in Ferromagnetic Multilayers, *J. of Appl. Phys.*, **117**, [17C730-1]-[17C730-4] (2015).

Mishra, P.; Hill, P., J.; Vijayaraghavan, S.; Rossom, V. W.; Yoshizawa, S.; Grisolia, M.; Echeverria, J.; Ono, T.; Ariga, K.; Nakayama, T.; Joachim, C.; Uchihashi, T., Current-Driven Supramolecular Motor with In Situ Surface Chiral Directionality Switching, *Nano Lett.*, **15**, 4793-4798 (2015).

Matsuo, S.; Nakaharai, S.; Komatsu, K.; Tsukagoshi, K.; Moriyama, T.; Ono, T.; Kobayashi, K., Parity Effect of Bipolar Quantum Hall Edge Transport around Graphene Antidots, *Sci. Rep.*, **5**, [11723-1]-[11723-5] (2015).

Matsuo, S.; Takeshita, S.; Tanaka, T.; Nakaharai, S.; Tsukagoshi, K.; Moriyama, T.; Ono, T.; Kobayashi, K., Edge Mixing Dynamics in Graphene p-n Junctions in the Quantum Hall Regime, *Nat. Commun.*, **6**, [8066-1]-[8066-6] (2015).

Moriyama, T.; Matsuzaki, N.; Kim, K.; Suzuki, I.; Taniyama, T.; Ono, T., Sequential Write-read Operations in FeRh Antiferromagnetic Memory, *Appl. Phys. Lett.*, **107**, [122403-1]-[122403-4] (2015).

Takei, S.; Moriyama, T.; Ono, T.; Tserkovnyak, Y., Antiferromagnet-mediated Spin Transfer between Metal and Ferromagnet, *Phys. Rev. B*, **92**, [020409-1]-[020409-4] (2015).

## DIVISION OF BIOCHEMISTRY

### — Biofunctional Design-Chemistry —

Kuroda, Y.; Kato-Kogoe, N.; Tasaki, E.; Yuasa-Sunagawa, M.; Yamanegi, K.; Nakasyo, K.; Nakase, I.; Futaki, S.; Tohyama, Y.; Hirose, M., Suppressive Effect of Membrane-permeable Peptides Derived from Autophosphorylation Sites of the IGF-1 Receptor on Breast Cancer Cells, *Eur. J. Pharm.*, **765**, 24-33 (2015).

Takeuchi, T.; Suzuki, M.; Fujikake, N.; Popiel, H. A.; Kikuchi, H.; Futaki, S.; Wada, K.; Nagai, Y., Intercellular Chaperone Transmission via Exosomes Contributes to Maintenance of Protein Homeostasis at the Organismal Level, *Proc. Natl. Acad. Sci. U.S.A.*, **112**, E2497-E2506 (2015).

Nakase, I.; Futaki, S., Combined Treatment with a pH-sensitive Fusogenic Peptide and Cationic Lipids Achieves Enhanced Cytosolic Delivery of Exosomes, *Sci. Rep.*, **5**, 10112 (2015).

Nakase, I.; Takeuchi, T.; Futaki, S., Cell Penetrating Peptides for Chemical Biological Studies, *Methods Mol. Biol.*, **1324**, 387-396 (2015).

Nakase, I.; Kawaguchi, Y.; Nomizu, M.; Futaki, S., Cellular Uptake of Arginine-Rich Cell-Penetrating Peptides and the Contribution of Membrane-Associated Proteoglycans, *Trends Glycosci. Glycotech.*, **27**, 81-88 (2015).

### — Chemistry of Molecular Biocatalysts —

Watanabe, B.; Minami, S.; Ishida, H.; Yoshioka, R.; Nakagawa, Y.; Morita, T.; Hayashi, K., Stereospecific Inhibitory Effects of CCG-1423 on the Cellular Events Mediated by Myocardin-Related Transcription Factor A, *PLOS ONE*, **10**, [e0136242-1]-[e0136242-16] (2015).

Watanabe, B.; Ichiyangi, A.; Hirokawa, K.; Gomi, K.; Nakatsu, T.; Kato, H.; Kajiyama, N., Synthesis and Inhibitory Activity of Substrate-Analog Fructosyl Peptide Oxidase Inhibitors, *Bioorg. Med. Chem. Lett.*, **25**, 3910-3913 (2015).

[Others]

Watanabe, B., Structure-Activity Relationship Studies of Insect and Plant Steroid Hormones, *J. Pestic. Sci.*, **40**, 146-151 (2015).

### — Molecular Biology —

Lin, Q.; Ohashi, Y.; Kato, M.; Tsuge, T.; Gu, H.; Qu, L.-J.; Aoyama, T., GLABRA2 Directly Suppresses Basic Helix-loop-helix Transcription Factor Genes with Diverse Functions in Root Hair Development, *Plant Cell*, **27**, 2894-2906 (2015).

Wada, Y.; Kusano, H.; Tsuge, T.; Aoyama, T., Phosphatidylinositol Phosphate 5-kinase Genes Respond to Phosphate Deficiency for Root Hair Elongation in *Arabidopsis thaliana*, *Plant J.*, **81**, 426-437 (2015).

Li, N.; Teranishi, M.; Yamaguchi, H.; Matsushita, T.; Watahiki, M. K.; Tsuge, T.; Li, S. S.; Hidema, J., UV-B-Induced CPD Photolyase Gene Expression is Regulated by UVR8-Dependent and -Independent Pathways in Arabidopsis, *Plant Cell Physiol.*, **56**, 2014-2023 (2015).

#### — Chemical Biology —

Sato, S.; Watanabe, M.; Katsuda, Y.; Murata, A.; Wang, D. O.; Uesugi, M., Live-cell Imaging of Endogenous mRNAs with a Small Molecule, *Angew. Chem. Int. Ed.*, **54**, 1855-1858 (2015).

Sato, S.; Katsuda, Y.; Uesugi, M., Biochemical Purification of Target Proteins with Biotin Conjugates, *CSJ Current Review - Chemical Biology of Bioactive Small Molecules: Target Identification and Mechanism-of-Action Studies*, **19**, 42-47 (2015) (in Japanese).

Parvatkar, P.; Kato, N.; Uesugi, M.; Sato, S.; Ohkanda, J., Intracellular Generation of a Diterpene-Peptide Conjugate that Inhibits 14-3-3-Mediated Interactions, *J. Am. Chem. Soc.*, **137**, 15624-15627 (2015).

Takaya, J.; Mio, K.; Shiraishi, T.; Kurokawa, T.; Otsuka, S.; Mori, Y.; Uesugi, M., A Potent and Site-selective Agonist of TRPA1, *J. Am. Chem. Soc.*, **137**, 15859-15864 (2015).

#### DIVISION OF ENVIRONMENTAL CHEMISTRY

##### — Molecular Materials Chemistry —

Shizu, K.; Tanaka, H.; Uejima, M.; Sato, T.; Tanaka, K.; Kaji, H.; Adachi, C., Strategy for Designing Electron Donors for Thermally Activated Delayed Fluorescence Emitters, *J. Phys. Chem. C*, **119**, 1291-1297 (2015).

Kotani, M.; Dohi, H.; Kimura, H.; Muraoka, K.; Kaji, H., Distribution Ratio of Carbon Black in Polyisobutylene/Polyisoprene Rubber Blends Using High-Resolution Solid-state <sup>13</sup>C NMR, *Polym. J.*, **47**, 422-427 (2015).

Kaji, H.; Suzuki, H.; Fukushima, T.; Shizu, K.; Suzuki, K.; Kubo, S.; Komino, T.; Oiwa, H.; Suzuki, F.; Wakamiya, A.; Murata, Y.; Adachi, C., Purely Organic Electroluminescent Material Realizing 100% Conversion from Electricity to Light, *Nat. Commun.*, **6**, [8476-1]-[8476-8] (2015).

Fukushima, T.; Yamamoto, J.; Fukuchi, M.; Hirata, S.; Jung, H. H.; Hirata, O.; Shibano, Y.; Adachi, C.; Kaji, H., Material Degradation of Liquid Organic Semiconductors Analyzed by Nuclear Magnetic Resonance Spectroscopy, *AIP Adv.*, **5**, [087124-1]-[087124-5] (2015).

Asakura, T.; Ohata, T.; Kametani, S.; Okushita, K.; Yazawa, K.; Nishiyama, Y.; Nishimura, K.; Aoki, A.; Suzuki, F.; Kaji, H.; Ulrich, A. S.; Williamson, M. P., Intermolecular Packing in *B. mori* Silk Fibroin: Multinuclear NMR Study of the Model Peptide (Ala-Gly)<sub>15</sub> Defines a Heterogeneous Antiparallel Antipolar Mode of Assembly in the Silk II Form, *Macromolecules*, **48**, 28-36 (2015).

Suzuki, F.; Shizu, K.; Kawaguchi, H.; Furukawa, S.; Sato, T.; Tanaka, K.; Kaji, H., Multiscale Simulation of Charge Transport in a Host Material, *N,N'*-Dicarbazole-3,5-benzene (mCP), for Organic Light-emitting Diodes, *J. Mater. Chem. C*, **3**, 5549-5555 (2015).

Shizu, K.; Uejima, M.; Nomura, H.; Sato, T.; Tanaka, K.; Kaji, H.; Adachi, C., Enhanced Electroluminescence from a Thermally Activated Delayed-Fluorescence Emitter by Suppressing Nonradiative Decay, *Phys. Rev. Appl.*, **3**, [014001-1]-[014001-7] (2015).

