

PUBLICATIONS

DIVISION OF SYNTHETIC CHEMISTRY

— Organoelement Chemistry —

Tajima, K.; Matsuo, K.; Yamada, H.; Fukui, N.; Shinokubo, H., Diazazethrene Bisimide: A Strongly Electron-Accepting π -System Synthesized *via* the Incorporation of Both Imide Substituents and Imine-Type Nitrogen Atoms into Zethrene, *Chem. Sci.*, **14**(3), 635-642 (2023).

Hisa, T.; Kanno, Y.; Shirai, T.; Oshiki, T.; Mizuhata, Y.; Tokitoh, N.; Fukumoto, H.; Agou, T., Synthesis and Characterization of a Polystyrene-Type Polymer Bearing a Cyclic Perfluoroalkylene Group, *Polymer*, **265**, 125588 (2023).

Nagatomo, T.; Vats, A. K.; Matsuo, K.; Oyama, S.; Okamoto, N.; Suzuki, M.; Koganezawa, T.; Fuki, M.; Masuo, S.; Ohta, K.; Yamada, H.; Kobori, Y., Nonpolymer Organic Solar Cells: Microscopic Phonon Control to Suppress Nonradiative Voltage Loss via Charge-Separated State, *ACS Phys. Chem. Au*, **3**(2), 207-221 (2023).

Suzuki, M.; Miura, M.; Ohkubo, E.; Karimata, H.; Aizawa, N.; Yamada, H.; Nakayama, K., Possibilities and Limitations in Monomer Combinations for Ternary Two-Dimensional Covalent Organic Frameworks, *J. Am. Chem. Soc.*, **145**(5), 3008-3015 (2023).

Kurosaki, R.; Morimoto, H.; Matsuo, K.; Hayashi, H.; Yamada, H.; Aratani, N., An Atropisomerism Study of Large Cycloarylenes: [*n*]Cyclo-4,10-Pyrenylenes' Case, *Chem. Eur. J.*, **29**(24), e202203848 (2023).

Igarashi, H.; Yamauchi, M.; Masuo, S., Correlation between Single-Photon Emission and Size of Cesium Lead Bromide Perovskite Nanocrystals, *J. Phys. Chem. A*, **14**(9), 2441-2447 (2023).

Lv, X.; Morimoto, H.; Liu, N.; Kuzuhara, D.; Aratani, N.; Yamada, H.; Qiu, F.; Xue, S., Bent Dithienoporphyrin(2.1.2.1): Synthesis, Structure, Optical and Electronic Properties, and Metal Complexation, *J. Org. Chem.*, **88**(6), 3466-3473 (2023).

Duan, Y.; Chen, M.; Hayashi, H.; Yamada, H.; Liu, X.; Zhang, L., Buckybowl and Its Chiral Hybrids Featuring Eight-Membered Rings and Helicene Units, *Chem. Sci.*, **14**(38), 10420-10428 (2023).

Mizuhata, Y.; Tokitoh, N., Germaaromatic Compounds, *Organogermanium Compounds: Theory, Experiment, and Applications*, 477-506 (2023).

Lv, X.; Gao, H.; Wu, F.; Liu, N.; Ueno, S.; Yang, X.; Zhang, T.; Aratani, N.; Yamada, H.; Qiu, F.; Shen, Z.; Xue, S., Highly Robust and Antiaromatic Rhenium(I) Rosarin, *Inorg. Chem.*, **62**(12), 4747-4751 (2023).

Kitao, T.; Miura, T.; Nakayama, R.; Tsutsui, Y.; Chan, Y. S.; Hayashi, H.; Yamada, H.; Seki, S.; Hitosugi, T.; Uemura, T., Synthesis of Polyacene by Using a Metal-Organic Framework, *Nat. Synth.*, **2**, 848-854 (2023).

Chiga, Y.; Takahata, R.; Suzuki, W.; Mizuhata, Y.; Tokitoh, N.; Teranishi, T., Isomer-Selective Conversion of Au Clusters by Au(I) Thiolate Insertion, *Inorg. Chem.*, **62**(26), 10049-10053 (2023).

Iwai, K.; Mizuhata, Y.; Nakamura, T.; Goto, M.; Wakamiya, A.; Shimakawa, Y.; Tokitoh, N., Solid-State Chromism of Zwitterionic Triarylmethyl Salt, *Eur. J. Inorg. Chem.*, **26**(31), e202300337 (2023).

Nishino, R.; Tokitoh, N.; Sasayama, R.; Waterman, R.; Mizuhata, Y., Unusual Nuclear Exchange within a Germanium-Containing Aromatic Ring that Results in Germanium Atom Transfer, *Nat. Commun.*, **14**, 4519 (2023).

Mizuhata, Y.; Ijichi, W.; Nishino, R.; Kato, T.; Kayahara, E.; Yamago, S.; Tokitoh, N., Synthesis and Characterization of Novel Hydrodigermenide and Digermyne Radical Anion, *Polyhedron*, **244**, 116614 (2023).

Tanaka, H.; Mizuhata, Y.; Tokitoh, N.; Miyamoto, R.; Kanamori, K.; Kaji, H., Multiple Stimuli-Responsive Supramolecular Organic Framework Under Concomitant Emission Color Changes, *J. Phys. Chem. C*, **127**(41), 20459-20465 (2023).

Yamada, H.; Matsuo, K., (*Invited*) 5,15-Diazatetrabenzoporphyrins: Evaluation as Organic Semiconductors, *ECS Meet. Abstr.*, **MA2023-01**, 1358, (2023).

Miyazaki, K.; Matsuo, K.; Hayashi, H.; Yamauchi, M.; Aratani, N.; Yamada, H., An Unsymmetrical 5,15-Disubstituted Tetrabenzoporphyrin: Effect of Molecular Symmetry on the Packing Structure and Charge Transporting Property, *Org. Lett.*, **25**(40), 7354-7358 (2023).

Yamauchi, M.; Nakatsukasa, K.; Kubo, N.; Yamada, H.; Masuo, S., One-Dimensionally Arranged Quantum-Dot Superstructures Guided by a Supramolecular Polymer Template, *Angew. Chem. Int. Ed.*, **63**(1), e202314329 (2023).

Wakioka, M.; Hatakeyama, K.; Sakai, S.; Seki, T.; Tada, K. I.; Mizuhata, Y.; Nakazato, T.; Koguchi, S.; Shibuya, Y.; Maruyama, Y.; Ayabe, M., Mixed-Ligand Approach to Palladium-Catalyzed Direct Arylation of Heteroarenes with Aryl Chlorides: Controlling Reactivity of Catalytic Intermediates via Dynamic Ligand Exchange, *Organometallics*, **42**(24), 3454-3465 (2023).

Fujimori, S.; Mizuhata, Y.; Tokitoh, N., Recent Progress in the Chemistry of Heavy Aromatics, *Proc. Jpn. Acad., Ser. B.*, **99**(10), 480-512 (2023).

Tsuji, S.; Tokitoh, N.; Yamada, H.; Mizuhata, Y., The Reduction of Metallabenzene: Different Scenarios Highly Dependent on the Central Group 14 Elements, Si vs. Ge, *Chem. Asian J.*, **19**(2), e202300945 (2023).

[Others]

Yamauchi, M.; Masuo, S., How to Arrange Quantum Dots?, *Monthly Chemistry*, **78**(2), 70-71 (2023).

— Structural Organic Chemistry —

Hashikawa, Y.; Sadai, S.; Murata, Y., Bilateral π -Extension of an Open-[60]Fullerene in a Helical Manner, *Chem. Commun.*, **59**, 6560-6563 (2023).

Hashikawa, Y.; Murata, Y., C2-Insertion into a Fullerene Orifice, *Chem. Commun.*, **59(12)**, 1645-1648 (2023).

Sadai, S.; Hashikawa, Y.; Murata, Y., Open-[60]Fullerene-Aniline Conjugates with Near-Infrared Absorption, *RSC Adv.*, **13(21)**, 14575-14579 (2023).

Hashikawa, Y.; Sadai, S.; Murata, Y., Synthesis of Open-[70] Fullerenes Bearing Huge Orifices, *Chem. Commun.*, **59**, 7387-7390 (2023).

Briš, A.; Murata, Y.; Hashikawa, Y.; Margetić, D., Utilization of *Sym*-Tetrazines as Guanidine Delivery Cycloaddition Reagents, *J. Mol. Struct.*, **1272**, 134207 (2023).

Zhang, Z.; Murata, Y.; Hirose, T., Circularly Polarized Luminescence of Hetero[*n*]Helicenes with 2,1,3-Thiadiazole Rings at Both Ends: Design of Magnetically-Allowed Electronic Transitions via Heteroatom Embedding, *Tetrahedron*, **142**, 133514 (2023).

Hashikawa, Y.; Sadai, S.; Okamoto, S.; Murata, Y., Near-Infrared-Absorbing Chiral Open [60]Fullerenes, *Angew. Chem. Int. Ed.*, **62(2)**, e202215380 (2023).

Hashikawa, Y.; Sadai, S.; Murata, Y., Synthesis of Hydrogen-Bonded Open-[60]Fullerenol Dimers, *ChemPlusChem*, **88(4)**, e202300136 (2023).

Sadai, S.; Hashikawa, Y.; Murata, Y., π -Extended Open-[70] Fullerenes with a Fused Azaacene, *Org. Lett.*, **25(16)**, 2815-2819 (2023).

Hashikawa, Y.; Sadai, S.; Murata, Y., Construction of a 21-Membered-Ring Orifice on [60]Fullerene, *ChemPlusChem*, **88(9)**, e202300225 (2023).

Huang, G.; Ide, Y.; Hashikawa, Y.; Hirose, T.; Murata, Y., CH₃CN@open-C₆₀: An Effective Inner-Space Modification and Isotope Effect Inside a Nano-Sized Flask, *Chem. Eur. J.*, **29(47)**, e202301161 (2023).

Hashikawa, Y.; Murata, Y., Water in Fullerenes, *Bull. Chem. Soc. Jpn.*, **96(9)**, 943-967 (2023).

— Synthetic Organic Chemistry —

Sato, Y.; Miyamoto, Y.; Matsui, T.; Sumida, Y.; Ohmiya, H., Diastereoselective Congested β -Amido Ketone Synthesis via NHC-Catalyzed Radical-Radical Coupling, *Chem Catal.*, **3**, 100736 (2023).

Goto, Y.; Sano, M.; Sumida, Y.; Ohmiya, H., N-Heterocyclic Carbene- and Organic Photoredox-Catalysed Meta-Selective Acylation of Electron-Rich Arenes, *Nat. Synth.*, **2**, 1037-1045 (2023).