Shizu, K.; Lee, J.; Tanaka, H.; Nomura, H.; Yasuda, T.; Kaji, H.; Adachi, C., Highly Efficient Electroluminescence from Purely Organic Donor-acceptor Systems, *Pure Appl. Chem.*, **87**, 627-638 (2015).

Sato, T.; Uejima, M.; Tanaka, K.; Kaji, H.; Adachi, C., A Light-emitting Mechanism for Organic Light-emitting Diodes: Molecular Design for Inverted Singlet-triplet Structure and Symmetry-controlled Thermally Activated Delayed Fluorescence, *J. Mater. Chem. C*, **3**, 870-878 (2015).

Ohtsuki, A.; Lei, L.; Tanishima, M.; Goto, A.; Kaji, H., Photocontrolled Organocatalyzed Living Radical Polymerization Feasible over a Wide Range of Wavelengths, *J. Am. Chem. Soc.*, **137**, 5610-5617 (2015).

Lee, J.; Shizu, K.; Tanaka, H.; Nakanotani, H.; Yasuda, T.; Kaji, H.; Adachi, C., Controlled Emission Colors and Singlet-triplet Energy Gaps of Dihydrophenazine-Based Thermally Activated Delayed Fluorescence Emitters, *J. Mater. Chem. C*, **3**, 2175-2181 (2015).

Sagara, Y.; Shizu, K.; Tanaka, H.; Miyazaki, H.; Goushi, K.; Kaji, H.; Adachi, C., Highly Efficient Thermally Activated Delayed Fluorescence Emitters with a Small Singlet-Triplet Energy Gap and Large Oscillator Strength, *Chem. Lett.*, **44**, 360-362 (2015).

Shizu, K.; Sakai, Y.; Tanaka, H.; Hirata, S.; Adachi, C.; Kaji, H., Meta-linking Strategy for Thermally Activated Delayed Fluorescence Emitters with a Small Singlet-Triplet Energy Gap, *ITE Trans. on MTA*, **3**, 108-113 (2015).

Suzuki, K.; Kubo, S.; Shizu, K.; Fukushima, T.; Wakamiya, A.; Murata, Y.; Adachi, C.; Kaji, H., Triarylboron-based Fluorescent Organic Light-emitting Diodes with External Quantum Efficiencies Exceeding 20%, *Angew. Chem. Int. Ed.*, **54**, 15231-15235 (2015).

Shizu, K.; Noda, H.; Tanaka, H.; Taneda, M.; Uejima, M.; Sato, T.; Tanaka, K.; Kaji, H.; Adachi, C., Highly Efficient Blue Electroluminescence Using Delayed-Fluorescence Emitters with Large Overlap Density between Luminescent and Ground States, *J. Phys. Chem. C*, (2015)(in press).

Wada, Y.; Shizu, K.; Kubo, S.; Suzuki, K.; Tanaka, H.; Adachi, C.; Kaji, H., Highly Efficient Electroluminescence from a Solution-Processable Thermally Activated Delayed Fluorescence Emitter, *Appl. Phys. Lett.*, **107**, [183303-1]-[183303-4] (2015).

Taneda, M.; Shizu, K.; Tanaka, H.; Adachi, C., High Efficiency Thermally Activated Delayed Fluorescence Based On 1,3,5-Tris(4-(Diphenylamino)Phenyl)-2,4,6-Tricyanobenzene, *Chem. Commun.*, **51**, 5028-5031 (2015).

Tanaka, H.; Shizu, K.; Lee, J.; Adachi, C., Effect of Atom Substitution in Chalcogenodiazole-Containing Thermally Activated Delayed Fluorescence Emitters on Radiationless Transition, *J. Phys. Chem. C*, **119**, 2948-2955 (2015).

Hirata, S.; Sakai, Y.; Masui, K.; Tanaka, H.; Lee, S. Y.; Nomura, H.; Nakamura, N.; Yasumatsu, M.; Nakanotani, H.; Zhang, Q.; Shizu, K.; Miyazaki, H.; Adachi, C., Highly Efficient Blue Electroluminescence Based on Thermally Activated Delayed Fluorescence, *Nat. Mater.*, **14**, 330-336 (2015).

— **Hydrospheric Environment Analytical Chemistry** —

Minami, T.; Konagaya, W.; Zheng, L.; Takano, S.; Sasaki, M.; Murata, R.; Nakaguchi, Y.; Sohrin, Y., An Off-line Automated Preconcentration System with Ethylenediaminetriacetate Chelating Resin for the Determination of Trace Metals in Seawater by High-Resolution Inductively Coupled Plasma Mass Spectrometry, *Anal. Chim. Acta*, **854**, 183-190 (2015).

[Others]

Takano, S., Isotopic Study for Biogeochemical Cycling of Cu in the Ocean, *Transactions of the Research Institute of Oceanography*, **28**, 10-16 (2015) (in Japanese).

Minami, T., Sectional Distributions of Bioactive Trace Metals in the Southern Ocean and the Western Pacific, *Transactions of the Research Institute of Oceanography*, **28**, 70-76 (2015) (in Japanese).

— **Solution and Interface Chemistry** —

Shioya, N.; Shimoaka, T.; Eda, K.; Hasegawa, T., A New Schematic of Poly(3-alkylthiophene) in an Amorphous Film Studied by Using a Novel Structural Index on Infrared Spectroscopy, *Phys. Chem. Chem. Phys.*, **17**, 13472-13479 (2015).

Shimoaka, T.; Wakai, C.; Sakabe, T.; Yamazaki, S.; Hasegawa, T., Hydration Structure of the Strongly Bound Water on the Sulfonic Acid Group in a Nafion Membrane Studied by Infrared Spectroscopy and Quantum Chemical Calculation, *Phys. Chem. Chem. Phys.*, **17**, 8843-8849 (2015).

Wakai, C.; Shimoaka, T.; Hasegawa, T., <sup>1</sup>H NMR Analysis of Water Freezing in Nanospace Involved in a Nafion Membrane, *J. Phys. Chem. B*, **119**, 8048-8053 (2015).

Hasegawa, T., Understanding of the Intrinsic Difference between Normal- and Perfluoro-alkyl Compounds toward Total Understanding of Material Properties, *Chem. Phys. Lett.*, **627**, 64-66 (2015).

Hasegawa, T.; Shimoaka, T.; Tanaka, Y.; Shioya, N.; Morita, K.; Sonoyama, M.; Amii, H.; Takagi, T.; Kanamori, T., An Origin of Complicated Infrared Spectra of Perfluoroalkyl Compounds Involving a Normal Alkyl Group, *Chem. Lett.*, **44**, 834-836 (2015).

Ishizuka, R.; Matubayashi, N.; Tu, K.-M.; Umehayashi, Y., Energetic Contributions from Cation and Anion to the Stability of Carbon Dioxide Dissolved in Imidazolium-Based Ionic Liquids, *J. Phys. Chem. B*, **119**, 1579-1587 (2015).

— **Molecular Microbial Science** —

Goto, S.; Kawamoto, J.; Sato, S. B.; Iki, T.; Watanabe, I.; Kudo, K.; Esaki, N.; Kurihara, T., Alkyl Hydroperoxide Reductase Enhances the Growth of *Leuconostoc mesenteroides* Lactic Acid Bacteria at Low Temperatures, *AMB Express*, **5**, 11 (2015).

Kawamoto, J.; Kurihara, T.; Cold-adaptation mechanism of Psychrotrophic Bacteria, *Seibutsu Kagaku Kaishi*, **93**, 477-480 (2015) (in Japanese).

**DIVISION OF MULTIDISCIPLINARY CHEMISTRY**

— **Polymer Materials Science** —

Kanaya, T.; Ogawa, H.; Kishimoto, M.; Inoue, R.; Suter, A.; Prokscha, T., Distribution of Glass Transition Temperatures T-g in Polystyrene

Thin Films as Revealed by Low-energy Muon Spin Relaxation: A Comparison with Neutron Reflectivity Results, *Phys. Rev. E*, **92**, [022604-1]-[022604-7] (2015).

Miyazaki, T.; Shimokita, K.; Ogawa, H.; Yamamoto, K., System for in Situ Observation of Three-dimensional Structural Changes in Polymer Films during Uniaxial Deformation, *J. Appl. Cryst.*, **48**, 1016-1022 (2015).

Shinohara, T.; Higaki, Y.; Nojima, S.; Masunaga, H.; Ogawa, H.; Okamoto, Y.; Aoki, T.; Takahara, A., Molecular Aggregation States and Wetting Behavior of a Poly{2-(perfluorooctyl)ethyl acrylate} Brush-immobilized Nano-imprinted Surface, *Polymer*, **69**, 42293 (2015).

Matsuura, T.; Murakami, M.; Inoue, R.; Nishida, K.; Ogawa, H.; Ohta, N.; Kanaya, T., Microbeam Wide-Angle X-ray Scattering Study on Precursor of Shish Kebab. Effects of Shear Rate and Annealing on Inner Structure, *Macromolecules*, **48**, 3337-3343 (2015).

Ishige, R.; Higuchi, T.; Jiang, X.; Mita, K.; Ogawa, H.; Yokoyama, H.; Takahara, A.; Jinnai, H., Structural Analysis of Microphase Separated Interface in an ABC-Type Triblock Terpolymer by Combining Methods of Synchrotron-Radiation Grazing Incidence Small-Angle X-ray Scattering and Electron Microtomography, *Macromolecules*, **48**, 2697-2705 (2015).

Nishida, K.; Zhuravlev, E.; Yang, B.; Schick, C.; Shiraiishi, Y.; Kanaya, T., Vitrification and Crystallization of Poly(butylene-2,6-naphthalate), *Thermochim. Acta*, **603**, 110-115 (2015).

Osaka, O.; Bente, H.; Ohkita, H.; Ito, S.; Ogawa, H.; Kanaya, T., Nanostructures for Efficient Hole Transport in Poly(3-hexylthiophene) Film: A Study by Conductive Atomic Force Microscopy, *J. Phys. Chem. C*, **43**, 24307-24314 (2015).

Ogawa, H.; Nishikawa, Y.; Fujiwara, A.; Takenaka, M.; Wang, Y.-C.; Kanaya, T.; Takata, M., Visualizing Patterned Thin Films by Grazing-incidence Small Angle X-ray Scattering (GISAXS) Coupled with Computed Tomography (CT), *J. Appl. Cryst.*, **48**, 1645-1650 (2015).

Chatani, E.; Inoue, R.; Imamura, H.; Sugiyama, M.; Kato, M.; Yamamoto, M.; Nishida, K.; Kanaya, T., Early Aggregation Preceding the Nucleation of Insulin Amyloid Fibrils as Monitored by Small Angle X-ray Scattering, *Sci. Rep.*, **5**, [15485-1]-[15485-14] (2015).

Nishida, K.; Hirabayashi, T.; Tanaka, K.; Morita, H.; Matsuba, G.; Kanaya, T., Salting-In and Salting-Out Effects on Cloud Point of Aqueous Methylcellulose by Addition of Monomeric and Polymeric Sodium Styrene Sulfonate, *Sen'i Gakkaishi (J. Soc. Fiber Sci. Technol., Jpn)*, **71**, 297-301 (2015) (in Japanese).

[Others]

Kanaya, T.; Takahashi, N.; Inoue, R.; Nishida, K.; Matsuba, G., Flow and Deformation-induced Polymer Crystallization by SANS and SAXS, *Nihon Kessho Gakkaishi*, **57**, 27-33 (2015) (in Japanese).

— **Molecular Rheology** —

Matsumiya, Y.; Rakkapao, N.; Watanabe, H., Entanglement Length in Miscible Blends of cis-Polyisoprene and Poly(p-tert-butylstyrene), *Macromolecules*, **48**, 7889-7908 (2015).

Timachova, K.; Watanabe, H.; Balsara, N. P., Effect of Molecular Weight and Salt Concentration on Ion Transport and the Transference Number in Polymer Electrolytes, *Macromolecules*, **48**, 7882-7888 (2015).

Umeki, Y.; Mohri, K.; Kawasaki, Y.; Watanabe, H.; Takahashi, R.; Takahashi, Y.; Takakura, Y.; Nishikawa, M., Induction of Potent Antitumor Immunity by Sustained Release of Cationic Antigen from a DNA-based Hydrogel with Adjuvant Activity, *Advanced Functional Materials*, **25**, 5758-5767 (2015).

Watanabe, H.; Matsumiya, Y.; Inoue, T., Revisit the Stress-Optical Rule for Entangled Flexible Chains: Overshoot of Stress, Segmental Orientation, and Chain Stretch on Start-up of Flow, *J. Soc. Rheol. Jpn*, **43**, 105-112 (2015).

Schauser, N. S.; Harry, K. J.; Parkinson, D. Y.; Watanabe, H.; Balsara, N. P., Lithium Dendrite Growth in Glassy and Rubbery Nanostructured Block Copolymer Electrolytes, *J. Electrochem. Soc.*, **162**, A398-A405 (2015).

Watanabe, H.; Matsumiya, Y.; Masubuchi, Y.; Urakawa, O.; Inoue, T., Viscoelastic Relaxation of Rouse Chains undergoing Head-to-Head Association and Dissociation: Motional Coupling through Chemical Equilibrium, *Macromolecules*, **48**, 3014-3030 (2015).

#### — Molecular Aggregation Analysis —

Murdey, R.; Sato, N., Photocurrent Action Spectra of Organic Semiconductors, *Advances in Organic Crystal Chemistry, Comprehensive Reviews 2015*, Tamura, R.; Miyata, M. (eds.), (Springer, Tokyo), 627-652 (2015).

Yoshida, H.; Yamada, K.; Tsutsumi, J.; Sato, N., Complete Description of Ionization Energy and Electron Affinity in Organic Solids: Determining Contributions from Electronic Polarization, Energy Band Dispersion and Molecular Orientation, *Phys. Rev. B*, **92**, [075145-]-[075145-13] (2015).

Yoshida, H.; Yoshizaki, K., Electron Affinities of Organic Materials Used for Organic Light-Emitting Diodes: A Low-Energy Inverse Photoemission Study, *Org. Electron.*, **20**, 24-30 (2015).

Zhong, Y.; Izawa, S.; Hashimoto, K.; Tajima, K.; Koganezawa, T.; Yoshida, H., Crystallization-Induced Energy Level Change of [6,6]-Phenyl-C<sub>61</sub>-Butyric Acid Methyl Ester (PCBM) Film: Impact of Electronic Polarization Energy, *J. Phys. Chem. C*, **119**, 23-28 (2015).

#### ADVANCED RESEARCH CENTER FOR BEAM SCIENCE

##### — Particle Beam Science —

Arimoto, Y.; Higashi, N.; Igarashi, Y.; Iwashita, Y.; Ino, T.; Katayama, R.; Kitaguchi, M.; Kitahara, R.; Matsumura, H.; Mishima, K.; Nagakura, N.; Oide, H.; Otono, H.; Sakakibara, R.; Shima, T.; Shimizu, H. M.; Sugino, T.; Sumi, N.; Sumino, H.; Taketani, K.; Tanaka, G.; Tanaka, M.; Tauchi, K.; Toyoda, A.; Tomita, T.; Yamada, T.; Yamashita, S.; Yokoyama, H.; Yoshioka, T., Development of Time Projection Chamber for Precise Neutron Lifetime Measurement Using Pulsed Cold Neutron Beams, *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, **799**, 187-196 (2015).

Yamada, M.; Iwashita, Y.; Ichikawa, M.; Fuwa, Y.; Tongu, H.; Shimizu, H. M.; Mishima, K.; Yamada, N. L.; Hirota, K.; Otake, Y.; Seki, Y.; Yamagata, Y.; Hino, M.; Kitaguchi, M.; Garbe, U.; Kennedy, S. J.; Lee, W. T.; Andersen, K. H.; Guerard, B.; Manzin, G.; Geltenbort, P., Pulsed Neutron-beam Focusing by Modulating a Permanent-magnet Sextupole Lens, *Progress of Theoretical and Experimental Physics*, [043G01-1]-[043G01-22] (2015).

[Others]

Iwashita, Y.; Fuwa, Y., New Series of RFQ Vane Shapes, *Proceedings of the 6th International Particle Accelerator Conference, IPAC'15*, 3808-3810 (2015).

Hajima, R.; Sawamura, M.; Kubo, T.; Saeki, T.; Cenni, E.; Iwashita, Y.; Tongu, H., Development of Superconducting Spoke Cavities for Laser Compton Scattered X-ray Sources, *Proceedings of the 6th International Particle Accelerator Conference, IPAC'15*, 2902-2904 (2015).

Kubo, T.; Saeki, T.; Cenni, E.; Iwashita, Y.; Tongu, H.; Hajima, R.; Sawamura, M., Multipactor Simulations in 325 MHz Superconducting Spoke Cavity for an Electron Accelerator, *Proceedings of the 6th International Particle Accelerator Conference, IPAC'15*, 2892-2894 (2015).

Fuwa, Y.; Iwashita, Y.; Tongu, H.; Inoue, S.; Hashida, M.; Sakabe, S.; Okamura, M.; Yamazaki A., RF Acceleration of Ions Produced by Short Pulse Laser, *Proceedings of the 6th International Particle Accelerator Conference, IPAC'15*, 2548-2550 (2015).

Otani, M.; Mibe, T.; Fukao, Y.; Saito, N.; Yoshida, M.; Kitamura, R.; Kondo, Y.; Iwashita, Y., Development of Muon LINAC for the Muon g-2/EDM Experiment at J-PARC, *Proceedings of the 6th International Particle Accelerator Conference, IPAC'15*, 2541-2544 (2015).

Yoshida, M.; Naito, F.; Artikova, S.; Kondo, Y.; Hayashizaki, N.; Iwashita, Y.; Torikai, K., Re-acceleration of Ultra Cold Muon in J-PARC MLF, *Proceedings of the 6th International Particle Accelerator Conference, IPAC'15*, 2532-2534 (2015).

Arimoto, Y.; Higashi, N.; Igarashi, Y.; Iwashita, Y.; Ino, T.; Katayama, R.; Kitaguchi, M.; Kitahara, R.; Matsumura, H.; Mishima, K.; Nagakura, N.; Oide, H.; Otono, H.; Sakakibara, R.; Shima, T.; Shimizu, H. M.; Sugino, T. S.; Sumi, N.; Sumino, H.; Taketani, K.; Tanaka, G.; Tanaka, M.; Tauchi, K.; Toyoda, A.; Tomita, T.; Yamada, T.; Yamashita, S.; Yokoyama, H.; Yoshioka, T., Development of Time Projection Chamber for Precise Neutron Lifetime Measurement Using Pulsed Cold Neutron Beams, *Nuclear Instruments and Methods in Physics Research A* **799**, 187-196 (2015).