Nakamura, R.; Yamazaki, T.; Kondo, Y.; Tsukada, M.; Miyamoto, Y.; Arakawa, N.; Sumida, Y.; Kiya, T.; Arai, S.; Ohmiya, H., Radical Caging Strategy for Cholinergic Optopharmacology, *J. Am. Chem. Soc.*, **145**, 10651-10658 (2023).

Oya, R.; Ota, K.; Fuki, M.; Kobori, Y.; Higashi, M.; Nagao, K.; Ohmiya, H., Biomimetic Design of an α -Ketoacylphosphonium-Based Light-Activated Oxygenation Auxiliary, *Chem. Sci.*, **14**, 10488-10493 (2023).

Takekawa, Y.; Nakagawa, M.; Nagao, K.; Ohmiya, H., A Quadruple Catalysis Enabling Intermolecular Branch-Selective Hydroacylation of Styrenes, *Chem. Eur. J.*, **29**, e202301484 (2023).

Ota, K.; Nagao, K.; Hata, D.; Sugiyama, H.; Segawa, Y.; Tokunoh, R.; Seki, T.; Miyamoto, N.; Sasaki, Y.; Ohmiya, H., Synthesis of Tertiary Alkylphosphonate Oligonucleotides Through Light-Driven Radical-Polar Crossover Reactions, *Nat. Commun.*, **14**, 6856 (2023).

— Advanced Inorganic Synthesis —

Matsumoto, K.; Sato, R.; Teranishi, T., Stabilization of Unprecedented Crystal Phases of Metal Nanomaterials, *Trends Chem.*, **5(3)**, 201-213 (2023).

Kobiyama, E.; Tahara, H.; Saruyama, M.; Sato, R.; Teranishi, T.; Kanemitsu, Y., Picosecond Trion Photocurrent Dynamics in FAPbI₃ Quantum Dot Films, *Appl. Phys. Lett.*, **122(25)**, 252106 (2023).

Cho, K.; Yamada, T.; Saruyama, M.; Sato, R.; Teranishi, T.; Kanemitsu, Y., Temperature Dependence of Photoluminescence Spectrum of Single Lead Halide Perovskite Nanocrystals: Effect of Size on the Phase Transition Temperature, *J. Chem. Phys.*, **158(20)**, 20114-1-201104-8 (2023).

Endo, K.; Saruyama, M.; Teranishi, T., Location-Selective Immobilisation of Single-Atom Catalysts on the Surface or within the Interior of Ionic Nanocrystals Using Coordination Chemistry, *Nat. Commun.*, **14(1)**, 4241 (2023).

Gao, Y.; Uchiyama, T.; Yamamoto, K.; Watanabe, T.; Tominaka, S.; Thakur, N.; Sato, R.; Teranishi, T.; Imai, H.; Sakurai, Y.; Uchimoto, Y., Origin of High Activity and Durability of Confined Ordered Intermetallic PtCo Catalysts for the Oxygen Reduction Reaction in Rotating Disk Electrode and Fuel Cell Operating Conditions, *ACS Catal.*, **13(16)**, 10988-11000 (2023).

Chiga, Y.; Takahata, R.; Suzuki, W.; Mizuhata, Y.; Tokitoh, N.; Teranishi, T., Isomer-Selective Conversion of Au Clusters by Au(I) Thiolate Insertion, *Inorg. Chem.*, **62(26)**, 10049-10053 (2023).

Gao, Y.; Uchiyama, T.; Yamamoto, K.; Watanabe, T.; Thakur, N.; Sato, R.; Teranishi, T.; Imai, H.; Sakurai, Y.; Uchimoto, Y., Protection Against Absorption Passivation on Platinum by a Nitrogen-Doped Carbon Shell for Enhanced Oxygen Reduction Reaction, *ACS Appl. Mater. Interfaces*, **15(25)**, 30240-30248 (2023).

DIVISION OF MATERIALS CHEMISTRY

— Chemistry of Polymer Materials —

Inoue, Y.; Kim, Y.; Hasegawa, H.; Yoshida, Y.; Sakakibara, K.; Tsujii, Y., A Novel Electrochemical Biosensing Method with Double-Layered Polymer Brush Modified Electrode, *Colloids Surf. B*, **222**, 113105 (2023).

Ishida, K.; Kondo, T., Anisotropic Frictional Properties Induced by Cellulose Nanofibril Assembly, *Biomacromolecules*, **24(7)**, 3009-3015 (2023).

Sakakibara, K.; Tsujii, Y., Visualization of Fibrillated Cellulose in Polymer Composites Using a Fluorescent-Labeled Polymer Dispersant, *ACS Sustain. Chem. Eng.*, **11(16)**, 6332-6342 (2023).

Ishida, K.; Kondo, T., Evaluation of Surface Free Energy Inducing Interfacial Adhesion of Amphiphilic Cellulose Nanofibrils, *Biomacromolecules*, **24(8)**, 3786-3793 (2023).

Okubo, H.; Kagiwata, D.; Sasaki, S.; Tsujii, Y.; Nakano, K., Operando Tribo-Raman Spectroscopic Observation for Wear Processes of Superlow Frictional Concentrated Polymer Brushes at Frictional Interface, *Polym. Test.*, **127**, 108170 (2023).

Nakanishi, Y.; Ishige, R.; Ogawa, H.; Huang, Y.; Sakakibara, K.; Ohno, K.; Kanaya, T.; Takenaka, M.; Tsujii, Y., Unified Explanation for Self-Assembly of Polymer-Brush-Modified Nanoparticles in Ionic Liquids, *Polym. J.*, **55**, 1199-1209 (2023).