Iwashita, Y.; Fuwa, Y., High Efficiency RFQ Vane Shape, *Proceedings of the 12th Annual Meeting of Particle Accelerator Society of Japan*, 412-415 (2015) (in Japanese).

Fuwa, Y.; Iwashita, Y.; Tongu, H.; Inoue, S.; Hashida, M.; Sakabe, S.; Okamura, M.; Yamazaki, A., RF Synchronized Acceleration of Ions Produced by Short Pulse Laser, *Proceedings of the 12th Annual Meeting of Particle Accelerator Society of Japan*, 501-503 (2015) (in Japanese).



Otani, M.; Kitamura, R.; Iwashita, Y.; Mibe, T.; Kondo, Y.; Yoshida, M.; Saito, N., Demonstration of Muon Acceleration and Cavity Design of the Muon LINAC for J-PARC E34, *Proceedings of the 12th Annual Meeting of Particle Accelerator Society of Japan*, 56-61 (2015) (in Japanese).

Imajo, S.; Iwashita, Y.; Kitaguchi, M.; Shimizu, H. M.; Mishima, K.; Ino, T., Improvement of the Ultracold Neutrons Rebuncher III, *Proceedings of the 12th Annual Meeting of Particle Accelerator Society of Japan*, 416-419 (2015) (in Japanese).

Sawamura, M.; Hajima, R.; Nishimori, N.; Nagai, R.; Iwashita, Y.; Tongu, H.; Kubo, T.; Saeki, T., Status of ERL Superconducting Spoke Cavity Fabrication, *Proceedings of the 12th Annual Meeting of Particle Accelerator Society of Japan*, 583-586 (2015) (in Japanese).

Tongu, H.; Iwashita, Y.; Hayano, H.; Yamamoto, Y.; Hokonohara, H., Development of Defect Scanning System of SC Cavity, *Proceedings of the 12th Annual Meeting of Particle Accelerator Society of Japan*, 604-606 (2015) (in Japanese).

Fuwa, Y.; Iwashita, Y.; Matsumoto, T.; Michizono, S.; Fukuda, S., Permanent Magnet Focusing System for L-band 800kW klystron, *Proceedings of the 12th Annual Meeting of Particle Accelerator Society of Japan*, 1133-1135 (2015) (in Japanese).

#### — Laser Matter Interaction Science —

Inoue, S.; Tokita, S.; Hashida, M.; Sakabe, S., Transient Changes in Electric Fields Induced by Interaction of Ultraintense Laser Pulses with Insulator and Metal Foils: Sustainable Fields Spanning Several Millimeters, *Phys. Rev. E*, **91**, [043101-1]-[043101-5] (2015).

Tokita, S.; Sakabe, S.; Nagashima, T.; Hashida, M.; Inoue, S., Strong Sub-terahertz Surface Waves Generated on a Metal Wire by High-intensity Laser Pulses, *Sci. Rep.*, **5**, [8268-1]-[8268-6] (2015).

Miyasaka, Y.; Hashida, M.; Nishii, T.; Inoue, S.; Sakabe, S., Derivation of Effective Penetration Depth of Femtosecond Laser Pulses in Metal from Ablation Rate Dependence on Laser Fluence, Incidence Angle, and Polarization, *Appl. Phys. Lett.*, **106**, [013101-1]-[013101-5] (2015).

Gemini, L.; Hashida, M.; Shimizu, M.; Miyasaka, Y.; Inoue, S.; Tokita, S.; Limpouch, J.; Mocek, T.; Sakabe, S., Periodic Surface Structures on Titanium Self-organized upon Double Femtosecond Pulse Exposures, *Appl. Surf. Sci.*, **336**, 349-353 (2015).

#### — Electron Microscopy and Crystal Chemistry —

Hosaka, Y.; Ichikawa, N.; Saito, T.; Haruta, M.; Kimoto, K.; Kurata, H.; Shimakawa, Y.,  $\text{Ca}_2\text{FeMnO}_6$ : a Layered Double Perovskite with Unusually High Valence  $\text{Fe}^{4+}$  in a Layered Arrangement, *Bull. Chem. Soc. Jpn.*, **88**, 657-661 (2015).

Kan, D.; Aso, R.; Kurata, H.; Shimakawa, Y., Phase Control of a Perovskite Transition-metal Oxide through Oxygen Displacement at the Heterointerface, *Dalton Trans.*, **44**, 10594-10607 (2015).

Saito, H.; Kurata, H., Formation of a Hybrid Plasmonic Waveguide Mode Probed by Dispersion Measurement, *J. Appl. Phys.*, **117**, [133107-1]-[133107-7] (2015).

Kan, D.; Aso, R.; Kurata, H.; Shimakawa, Y., Research Update: Interface-engineered Oxygen Octahedral Tilts in Perovskite Oxide Heterostructures, *APL Materials*, **3**, [062302-1]-[062302-9] (2015).

Thuy, T.; Sato, R.; Sakamoto, M.; Fujiyoshi, Y.; Haruta, M.; Kurata, H.; Teranishi, T., Visible to Near-infrared Plasmon-enhanced Catalytic Activity of Pd Hexagonal Nanoplates for the Suzuki Coupling Reaction, *Nanoscale*, **7**, 12435-12444 (2015).

Yoshida, K.; Biskupek, J.; Kurata, H.; Kaiser, U., Critical Conditions for Atomic Resolution Imaging of Molecular Crystals by Aberration-corrected HRTEM, *Ultramicroscopy*, **159**, 73-80 (2015).

Baba, E.; Kan, D.; Yamada, Y.; Haruta, M.; Kurata, H.; Kanemitsu, Y.; Shimakawa, Y., Optical and Transport Properties of Transparent Conducting La-doped  $\text{SrSnO}_3$  Thin Films, *J. Phys. D: Appl. Phys.*, **48**, [455106-1]-[455106-5] (2015).

Sakabe, S.; Kurata, H.; Hashida, M.; Tokita, S.; Inoue, S.; Nemoto, T.; Haruta, M.; Watanabe, K., Evolution of Electron-Microscopes and the Ultrafast Electron Diffraction with Laser Accelerated Electrons, *The Review of Laser Engineering*, **43**, 138-143 (2015) (in Japanese).

Otani, R.; Inukai, M.; Hijikata, Y.; Ogawa, T.; Takenaka, M.; Ohba, M.; Kitagawa, S., Sequential Synthesis of Coordination Polymersomes, *Angew. Chem.*, **127**, 1155-1159 (2015).

#### — Structural Molecular Biology —

Fujii, T.; Yamauchi, T.; Ishiyama, M.; Gogami, Y.; Oikawa, T.; Hata, Y., Crystallographic Studies of Aspartate Racemase from *Lactobacillus sakei* NBRC 15893, *Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun.*, **71**, 1012-1016 (2015).

Yamauchi, T.; Fujii, T.; Oikawa, T.; Hata, Y., Crystal Structure Analysis of GraE Protein from the Gene Cluster of  $\gamma$ -Resorcyolate Catabolic System, *SPring-8 / SACL Res. Rep.*, **3**, 329-332 (2015) (in Japanese).

#### INTERNATIONAL RESEARCH CENTER FOR ELEMENTS SCIENCE

##### — Organic Main Group Chemistry —

Kawamura, S.; Agata, R.; Nakamura, M., Regio- and Stereoselective Multisubstituted Olefin Synthesis via Hydro/Carboalumination of Alkynes and Subsequent Iron-catalyzed Cross-Coupling Reaction with Alkyl Halides, *Org. Chem. Front.*, **2**, 1053-1058 (2015).

Jin, M.; Adak, L.; Nakamura, M., Iron-Catalyzed Enantioselective Cross-Coupling Reactions of  $\alpha$ -Chloroesters with Aryl Grignard Reagents, *J. Am. Chem. Soc.*, **137**, 7128-7134 (2015).

Agata, R.; Iwamoto, T.; Nakagawa, N.; Isozaki, K.; Hatakeyama, T.; Takaya, H.; Nakamura, M., Iron Fluoride/N-Heterocyclic Carbene Catalyzed Cross Coupling between Deactivated Aryl Chlorides and Alkyl Grignard Reagents with or without  $\beta$ -Hydrogens, *Synthesis*, **47**, 1733-1740 (2015).

Nakagawa, N.; Hatakeyama, T.; Nakamura, M., Iron-Catalyzed Suzuki-Miyaura Coupling Reaction of Unactivated Alkyl Halides with Lithium Alkynylborates, *Chem. Lett.*, **44**, 486-488 (2015).

Nakagawa, N.; Hatakeyama, T.; Nakamura, M., Iron-Catalyzed Diboration and Carboboration of Alkynes, *Chem. Eur. J.*, **21**, 4257-4261 (2015).

Takaya, H.; Nakajima, S.; Nakagawa, N.; Isozaki, K.; Iwamoto, T.; Imayoshi, R.; Gower, N.; Adak, L.; Hatakeyama, T.; Honma, T.; Takagaki, M.; Sunada, Y.; Nagashima, H.; Hashizume, D.; Takahashi, O.; Nakamura, M., Investigation of Organoiron Catalysis in Kumada-Tamao-Corriu-Type Cross-Coupling Reaction Assisted by Solution-Phase X-ray Absorption Spectroscopy, *Bull. Chem. Soc. Jpn.*, **88**, 410-418 (2015).

Mohri, S.; Ohisa, S.; Isozaki, K.; Yonezawa, N.; Okamoto, A., Hydrogen Bonding between Fluoro Group and Aromatic Hydrogen Leading Stripe Structure of R-Isomeric Column and S-Isomeric One: Crystal Structure of 2,7-Dimethoxynaphthalen-1-yl(3-fluorophenyl) methanone and a Comparison with Its 1-Aroylnaphthalene Analogues, *Acta Cryst.*, **C71**, 344-350 (2015).

Pincella, F.; Isozaki, K.; Taguchi, T.; Song, Y.; Miki, K., Selective Two-Photon-Absorption-Induced Reactions of Anthracene-2-Carboxylic Acid on Tunable Plasmonic Substrate with Incoherent Light Source, *J. Nanosci. Nanotech.*, **15**, 1171-1179 (2015).

— Advanced Solid State Chemistry —

Baba, E.; Kan, D.; Yamada, Y.; Haruta, M.; Kurata, H.; Kanemitsu, Y.; Shimakawa, Y., Optical and Transport Properties of Transparent Conducting La-Doped SrSnO<sub>3</sub> Thin Films, *J. Phys. D: Applied Physics*, **48**, [455106-1]-[455106-5] (2015).

Shimakawa, Y., Crystal and Magnetic Structures of CaCu<sub>3</sub>Fe<sub>4</sub>O<sub>12</sub> and LaCu<sub>3</sub>Fe<sub>4</sub>O<sub>12</sub>: Distinct Charge Transitions of Unusual High Valence Fe, *J. Phys. D, special issue on "100 Years of Crystallography"*, **48**, [504006-1]-[504006-13] (2015).

Wang, X.; Chai, Y. S.; Zhou, L.; Cao, H.; Cruz, C. D.; Yang, J. Y.; Dai, J. H.; Yin, Y.-Y.; Yuan, Z.; Yu, R. Z.; Azuma, M.; Shimakawa, Y.; Zhang, H. M.; Dong, S.; Sun, Y.; Jin, C. Q.; Long, Y. W., Observation of Magnetoelectric Multiferroicity in a Cubic Perovskite System: LaMn<sub>3</sub>Cr<sub>4</sub>O<sub>12</sub>, *Phys. Rev. Lett.*, **115**, [087601-1]-[087601-5] (2015).

Hosaka, Y.; Ichikawa, N.; Saito, T.; Manuel, P.; Khalyavin, D.; Attfield, J. P.; Shimakawa, Y., Two-Dimensional Charge Disproportionation of the Unusual High-Valence State Fe<sup>4+</sup> in a Layered Double Perovskite, *J. Am. Chem. Soc.*, **137**, 7468-7473 (2015).

Toyoda, M.; Saito, T.; Yamauchi, K.; Shimakawa, Y.; Oguchi, T., Superexchange Interaction in the A-site Ordered Perovskite YMn<sub>3</sub>Al<sub>4</sub>O<sub>12</sub>, *Phys. Rev. B*, **92**, [014420-1]-[014420-7] (2015).

Kan, D.; Shimizu, T.; Shimakawa, Y., Influence of Cation Off-Stoichiometry on Transport Properties of Metal/Nb-SrTiO<sub>3</sub> Junctions, *J. Appl. Phys.*, **117**, [205305-1]-[205305-5] (2015).

Corallini, S.; Ceretti, M.; Silly, G.; Piovano, A.; Singh, S.; Stern, J.; Ritter, C.; Ren, J.; Eckert, H.; Conder, K.; Chen, W. T.; Chou, F. C.; Ichikawa, N.; Shimakawa, Y.; Paulus, W., 1D Oxygen Diffusion Mechanism in Sr<sub>2</sub>ScGaO<sub>5</sub> Electrolyte Explored by Neutron and Synchrotron Diffraction, <sup>17</sup>O-NMR and DFT Calculations, *J. Phys. Chem. C*, **119**, 11447-11458 (2015).

Kan, D.; Aso, R.; Kurata, H.; Shimakawa, Y., Interface-Engineered Oxygen Octahedral Tilts in Perovskite Oxide Heterostructures, *APL Mater.*, **3**, [062302-1]-[062302-9] (2015).

Kan, D.; Aso, R.; Kurata, H.; Shimakawa, Y., Phase Control of a Perovskite Transition-Metal Oxide through Oxygen Displacement at Heterointerface, *Dalton Trans.*, **44**, 10594-10607 (2015).

Hosaka, Y.; Ichikawa, N.; Saito, T.; Haruta, M.; Kimoto, K.; Kurata, H.; Shimakawa, Y., Ca<sub>2</sub>FeMnO<sub>6</sub>: a Layered Double Perovskite with Unusually High Valence Fe<sup>4+</sup> in a Layered Arrangement, *Bull. Chem. Soc. Jpn.*, **88**, 657-661 (2015).

Hirai, K.; Kan, D.; Ichikawa, N.; Mibu, K.; Yoda, Y.; Andreeva, M.; Shimakawa, Y., Strain-Induced Significant Increase in Metal-Insulator Transition Temperature in Oxygen-Deficient Fe Oxide Epitaxial Thin Films, *Sci. Rep.*, **5**, [7894-1]-[7894-6] (2015).

Saito, T.; Toyoda, M.; Ritter, C.; Oguchi, T.; Attfield, J. P.; Shimakawa, Y., Symmetry-breaking 60°-Spin order in the A-Site-ordered Perovskite LaMn<sub>3</sub>V<sub>4</sub>O<sub>12</sub>, *Phys. Rev. B*, **90**, [214405-1]-[214405-6] (2014).

Aso, R.; Kan, D.; Shimakawa, Y.; Kurata, H., Strong Dependence of Oxygen Octahedral Distortions in SrRuO<sub>3</sub> Films on Types of Substrate-Induced Epitaxial Strain, *Cryst. Growth & Des. (Communication)*, **14**, 5177-5184 (2014).

— Organotransition Metal Chemistry —

Wakioka, M.; Ishiki, S.; Ozawa, F., Synthesis of Donor-Acceptor Polymers Containing Thiazolo[5,4-d]thiazole Units via Palladium-Catalyzed Direct Arylation Polymerization, *Macromolecules*, **48**, 8382-8388 (2015).

Chang, Y.-H.; Takeuchi, K.; Wakioka, M.; Ozawa, F., C-H Bond Cleavage of Acetonitrile by Iridium Complexes Bearing PNP-Pincer Type Phosphaalkene Ligands, *Organometallics*, **34**, 1957-1962 (2015).

Iizuka, E.; Wakioka, M.; Ozawa, F., Mixed-Ligand Approach to Palladium-Catalyzed Direct Arylation Polymerization: Synthesis of Donor-Acceptor Polymers with Dithienosilole (DTS) and Thienopyrroledione (TPD) Units, *Macromolecules*, **48**, 2989-2993 (2015).

Taguchi, H.; Chang, Y.-H.; Takeuchi, K.; Ozawa, F., Catalytic Synthesis of an Unsymmetrical PNP-Pincer Type Phosphaalkene Ligand, *Organometallics*, **34**, 1589-1596 (2015).

Sugawara, S.; Abe, M.; Fujiwara, Y.; Wakioka, M.; Ozawa, F.; Yamamoto, Y., 1,8-Disubstituted Xanthylidene-Based Remote Carbenes: Photolytic Generation and Isolation of Low-Coordinate Palladium(II) Complex, *Eur. J. Inorg. Chem.*, **3**, 534-541 (2015).

Wakioka, M.; Nakamura, Y.; Montgomery, M.; Ozawa, F., Remarkable Ligand Effect of P(2-MeOC<sub>6</sub>H<sub>4</sub>)<sub>3</sub> on Palladium-Catalyzed Direct Arylation, *Organometallics*, **34**, 198-205 (2015).

— Photonic Elements Science —

Tex, D. M.; Imaizumi, M.; Kanemitsu, Y., Charge Separation in Subcells of Triple-junction Solar Cells Revealed by Time-resolved Photoluminescence Spectroscopy, *Opt. Express*, **23**, A1687 (2015).

Ihara, T.; Kanemitsu, Y., Absorption Cross-section Spectrum of Single CdSe/ZnS Nanocrystals Revealed through Photoluminescence Excitation Spectroscopy, *Phys. Rev. B*, **92**, [155311-1]-[155311-5] (2015).

Baba, E.; Kan, D.; Yamada, Y.; Haruta, M.; Kurata, H.; Kanemitsu, Y.; Shimakawa, Y., Optical and Transport Properties of Transparent Conducting La-Doped SrSnO<sub>3</sub> Thin Films, *J. Phys. D: Appl. Phys.*, **48**, [455106-1]-[455106-5] (2015).