— Polymer Controlled Synthesis —

Chen, D.; Wada, Y.; Kusakabe, Y.; Sun, L.; Kayahara, E.; Suzuki, K.; Tanaka, H.; Yamago, S.; Kaji, H.; Zysman-Colman, E., A Donor–Acceptor 10-Cycloparaphenylene and Its Use as an Emitter in an Organic Light-Emitting Diode, *Org. Lett.*, **25**(6), 998-1002 (2023).

Mizuhata, Y.; Ijichi, W.; Nishino, R.; Kato, T.; Kayahara, E.; Yamago, S.; Tokitoh, N., Synthesis and Characterization of Novel Hydrodigermenide and Digermyne Radical Anion, *Polyhedron*, **244**, 116614 (2023).

Miyazawa, Y.; Wang, Z.; Hatano, S.; Takagi, R.; Matsuoka, H.; Amamizu, N.; Kitagawa, Y.; Kayahara, E.; Yamago, S.; Abe, M., Generation and Characterization of a Tetraradical Embedded in a Curved Cyclic Paraphenylene Unit, *Chem. Eur. J.*, **29**(42), e202301009 (2023).

Jiang, Y.; Kibune, M.; Tosaka, M.; Yamago, S., Practical Synthesis of Dendritic Hyperbranched Polyacrylates and Their Topological Block Polymers by Organotellurium-Mediated Emulsion Polymerization in Water, *Angew. Chem. Int. Ed.*, **62**(35), e202306916 (2023).

Tosaka, M.; Takeuchi, H.; Kibune, M.; Tong, T.; Zhu, N.; Yamago, S., Stochastic Simulation of Controlled Radical Polymerization Forming Dendritic Hyperbranched Polymers, *Angew. Chem. Int. Ed.*, **62**(29), e202305127 (2023).

Terabayashi, T.; Kayahara, E.; Zhang, Y.; Mizuhata, Y.; Tokitoh, N.; Nishinaga, T.; Kato, T.; Yamago, S., Synthesis of Twisted [n] Cycloparaphenylene by Alkene Insertion, *Angew. Chem. Int. Ed.*, **62**(2), e202214960 (2023).

[Others]

Yamago, S., History Repeats Itself: The Transition from Organic Synthesis to Macromolecular Synthesis, *Dramatic Synthetic Organic Chemistry: A Circle of Inspiration 100, The Society of Synthetic Organic Chemistry, Japan, Ed., Kagakudojin*, 130-131 (2023).

Yamago, S.; Jiang, Y., Practical Synthesis of Structure-Controlled Hyperbranched Polymers by Radical Polymerization, *Kobunshi*, **72**, 463-467 (2023).

— Inorganic Photonics Materials —

Tabuchi, H.; Matsuzaki, Y.; Furuya, N.; Nakano, Y.; Watanabe, H.; Tokuda, N.; Mizuochi, N.; Ishi-Hayase, J., Temperature Sensing with RF-Dressed States of Nitrogen-Vacancy Centers in Diamond, *J. Appl. Phys.*, **133**(2), 24401 (2023).

Shimotsuma, Y.; Kinouchi, K.; Yanoshita, R.; Fujiwara, M.; Mizuochi, N.; Uemoto, M.; Shimizu, M.; Miura, K., Formation of NV Centers in Diamond by a Femtosecond Laser Single Pulse, *Opt. Express*, **31**(2), 1594-1603 (2023).

Haruyama, M.; Kato, H.; Ogura, M.; Kato, Y.; Takeuchi, D.; Yamasaki, S.; Iwasaki, T.; Morishita, H.; Fujiwara, M.; Mizuochi, N.; Makino, T., Electroluminescence of Negatively Charged Single NV Centers in Diamond, *Appl. Phys. Lett.*, **122**(7), 72101 (2023).

Fujiwara, M.; Inoue, S.; Masuno, S.; Fu, H.; Tokita, S.; Hashida, M.; Mizuochi, N., Creation of NV Centers over a Millimeter-Sized Region by Intense Single-Shot Ultrashort Laser Irradiation, *APL Photonics*, **8**(3), 036108 (2023).

Morishita, H.; Morioka, N.; Nishikawa, T.; Yao, H.; Onoda, S.; Abe, H.; Ohshima, T.; Mizuochi, N., Spin-Dependent Dynamics of Photocarrier Generation in Electrically Detected Nitrogen-Vacancy-Based Quantum Sensing, *Phys. Rev. Appl.*, **19**(3), 34061 (2023).

Deguchi, H.; Hayashi, T.; Saito, H.; Nishibayashi, Y.; Teramoto, M.; Fujiwara, M.; Morishita, H.; Mizuochi, N.; Tatsumi, N., Compact and Portable Quantum Sensor Module Using Diamond NV Centers, *Appl. Phys. Express*, **16**(6), 62004 (2023).

Shimizu, M.; Makino, T.; Kato, H.; Fujiwara, M.; Ogura, M.; Mizuochi, N.; Hatano, M., Charge States of Nitrogen-Vacancy Centers in Fermi Level Controlled Diamond n-i-n Junctions, *J. Appl. Phys.*, **133**(21), 214401 (2023).

Geng, J.; Shalomayeva, T.; Gryzlova, M.; Mukherjee, A.; Santonocito, S.; Dzhavadzade, D.; Dasari, D.; Kato, H.; Stöhr, R.; Denisenko, A.; Mizuochi, N.; Wrachtrup, J., Dopant-Assisted Stabilization of Negatively Charged Single Nitrogen-Vacancy Centers in Phosphorus-Doped Diamond at Low Temperatures, *npj Quantum Inf.*, **9**, 110 (2023).

Fujiwara, M.; Fu, H.; Hariki, N.; Ohki, I.; Makino, Y.; Liu, M.; Tsurui, A.; Yoshikawa, T.; Nishikawa, M.; Mizuochi, N., Germanium-Vacancy Centers in Detonation Nanodiamond for All-Optical Nanoscale Thermometry, *Appl. Phys. Lett.*, **123**, 181903 (2023).

Kinouchi, K.; Shimotsuma, Y.; Uemoto, M.; Fujiwara, M.; Mizuochi, N.; Shimizu, M.; Miura, K., Laser Writing of Preferentially Orientated Nitrogen-Vacancy Centers in Diamond, *Carbon Trends*, **13**, 100318 (2023).

— Nanospintronics —

Kawarazaki, R.; Iijima, R.; Narita, H.; Hisatomi, R.; Shiota, Y.; Moriyama, T.; Ono, T., Rectification Effect of Non-Centrosymmetric Nb/V-Ta Superconductor, *J. Magn. Soc.*, **47**(5), 133-136 (2023).

Ham, W. S.; Ho, T. H.; Shiota, Y.; Iino, T.; Ando, F.; Ikebuchi, T.; Kotani, Y.; Nakamura, T.; Kan, D.; Shimakawa, Y.; Moriyama, T.; Im, E.; Lee, N. J.; Kim, K. W.; Hong, S. C.; Rhim, S. H.; Ono, T.; Kim, S., Bulk Rashba-Type Spin Splitting in Non-Centrosymmetric Artificial Superlattices, *Adv. Sci.*, **10**(12), 2206800 (2023).

Tanaka, M.; Furuta, M.; Ichikawa, T.; Morishita, M.; Hung, Y.-M.; Honda, S.; Ono, T.; Mibu, K., Generation of Spin-Polarized Electronic Currents Using Perpendicularly Magnetized Cobalt Ferrite Spin-Filtering Barriers Grown on Spinel-Type-Conductive Layers, *Appl. Phys. Lett.*, **122**, 42401 (2023).

Funada, S.; Ishikawa, Y.; Kimata, M.; Hayashi, K.; Sano, T.; Sugi, K.; Fujii, Y.; Mitsudo, S.; Shiota, Y.; Ono, T.; Moriyama, T., Electrical Detection of Antiferromagnetic Dynamics in Gd-Co Thin Films Using 154-GHz Gyrotron Irradiation, *Phys. Rev. Appl.*, **19**(3), L031003 (2023).

Kobayashi, Y.; Shiota, Y.; Narita, H.; Ono, T.; Moriyama, T., Pulse-Width Dependence of Spin–Orbit Torque Switching in Mn₃Sn/Pt Thin Films, *Appl. Phys. Lett.*, **122**(12), 122405 (2023).

Hisatomi, R.; Taga, K.; Sasaki, R.; Shiota, Y.; Moriyama, T.; Ono, T., Quantitative Optical Imaging Method for Surface Acoustic Waves Using Optical Path Modulation, *Phys. Rev. B*, **107**, 165416 (2023).

Hayashi, D.; Shiota, Y.; Ishibashi, M.; Hisatomi, R.; Moriyama, T.; Ono, T., Observation of Mode Splitting by Magnon–Magnon Coupling in Synthetic Antiferromagnets, *Appl. Phys. Express*, **16**, 53004 (2023).

Moriyama, T.; Sanchez-Tejerina, L.; Oda, K.; Ohkochi, T.; Kimata, M.; Shiota, Y.; Nojiri, H.; Finocchio, G.; Ono, T., Micromagnetic Understanding of Evolutions of Antiferromagnetic Domains in NiO, *Phys. Rev. Mater.*, **7**(5), 54401 (2023).

Ryu, J.; Avci, C. O.; Song, M.; Huang, M.; Thompson, R.; Yang, J.; Ko, S.; Karube, S.; Tezuka, N.; Kohda, M.; Kim, K.-J.; Beach, G. S. D.; Nitta, J., Deterministic Current-Induced Perpendicular Switching in Epitaxial Co/Pt Layers without an External Field, *Adv. Funct. Mater.*, **33**, 2209693 (2023).

Narita, H.; Ishizuka, J.; Kan, D.; Shimakawa, Y.; Yanase, Y.; Ono, T., Magnetization Control of Zero-Field Intrinsic Superconducting Diode Effect, *Adv. Mater.*, **35**, 2304083 (2023).

Stebliy, M. E.; Bazrov, M. A.; Namsaraev, Z. Zh.; Letushev, M. E.; Kozlov, A. G.; Antonov, V. A.; Stebliy, E. V.; Davydenko, A. V.; Ognev, A. V.; Shiota, Y.; Ono, T.; Samardak, A. S., Nonuniform Current-Driven Formation and Displacement of the Magnetic Compensation Point in Variable-Width Nanoscale Ferrimagnets, *ACS Appl. Mater. Interfaces*, **15**(34), 40792-40798 (2023).