- Okano, M.; Endo, M.; Wakamiya, A.; Yoshita, M.; Akiyama, H.; Kanemitsu, Y., Degradation Mechanism of Perovskite  $\text{CH}_3\text{NH}_3\text{PbI}_3$  Diode Devices Studied by Electroluminescence and Photoluminescence Imaging Spectroscopy, *Appl. Phys. Express*, **8**, [102302-1]-[102302-4] (2015).
- Le, P. Q.; Okano, M.; Yamashita, G.; Nagai, M.; Ashida, M.; Nagaoka, A.; Yoshino, K.; Kanemitsu, Y., Free-carrier Dynamics and Band Tails in  $\text{Cu}_2\text{ZnSn}(\text{S}_x\text{Se}_{1-x})_4$ : Evaluation of Factors Determining Solar Cell Efficiency, *Phys. Rev. B*, **92**, [115204-1]-[115204-7] (2015).
- Masai, H.; Yamada, Y.; Okumura, S.; Yanagida, T.; Fujimoto, Y.; Kanemitsu, Y.; Ina, T., Photoluminescence of Monovalent Indium Centres in Phosphate Glass, *Sci. Rep.*, **5**, [13646-1]-[13646-10] (2015).
- Yamada, Y.; Yamada, T.; Le, P. Q.; Maruyama, N.; Nishimura, H.; Wakamiya, A.; Murata, Y.; Kanemitsu, Y., Dynamic Optical Properties of  $\text{CH}_3\text{NH}_3\text{PbI}_3$  Single Crystals As Revealed by One- and Two-photon Excited Photoluminescence Measurements, *J. Am. Chem. Soc.*, **137**, 10456-10459 (2015).
- Yamada, Y.; Tex, D. M.; Kamiya, I.; Kanemitsu, Y., Femtosecond Upconverted Photocurrent Spectroscopy of InAs Quantum Nanostructures, *Appl. Phys. Lett.*, **107**, [013905-1]-[013905-5] (2015).
- Masai, H.; Miyata, H.; Yamada, Y.; Okumura, S.; Yanagida, T.; Kanemitsu, Y., Tin-Doped Inorganic Amorphous Films for Use as Transparent Monolithic Phosphors, *Sci. Rep.*, **5**, [11224-1]-[11224-12] (2015).
- Le, P. Q.; Okano, M.; Yamashita, G.; Nagai, M.; Ashida, M.; Nagaoka, A.; Yoshino, K.; Kanemitsu, Y., Photocarrier Dynamics in Undoped and Na-Doped  $\text{Cu}_2\text{ZnSnS}_4$  Single Crystals Revealed by Ultrafast Time-resolved Terahertz Spectroscopy, *Appl. Phys. Express*, **8**, [062303-1]-[062303-4] (2015).
- Sakamoto, M.; Chen, L.; Okano, M.; Tex, D. M.; Kanemitsu, Y.; Teranishi, T., Photoinduced Carrier Dynamics of Nearly Stoichiometric Oleylamine-Protected Copper Indium Sulfide Nanoparticles and Nanodisks, *J. Phys. Chem. C*, **119**, 11100-11105 (2015).
- Okano, M.; Hagiya, H.; Sakurai, T.; Akimoto, K.; Shibata, H.; Niki, S.; Kanemitsu, Y., Individual Identification of Free Hole and Electron Dynamics in  $\text{CuIn}_{1-x}\text{Ga}_x\text{Se}_2$  Thin Films by Simultaneous Monitoring of Two Optical Transitions, *Appl. Phys. Lett.*, **106**, [181903-1]-[181903-4] (2015).
- Okano, M.; Le, P. Q.; Kanemitsu, Y., Photocarrier Dynamics in CIGS, CZTS, and Related Materials Revealed by Ultrafast Optical Spectroscopy, *Phys. Status Solidi B*, **252**, 1219-1224 (2015).
- Nishihara, T.; Tahara, H.; Okano, M.; Ono, M.; Kanemitsu, Y., Fast Dissociation and Reduced Auger Recombination of Multiple Excitons in Closely Packed PbS Nanocrystal Thin Films, *J. Phys. Chem. Lett.*, **6**, 1327-1332 (2015).
- Akiyama, H.; Zhu, L.; Yoshita, M.; Kim, C.; Chen, S.; Mochizuki, T.; Kanemitsu, Y., Multi-junction-solar-cell Designs and Characterizations Based on Detailed-Balance Principle and Luminescence Yields, *Proc. SPIE*, **9358**, 93580B (2015).
- Yamada, Y.; Endo, M.; Wakamiya, A.; Kanemitsu, Y., Spontaneous Defect Annihilation in  $\text{CH}_3\text{NH}_3\text{PbI}_3$  Thin Films at Room Temperature Revealed by Time-Resolved Photoluminescence Spectroscopy, *J. Phys. Chem. Lett.*, **6**, 482-486 (2015).
- Chen, S.; Zhu, L.; Yoshita, M.; Mochizuki, T.; Kim, C.; Akiyama, H.; Imaizumi, M.; Kanemitsu, Y., Thorough Subcells Diagnosis in a Multi-junction Solar Cell via Absolute Electroluminescence-efficiency Measurements, *Sci. Rep.*, **5**, [7836-1]-[7836-6] (2015).
- Tex, D. M.; Ihara, T.; Akiyama, H.; Imaizumi, M.; Kanemitsu, Y., Time-resolved Photoluminescence Measurements for Determining Voltage-dependent Charge-separation Efficiencies of Subcells in Triple-junction Solar Cells, *Appl. Phys. Lett.*, **106**, [013905-1]-[013905-4] (2015).
- Yamada, Y.; Nakamura, T.; Endo, M.; Wakamiya, A.; Kanemitsu, Y., Photoelectronic Responses in Solution-Processed Perovskite  $\text{CH}_3\text{NH}_3\text{PbI}_3$  Solar Cells, *IEEE J. Photovolt.*, **5**, 401-405 (2015).

## BIOINFORMATICS CENTER

### — Chemical Life Science —

- Morimoto, K.; Nishikaze, T.; Yoshizawa, A. C.; Kajihara, S.; Aoshima, K.; Oda, Y.; Tanaka, K., GlycanAnalysis Plug-in: a Database Search Tool for N-Glycan Structures Using Mass Spectrometry, *Bioinformatics*, **31**, 2217-9 (2015).
- Kuyama, H.; Yoshizawa, A. C.; Nakajima, C.; Hosako, M.; Tanaka, K., Identification of Human Basic Fetoprotein as Glucose-6-phosphate Isomerase by Using N- and C-Terminal Sequence Tags and Terminal Tag Database, *J. Pharm. Biomed. Anal.*, **112**, 116-25 (2015).
- Yoshizawa, A. C.; Fukuyama, Y.; Kajihara, S.; Kuyama, H.; Tanaka, K., Computational Survey of Sequence Specificity for Protein Terminal Tags Covering Nine Organisms and Its Application to Protein Identification, *J. Proteome Res.*, **14**, 756-67 (2015).
- Suzuki, M.; Nakabayashi, R.; Ogata, Y.; Sakurai, N.; Tokimatsu, T.; Goto, S.; Suzuki, M.; Jasinski, M.; Martinoia, E.; Otagaki, S.; Matsumoto, S.; Saito, K.; Shiratake, K., Multi Omics in Grape Berry Skin Revealed Specific Induction of Stilbene Synthetic Pathway by UV-C Irradiation, *Plant. Physiol.*, **168**, 47-59 (2015).
- Massana, R.; Gobet, A.; Audic, S.; Bass, D.; Bittner, L.; Boutte, C.; Chambouvet, A.; Christen, R.; Claverie, J.-M.; Decelle, J.; Dolan, J. R.; Dunthorn, M.; Edvardsen, B.; Forn, I.; Forster, D.; Guillou, L.; Jaillon, O.; Kooistra, W. H.; Logares, R.; Mahe, F.; Not, F.; Ogata, H.; Pawlowski, J.; Pernice, M. C.; Prober, I.; Romac, S.; Richards, T.; Santini, S.; Shalchian-Tabrizi, K.; Siano, R.; Simon, N.; Stoeck, T.; Vault, D.; Zingone, A.; de Vargas, C., Marine Protist Diversity in European Coastal Waters and Sediments as Revealed by High-throughput Sequencing, *Environ. Microbiol.*, **17**, 4035-4049 (2015).

- Clerissi, C.; Desdevises, Y.; Romac, S.; Audic, S.; de Vargas, C.; Acinas, S. G.; Casotti, R.; Poulain, J.; Wincker, P.; Hingamp, P.; Ogata, H.; Grimsley, N., Deep Sequencing of Amplified Prasinovirus and Host Green Algal Genes from an Indian Ocean Transect Reveals Interacting Trophic Dependencies and New Genotypes, *Environ. Microbiol. Rep.*, **7**, 979-989 (2015).
- Halima, N. B.; Khemakhem, B.; Fendri, I.; Ogata, H.; Baril, P.; Pichon, C.; Abdelkafi, S., Identification of a New Oat Beta-amylase by Functional Proteomics, *Biochim. Biophys. Acta.*, **1864**, 52-61 (2015).
- Kopf, A.; Bicak, M.; Kottmann, R.; Schnetzer, J.; Kostadinov, I.; Lehmann, K.; Fernandez-Guerra, A.; Jeanthon, C.; Rahav, E.; Ullrich, M.; Wichels, A.; Gerds, G.; Polymenakou, P.; Kotoulas, G.; Siam, R.; Abdallah, R. Z.; Sonnenschein, E. C.; Cariou, T.; O'Gara, F.; Jackson, S.; Orlic, S.; Steinke, M.; Busch, J.; Duarte, B.; Cadador, I.; Canning-Clode, J.; Bobrova, O.; Marteinson, V.; Reynisson, E.; Loureiro, C. M.; Luna, G. M.; Quero, G. M.; Loscher, C. R.; Kremp, A.; DeLorenzo, M. E.; Ovreas, L.; Tolman, J.; LaRoche, J.; Penna, A.; Frischer, M.; Davis, T.; Katherine, B.; Meyer, C. P.; Ramos, S.; Magalhaes, C.; Jude-Lemelleur, F.; Aguirre-Macedo, M. L.; Wang, S.; Poulton, N.; Jones, S.; Collin, R.; Fuhrman, J. A.; Conan, P.; Alonso, C.; Stambler, N.; Goodwin, K.; Yakimov, M. M.; Baltar, F.; Bodrossy, L.; Van De Kamp, J.; Frampton, D. M. F.; Ostrowski, M.; Van Ruth, P.; Malthouse, P.; Claus, S.; Deneudt, K.; Mortelmans, J.; Pitois, S.; Wallom, D.; Salter, I.; Costa, R.; Schroeder, D. C.; Kandil, M. M.; Amaral, V.; Biancalana, F.; Santana, R.; Pedrotti, M. L.; Yoshida, T.; Ogata, H.; Ingleton, T.; Munnik, K.; Rodriguez-Ezpeleta, N.; Berteaux-Lecellier, V.; Wecker, P.; Cancio, I.; Vaulot, D.; Bienhold, C.; Ghazal, H.; Chaouni, B.; Essayeh, S.; Ettamimi, S.; Zaid, E. H.; Boukhatem, N.; Bouali, A.; Chahboune, R.; Barrijal, S.; Timinouni, M.; El Otmani, F.; Bennani, M.; Mea, M.; Todorova, N.; Karamfilov, V.; ten Hoopen, P.; Cochran, G.; L'Haridon, S.; Bizsel, K. C.; Vezzi, A.; Lauro, F. M.; Martin, P.; Jensen, R. M.; Hinks, J.; Gebbels, S.; Rosselli, R.; De Pascale, F.; Schiavon, R.; dos Santos, A.; Villar, E.; Pesant, S.; Cataletto, B.; Malfatti, F.; Edirisinghe, R.; Silveira, J. A. H.; Barbier, M.; Turk, V.; Tinta, T.; Fuller, W. J.; Salihoglu, I.; Serakinci, N.; Ergoren, M. C.; Bresnan, E.; Iriberry, J.; Nyhus, P. A. F.; Edvardsen, B.; Karlsen, H. E.; Golyshin, P. N.; Gasol, J. M.; Moncheva, S.; Dzhenbekova, N.; Johnson, Z.; Sinigalliano, C. D.; Gidley, M. L.; Zingone, A.; Danovaro, R.; Tsiamis, G.; Clark, M. S.; Costa, A. C.; El Bour, M.; Martins, A. M.; Collins, E. R.; Ducluzeau, A.-L.; Martinez, J.; Costello, M. J.; Amaral-Zettler, L. A.; Gilbert, J. A.; Davies, N.; Field, D.; Glockner, F. O., The Ocean Sampling Day Consortium, *Giga Science*, **4**, 27 (2015).
- Takemura, M.; Yokobori, S.; Ogata, H., Evolution of Eukaryotic DNA Polymerases via Interaction between Cells and Large DNA Viruses, *J. Mol. Evol.*, **81**, 24-33 (2015).
- Pesant, S.; Not, F.; Picheral, M.; Kandels-Lewis, S.; Le Bescot, N.; Gorsky, G.; Iudicone, D.; Karsenti, E.; Speich, S.; Trouble, R.; Dimier, C.; Searson, S.; Tara Oceans Consortium Coordinators, Open Science Resources for the Discovery and Analysis of Tara Oceans Data, *Sci. Data.*, **2**, 150023 (2015).
- Sunagawa, S.; Coelho, L. P.; Chaffron, S.; Kultima, J. R.; Labadie, K.; Salazar, G.; Djahanschiri, B.; Zeller, G.; Mende, D. R.; Alberti, A.; Cornejo-Castillo, F. M.; Costea, P. I.; Cruaud, C.; d'Ovidio, F.; Engelen, S.; Ferrera, I.; Gasol, J. M.; Guidi, L.; Hildebrand, F.; Kokoszka, F.; Lepoivre, C.; Lima-Mendez, G.; Poulain, J.; Poulos, B. T.; Royo-Llonch, M.; Sarmiento, H.; Vieira-Silva, S.; Dimier, C.; Picheral, M.; Searson, S.; Kandels-Lewis, S.; Tara Oceans Coordinators, Bowler, C.; de Vargas, C.; Gorsky, G.; Grimsley, N.; Hingamp, P.; Iudicone, D.; Jaillon, O.; Not, F.; Ogata, H.; Pesant, S.; Speich, S.; Stemmann, L.; Sullivan, M. B.; Weissenbach, J.; Wincker, P.; Karsenti, E.; Raes, J.; Acinas, S. G.; Bork, P., Structure and Function of the Global Ocean Microbiome, *Science*, **348**, 1261359 (2015).
- de Vargas, C.; Audic, S.; Henry, N.; Decelle, J.; Mahe, F.; Logares, R.; Lara, E.; Berney, C.; Le Bescot, N.; Probert, I.; Carmichael, M.; Poulain, J.; Romac, S.; Colin, S.; Aury, J. M.; Bittner, L.; Chaffron, S.; Dunthorn, M.; Engelen, S.; Flegontova, O.; Guidi, L.; Horak, A.; Jaillon, O.; Lima-Mendez, G.; Lukes, J.; Malviya, S.; Morard, R.; Mulot, M.; Scalco, E.; Siano, R.; Vincent, F.; Zingone, A.; Dimier, C.; Picheral, M.; Searson, S.; Kandels-Lewis, S.; Tara Oceans Coordinators, Acinas, S. G.; Bork, P.; Bowler, C.; Gorsky, G.; Grimsley, N.; Hingamp, P.; Iudicone, D.; Not, F.; Ogata, H.; Pesant, S.; Raes, J.; Sieracki, M. E.; Speich, S.; Stemmann, L.; Sunagawa, S.; Weissenbach, J.; Wincker, P.; Karsenti, E., Eukaryotic Plankton Diversity in the Sunlit Ocean, *Science*, **348**, 1261605 (2015).
- Lima-Mendez, G.; Faust, K.; Henry, N.; Decelle, J.; Colin, S.; Carcillo, F.; Chaffron, S.; Ignacio-Espinosa, J. C.; Roux, S.; Vincent, F.; Bittner, L.; Darzi, Y.; Wang, J.; Audic, S.; Berline, L.; Bontempi, G.; Cabello, A. M.; Coppola, L.; Cornejo-Castillo, F. M.; d'Ovidio, F.; De Meester, L.; Ferrera, I.; Garet-Delmas, M. J.; Guidi, L.; Lara, E.; Pesant, S.; Royo-Llonch, M.; Salazar, G.; Sanchez, P.; Sebastian, M.; Souffreau, C.; Dimier, C.; Picheral, M.; Searson, S.; Kandels-Lewis, S.; Tara Oceans Coordinators; Gorsky, G.; Not, F.; Ogata, H.; Speich, S.; Stemmann, L.; Weissenbach, J.; Wincker, P.; Acinas, S. G.; Sunagawa, S.; Bork, P.; Sullivan, M. B.; Karsenti, E.; Bowler, C.; de Vargas, C.; Raes, J., Determinants of Community Structure in the Global Plankton Interactome, *Science*, **348**, 1262073 (2015).
- Villar, E.; Farrant, G. K.; Follows, M.; Garczarek, L.; Speich, S.; Audic, S.; Bittner, L.; Blanke, B.; Brum, J. R.; Brunet, C.; Casotti, R.; Chase, A.; Dolan, J. R.; d'Ortenzio, F.; Gattuso, J. P.; Grima, N.; Guidi, L.; Hill, C. N.; Jahn, O.; Jamet, J. L.; Le Goff, H.; Lepoivre, C.; Malviya, S.; Pelletier, E.; Romagnan, J. B.; Roux, S.; Santini, S.; Scalco, E.; Schwenck, S. M.; Tanaka, A.; Testor, P.; Vannier, T.; Vincent, F.; Zingone, A.; Dimier, C.; Picheral, M.; Searson, S.; Kandels-Lewis, S.; Tara Oceans Coordinators; Acinas, S.G.; Bork, P.; Boss, E.; de Vargas, C.; Gorsky, G.; Ogata, H.; Pesant, S.; Sullivan, M. B.; Sunagawa, S.; Wincker, P.; Karsenti, E.; Bowler, C.; Not, F.; Hingamp, P.; Iudicone, D., Environmental Characteristics of Agulhas Rings Affect Interocean Plankton Transport, *Science*, **348**, 1261447 (2015).
- Brum, J. R.; Ignacio-Espinosa, J. C.; Roux, S.; Douleier, G.; Acinas, S. G.; Alberti, A.; Chaffron, S.; Cruaud, C.; de Vargas, C.; Gasol, J. M.; Gorsky, G.; Gregory, A. C.; Guidi, L.; Hingamp, P.; Iudicone, D.; Not, F.; Ogata, H.; Pesant, S.; Poulos, B. T.; Schwenck, S. M.; Speich, S.; Dimier, C.; Kandels-Lewis, S.; Picheral, M.; Searson, S.; Tara Oceans Coordinators; Bork, P.; Bowler, C.; Sunagawa, S.; Wincker, P.; Karsenti, E.; Sullivan, M. B., Patterns and Ecological Drivers of Ocean Viral Communities, *Science*, **348**, 1261498 (2015).