Sugi, K.; Ishikawa, T.; Kimata, M.; Shiota, Y.; Ono, T.; Kato, T.; Moriyama, T., Spin Hall Magnetoresistive Detection of Easy-Plane Magnetic Order in the Van der Waals Antiferromagnet NiPS₃, *Phys. Rev. B*, **108**, 64434 (2023).

DIVISION OF BIOCHEMISTRY

— Biofunctional Design-Chemistry —

Ida, H.; Taira, N.; Azuma, K.; Kumatani, A.; Akishiba, M.; Futaki, S.; Takahashi, Y.; Shiku, H., Surface Morphology Live-Cell Imaging Reveals How Macropinocytosis Inhibitors Affect Membrane Dynamics, *Electrochim. Acta*, **441**, 141783 (2023).

Negi, S.; Imanishi, M.; Hamori, M.; Kawahara-Nakagawa, Y.; Nomura, W.; Kishi, K.; Shibata, N.; Sugiura, Y., The Past, Present, and Future of Artificial Zinc Finger Proteins: Design Strategies and Chemical and Biological Applications, *J. Biol. Inorg. Chem.*, **28**(3), 249-261 (2023).

Xu, W.; Kadoya, Y.; Sennari, K.; Islam, W.; Zhang, T.; Sawa, T.; Akizuki, F.; Hirose, H.; Futaki, S.; Fujiwara, Y.; Komohara, Y.; Niidome, T., Disulfiram Encapsulated in Polymer Nanoparticles Ameliorates Thioacetamide-Induced Liver Injury, *J. Drug Delivery Sci. Technol.*, **88**, 104981 (2023).

Nishimura, M.; Kawaguchi, Y.; Kuroki, K.; Nakagawa, Y.; Masuda, T.; Sakai, T.; Kawano, K.; Hirose, H.; Imanishi, M.; Takatani-Nakase, T.; Afonin, S.; Ulrich, A.S.; Futaki, S., Structural Dissection of Epsin-1 N-Terminal Helical Peptide: The Role of Hydrophobic Residues in Modulating Membrane Curvature, *Chem. Eur. J.*, **29**(29), e202300129 (2023).

Hirose, H.; Nakata, E.; Zhang, Z.; Shibano, Y.; Maekawa, M.; Morii, T.; Futaki, S., Macropinoscope: Real-Time Simultaneous Tracking of pH and Cathepsin B Activity in Individual Macropinosomes, *Anal. Chem.*, **95**(30), 11410-11419 (2023).

Tanaka, K.; Suda, A.; Uesugi, M.; Futaki, S.; Imanishi, M., Xanthine Derivatives Inhibit FTO in an L-Ascorbic Acid-Dependent Manner, *Chem. Commun.*, **59**(72), 10809-10812 (2023).

Omura, M.; Morimoto, K.; Araki, Y.; Hirose, H.; Kawaguchi, Y.; Kitayama, Y.; Goto, Y.; Harada, A.; Fujii, I.; Takatani-Nakase, T.; Futaki, S.; Nakase, I., Inkjet-Based Intracellular Delivery System that Effectively Utilizes Cell-Penetrating Peptides for Cytosolic Introduction of Biomacromolecules through the Cell Membrane, *ACS Appl. Mater. Interfaces*, **15**(41), 47855-47865 (2023).

— Chemistry of Molecular Biocatalysts —

Okabe, S.; Kitaoka, K.; Suzuki, T.; Kuruma, M.; Hagihara, S.; Yamaguchi, S.; Fukui, K.; Seto, Y., Desmethyl Type Germinone, a Specific Agonist for the HTL/KAI2 Receptor, Induces the Arabidopsis Seed Germination in a Gibberellin-Independent Manner, *Biochem. Biophys. Res. Commun.*, **649**, 110-117 (2023).

Mashiguchi, K.; Morita, R.; Tanaka, K.; Kodama, K.; Kameoka, H.; Kyojuka, J.; Seto, Y.; Yamaguchi, S., Activation of Strigolactone Biosynthesis by the DWARF14-LIKE/KARRIKIN-INSENSITIVE2 Pathway in Mycorrhizal Angiosperms, but Not in Arabidopsis, a Non-Mycorrhizal Plant, *Plant Cell Physiol.*, **64**(9), 1066-1078 (2023).

Sun, R.; Okabe, M.; Miyazaki, S.; Ishida, T.; Mashiguchi, K.; Inoue, K.; Yoshitake, Y.; Yamaoka, S.; Nishihama, R.; Kawaide, H.; Nakajima, M.; Yamaguchi, S.; Kohchi, T., Biosynthesis of Gibberellin-Related Compounds Modulates Far-Red Light Responses in the Liverwort *Marchantia polymorpha*, *Plant Cell*, **35**(11), 4111-4132 (2023).

Cui, J.; Nishide, N.; Mashiguchi, K.; Kuroha, K.; Miya, M.; Sugimoto, K.; Itoh, J.-I.; Yamaguchi, S.; Izawa, T., Fertilization Controls Tiller Numbers via Transcriptional Regulation of a *MAX1*-like Gene in Rice Cultivation, *Nat. Commun.*, **14**(1), 3191 (2023).

Kameoka, H.; Shimazaki, S.; Mashiguchi, K.; Watanabe, B.; Komatsu, A.; Yoda, A.; Mizuno, Y.; Kodama, K.; Okamoto, M.; Nomura, T.; Yamaguchi, S.; Kyojuka, J., *DIENELACTONE HYDROLASE LIKE PROTEIN1* Negatively Regulates the KAI2-Ligand Pathway in *Marchantia polymorpha*, *Curr. Biol.*, **33**(16), 3505-3513 (2023).