Johannessen, T. V.; Bratbak, G.; Larsen, A.; Ogata, H.; Egge, E. S.; Edvardsen, B.; Eikrem, W.; Sandaa, R.-A., Characterisation of Four Novel Viruses Reveal Huge Diversity among Viruses Infecting Prymnesiales (Haptophyta), *Virology*, **476**, 180-188 (2015).

von Dassow, P.; John, U.; Ogata, H.; Probert, I.; Bendif, E. M.; Kegel, J. U.; Audic, S.; Wincker, P.; Da Silva, C.; Claverie, J.-M.; Doney, S.; Glover, D. M.; Flores, D. M.; Herrera, Y.; Lescot, M.; Garet-Delmas, M.-J.; de Vargas, C., Life Cycle Modification in Open Oceans Accounts for Genome Variability in a Cosmopolitan Phytoplankton, *ISME J.*, **9**, 1365-1377 (2015).

[Others]

Ogata, H.; Takemura, M., A Decade of Giant Virus Genomics: Surprising Discoveries Opening New Questions, In "Global Virology I - Identifying and Investigating Viral Diseases", Shapshak, P., Sinnott, J. T., Somboonwit, C., Kuhn, J. Eds., Springer-Verlag New York, pp.147-160 (2015).

Takemura, M.; Ogata, H., Preface: Unveiling the Unknowns in the World of Viruses, *Seibutsu no Kagaku, Iden*, **69**, 264-267 (2015) (in Japanese).

Mihara, T.; Goto, S.; Ogata, H., Diversity and Ecology of Marine Giant Viruses Uncovered from Their Genomes, *Seibutsu no Kagaku, Iden*, **69**, 318-325 (2015) (in Japanese).

#### — Mathematical Bioinformatics —

Chang, C.-J.; Tamura, T.; Chao, K.-M.; Akutsu, T., A Fixed-parameter Algorithm for Detecting a Singleton Attractor in an AND/OR Boolean Network with Bounded Treewidth, *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, **E98-A**, 384-390 (2015).

Nacher, J. C.; Akutsu, T., Structurally Robust Control of Complex Networks, *Phys. Rev. E Stat. Nonlin. Soft. Matter Phys.*, **91**, 12826 (2015).

Uech, L.; Akutsu, T.; Stanley, H. E.; Marcus, A. J.; Kenett, D. Y., Sector Dominance Ratio Analysis of Financial Markets, *Physica A*, **421**, 488-509 (2015).

Lu, W.; Tamura, T.; Song, J.; Akutsu, T., Computing Smallest Intervention Strategies for Multiple Metabolic Networks in a Boolean Model, *J. Comput. Biol.*, **22**, 85-110 (2015).

Hasegawa, T.; Mori, T.; Yamaguchi, R.; Shimamura, T.; Miyano, S.; Imoto, S.; Akutsu, T., Genomic Data Assimilation Using a Higher Moment Filtering Technique for Restoration of Gene Regulatory Networks, *BMC Syst. Biol.*, **9**, 14 (2015).

Zhao, Y.; Hayashida, M.; Cao, Y.; Hwang, J.; Akutsu, T., Grammar-based Compression Approach to Extraction of Common Rules among Multiple Trees of Glycans and RNAs, *BMC Bioinformatics*, **16**, 128 (2015).

Hayashida, M.; Jindalertudomdee, J.; Zhao, Y.; Akutsu, T., Parallelization of Enumerating Tree-like Chemical Compounds by Breadth-First Search Order, *BMC Med. Genomics*, **8(Suppl 2)**, S15 (2015).

Tamura, T.; Lu, W.; Akutsu, T., Computational Methods for Modification of Metabolic Networks, *Comput. Struct. Biotechnol. J.*, **13**, 376-381 (2015).

Mori, T.; Flottmann, M.; Krantz, M.; Akutsu, T.; Klipp, E., Stochastic Simulation of Boolean Rxncon Models: Towards Quantitative Analysis of Large Signaling Networks, *BMC Syst. Biol.*, **9**, 45 (2015).

Akutsu, T.; Tamura, T.; Melkman, A. A.; Takasu, A., On the Complexity of Finding a Largest Common Subtree of Bounded Degree, *Theoretical Computer Science*, **590**, 2-16 (2015).

Kagami, H.; Akutsu, T.; Maegawa, S.; Hosokawa, H.; Nacher, J. C., Determining Associations between Human Diseases and Non-coding RNAs with Critical Roles in Network Control, *Sci. Rep.*, **5**, 14577 (2015).

Cong, X.; Akutsu, T., Matrix Network: a New Data Structure for Efficient Enumeration of Microstates of a Genetic Regulatory Network, *Journal of Information Processing*, **23**, 804-813 (2015).

Mori, T.; Takasu, A.; Jansson, J.; Hwang, J.; Tamura, T.; Akutsu, T., Similar Subtree Search Using Extended Tree Inclusion, *IEEE Transactions on Knowledge and Data Engineering*, **27**, 3360-3373 (2015).

[Others]

Chang, H. T.; Akutsu, T.; Draghici, S.; Ray, O.; Pai, T. W., Intelligent Informatics in Translational Medicine, *Biomed. Res. Int.*, **2015**, 717210 (2015).

#### — Bio-knowledge Engineering —

Zheng, X.; Zhu, S.; Gao, J.; Mamitsuka, H., Instance-wise Weighted Nonnegative Matrix Factorization for Aggregating Partitions with Locally Reliable Clusters, *Proceedings of the 24th International Joint Conference on Artificial Intelligence (IJCAI 2015)*, 4091-4097 (2015)

Zhou, J.; Shui, Y.; Peng, S.; Li, X.; Mamitsuka, H.; Zhu, S., MeSHSim: An R/Bioconductor Package for Measuring Semantic Similarity over MeSH Headings and MEDLINE Documents *J. Bioinform. Comput. Biol.*, **13(6)**, 1542002 (2015).

Liu, K.; Peng, S.; Wu, J.; Zhai, C.; Mamitsuka, H.; Zhu, S., MeSHLabeler: Improving the Accuracy of Large-scale MeSH indexing by Integrating Diverse Evidence, *Bioinformatics (Proceedings of the 23rd International Conference on Intelligent Systems for Molecular Biology (ISMB/ECCB 2015))*, **31(12)**, i339-i347 (2015).

Baba, H.; Takahara, J.; Mamitsuka, H., In Silico Predictions of Human Skin Permeability using Nonlinear Quantitative Structure-Property Relationship Models, *Pharmaceut. Res.*, **32(7)**, 2360-2371 (2015).

Shiga, M.; Mamitsuka, H., Non-negative Matrix Factorization with Auxiliary Information on Overlapping Groups, *IEEE Trans. Knowl. Data Eng.*, **27(6)**, 1615-1628 (2015).

Wang, B.; Chen, X.; Mamitsuka, H.; Zhu, S., BMExpert: Mining MEDLINE for Finding Experts in Biomedical Domains Based on Language Model, *IEEE/ACM Trans. Comput. Biol. Bioinform.*, **12(6)**, 1-9 (2015).

Yotsukura, S.; Mamitsuka, H., Evaluation of Serum-based Cancer Biomarkers: A Brief Review from a Clinical and Computational Viewpoint, *Crit. Rev. Oncol. Hematol.*, **93(2)**, 103-115 (2015).

[Others]

Mamitsuka, H., Predicting Drug-Target Interactions through Machine Learning, *SAR News*, **29**, 2-8 (2015) (in Japanese).

#### **HAKUBI PROJECT**

—Algorithmic Graph Theory with Applications to Bioinformatics—

Jansson, J.; Sadakane, K.; Sung, W.-K., Linked Dynamic Tries with Applications to LZ-Compression in Sublinear Time and Space, *Algorithmica*, **71**, 4, 969-988 (2015).

Asahiro, Y.; Jansson, J.; Miyano, E.; Ono, H., Graph Orientations Optimizing the Number of Light or Heavy Vertices, *Journal of Graph Algorithms and Applications*, **19**, 1, 441-465 (2015).

Mori, T.; Takasu, A.; Jansson, J.; Hwang, J.; Tamura, T.; Akutsu, T., Similar Subtree Search Using Extended Tree Inclusion, *IEEE Transactions on Knowledge and Data Engineering*, **27**, 12, 3360-3373 (2015).

Jansson, J.; Li, Z.; Sung, W.-K., On Finding the Adams Consensus Tree, *Proc. of the 32nd International Symposium on Theoretical Aspects of Computer Science (STACS 2015), LIPIcs*, **30**, 487-499 (2015).

Jansson, J.; Lingas, A.; Lundell, E.-M., The Approximability of Maximum Rooted Triplets Consistency with Fan Triplets and Forbidden Triplets, *Proc. of the 26th Annual Symposium on Combinatorial Pattern Matching (CPM 2015), Lecture Notes in Computer Science*, **9133**, 272-283 (2015).

Jansson, J.; Rajaby, R., A More Practical Algorithm for the Rooted Triplet Distance, *Proc. of the 2nd International Conference on Algorithms for Computational Biology (AlCoB 2015), Lecture Notes in Computer Science*, **9199**, 109-125 (2015).