— Molecular Biology —

Akagi, C.; Kurihara, Y.; Makita, Y.; Kawauchi, M.; Tsuge, T.; Aoyama, T., Translational Activation of Ribosome-Related Genes at Initial Photoreception Is Dependent on Signals Derived from Both the Nucleus and the Chloroplasts in *Arabidopsis thaliana*, *J. Plant Res.*, **136**(2), 227-238 (2023).

— Chemical Biology —

Kawagoe, F.; Mototani, S.; Mendoza, A.; Takemoto, Y.; Uesugi, M.; Kittaka, A., Structure–Activity Relationship Studies on Vitamin D-Based Selective SREBP/SCAP Inhibitor KK-052, *RSC med. chem.*, **14**(10), 2030-2034 (2023).

Tanaka, K.; Suda, A.; Uesugi, M.; Futaki, S.; Imanishi, M., Xanthine Derivatives Inhibit FTO in an L-Ascorbic Acid-Dependent Manner, *Chem. Commun.*, **59(72)**, 10809-10812 (2023).

Perron, A.; Mandal, S.; Chuba, T. N.; Mao, D.; Singh, V. P.; Noda, N.; Tan, R.; Vu, H. T.; Abo, M.; Uesugi, M., Small-Molecule Drug Repurposing for Counteracting Phototoxic A2E Aggregation, *ACS Chem. Biol.*, **18(10)**, 2170-2175 (2023).

Zhuo, S.-H.; Noda, N.; Hioki, K.; Jin, S.; Hayashi, T.; Hiraga, K.; Momose, H.; Li, W.-H.; Zhao, L.; Mizukami, T.; Ishii, K. J.; Li, Y.-M.; Uesugi, M., Identification of a Self-Assembling Small-Molecule Cancer Vaccine Adjuvant with an Improved Toxicity Profile, *J. Med. Chem.*, **66(18)**, 13266-13279 (2023).

DIVISION OF ENVIRONMENTAL CHEMISTRY — Molecular Materials Chemistry —

Nagamura, N.; Sasabe, H.; Sato, H.; Ito, N.; Abe, S.; Sukegawa, Y.; Yokoyama, D.; Kaji, H.; Kido, J., Robust Spirobifluorene Core Based Hole Transporters with High Mobility for Long-Life Green Phosphorescent Organic Light-Emitting Devices, *Chem. Eur. J.*, **29(1)**, e202202636-1-e202202636-8 (2023).

Ando, H.; Suzuki, K.; Kaji, H.; Kambe, T.; Nishina, Y.; Nakano, C.; Gotoh, K., Dynamic Nuclear Polarization – Nuclear Magnetic Resonance for Analyzing Surface Functional Groups on Carbonaceous Materials, *Carbon*, **206(25)**, 84-93 (2023).

Shizu, K.; Ren, Y.; Kaji, H., Promoting Reverse Intersystem Crossing in Thermally Activated Delayed Fluorescence via the Heavy-Atom Effect, *J. Phys. Chem. A*, **127(2)**, 439-449 (2023).

Miranda-Salinas, H.; Rodriguez-Serrano, A.; Kaminski, J. M.; Dinkelbach, F.; Hiromichi, N.; Kusakabe, Y.; Kaji, H.; Marian, C. M.; Monkman, A. P., Conformational, Host, and Vibrational Effects Giving Rise to Dynamic TADF Behavior in the Through-Space Charge Transfer, Triptycene Bridged Acridine-Triazine Donor Acceptor TADF Molecule TpAT-tFFO, *J. Phys. Chem. C*, **127(18)**, 8607-8617 (2023).

Tanaka, H.; Mizuhata, Y.; Tokitoh, N.; Miyamoto, R.; Kanamori, K.; Kaji, H., Multiple Stimuli-Responsive Supramolecular Organic Framework under Concomitant Emission Color Changes, *J. Phys. Chem. C*, **127(41)**, 20459-20465 (2023).

Chen, D.; Wada, Y.; Kusakabe, Y.; Sun, L.; Kayahara, E.; Suzuki, K.; Tanaka, H.; Yamago, S.; Kaji, H.; Zysman-Colman, E., A Donor-Acceptor 10-Cycloparaphenylene and Its Use as an Emitter in an Organic Light-Emitting Diode, *Org. Lett.*, **25(6)**, 998-1002 (2023).

Suzuki, K.; Kaji, H., Torsion Angle Analysis of a Thermally Activated Delayed Fluorescence Emitter in an Amorphous State Using Dynamic Nuclear Polarization Enhanced Solid-State NMR, *J. Am. Chem. Soc.*, **145(30)**, 16324-16329 (2023).

Madushani, B.; Mamada, M.; Goushi, K.; Nguyen, T. B.; Nakanotani, H.; Kaji, H.; Adachi, C., Multiple Donor-Acceptor Design for Highly Luminescent and Stable Thermally Activated Delayed Fluorescence Emitters, *Sci. Rep.*, **13**, 7644-1-7644-8 (2023).

Yumoto, S.; Katsumata, J.; Osawa, F.; Wada, Y.; Suzuki, K.; Kaji, H.; Marumoto, K., Operando ESR Observation in Thermally Activated Delayed Fluorescent Organic Light-Emitting Diodes, *Sci. Rep.*, **13**, 11109-1 (2023).

Tsuji, Y.; Kanno, N.; Goto, C.; Katao, S.; Okajima, Y.; Reine, P.; Imbrasas, P.; Reineke, S.; Shizu, K.; Nakashima, T.; Kaji, H.; Kawai, T.; Louis, M., A Binaphthalimide Motif as a Chiral Scaffold for Thermally Activated Delayed Fluorescence with Circularly Polarized Luminescence Activity, *J. Mater. Chem. C*, **11(18)**, 5968-5978 (2023).

Kanno, N.; Ren, Y.; Kusakabe, Y.; Suzuki, K.; Shizu, K.; Tanaka, H.; Wada, Y.; Nakagawa, H.; Geldsetzer, J.; Kaji, H., Thioxanthone-Containing Blue Thermally Activated Delayed Fluorescent Emitter, *Appl. Phys. Express*, **16(1)**, 011006-1-011006-4 (2023).

[Others]

Sato, H.; Kanda, S.; Kaji, H., Molecular-Level Analysis of Charge Traps in an Organic Amorphous Film by Multiscale Simulation, *The 84th The Japan Society of Applied Physics Autumn Meeting 2023, TKP Kumamoto Conference Center* (2023).

Shizu, K.; Kaji, H., Accelerating Reverse Intersystem Crossing in Thermally Activated Delayed Fluorescence via the Heavy-Atom Effect, *International Congress on Pure & Applied Chemistry (ICPAC) Bali 2023, The Patra Bali Resort & Villas* (2023).

Tanaka, H.; Mizuhata, Y.; Tokitoh, N.; Miyamoto, R.; Kanamori, K.; Kaji, H., Stimuli-Responsive Supramolecular Organic Framework involving Reversible Fluorochromic Behaviors, *Annual Meeting on Photochemistry 2023, International Conference Center Hiroshima* (2023).

Shizu, K.; Kaji, H., Theoretical Understanding of Multiple Resonance Thermally Activated Delayed Fluorescence Mechanism, *Society of Computer Chemistry, Japan, 2023 Spring Meeting, Ookayama Campus, Tokyo Institute of Technology* (2023).

Suzuki, K.; Kaji, H., Structural and Dynamics Analysis of Organic Semiconducting Materials by Solid State NMR, *The 243rd ECS Meeting, Hynes Convention Center* (2023).

Shizu, K.; Kaji, H., Theoretical Understanding of Multiple Resonance Thermally Activated Delayed Fluorescence, *The 103th CSJ Annual Meeting (2024), Noda Campus, Tokyo University of Science* (2023).

Kanno, N.; Ren, Y.; Kusakabe, Y.; Suzuki, K.; Shizu, K.; Wada, Y.; Geldsetzer, J.; Kaji, H., Thioxanthone-Based Novel Blue Thermally Activated Delayed Fluorescence Emitter, *The 70th The Japan Society of Applied Physics Spring Meeting 2023, Yotsuya Campus Sophia University + Online* (2023).

Shizu, K.; Ren, Y.; Kaji, H., Accelerating Reverse Intersystem Crossing in Thermally Activated Delayed Fluorescence via Heavy-Atom Effect, *The 70th The Japan Society of Applied Physics Spring Meeting 2023, Yotsuya Campus Sophia University + Online* (2023).

Sato, H.; Kanda, S.; Kaji, H., Analysis of Charge Traps in Organic Amorphous Film by Multiscale Simulation, *The 70th The Japan Society of Applied Physics Spring Meeting 2023, Yotsuya Campus Sophia University + Online* (2023).

Sato, H.; Kanda, S.; Kaji, H., Molecular-Level Analysis of Charge Traps in an Organic Amorphous Film by Multiscale Simulation, *The 2nd Seminar on International Core-to-Core Project on Nano Carbon Device Science at Kyoto* (2023).

— Hydrospheric Environment Analytical Chemistry —

Iwase, M.; Isobe, K.; Zheng, L.; Takano, S.; Sohrin, Y., Solid-Phase Extraction of Palladium, Platinum, and Gold from Water Samples: Comparison between a Chelating Resin and a Chelating Fiber with Ethylenediamine Groups, *Anal. Sci.*, **39(5)**, 695-704 (2023).

Alam, M.; Muguli, T.; Gurumurthy, G. P.; Arif, M.; Sohrin, Y.; Singh, A. D.; Radhakrishna, T.; Pandey, D. K.; Verma, K., Hydroclimatic Conditions and Sediment Provenance in the Northeastern Arabian Sea since the Late Miocene: Insights from Geochemical and Environmental Magnetic Records at IODP Site U1457 of the Laxmi Basin, *Geol. Mag.*, **160(4)**, 813-829 (2023).

Sieber, M.; Lanning, N. T.; Bian, X.; Yang, S.-C.; Takano, S.; Sohrin, Y.; Weber, T. S.; Fitzsimmons, J. N.; John, S. G.; Conway, T. M., The Importance of Reversible Scavenging for the Marine Zn Cycle Evidenced by the Distribution of Zinc and Its Isotopes in the Pacific Ocean, *J. Geophys. Res.: Oceans*, **128(4)**, e2022JC019419 (2023).

Matsuoka, K.; Tatsuyama, T.; Takano, S.; Sohrin, Y., Distribution of Stable Isotopes of Mo and W from a River to the Ocean: Signatures of Anthropogenic Pollution, *Front. Mar. Sci.*, **10** (2023).

Ueki, R.; Zheng, L.; Takano, S.; Sohrin, Y., Distributions of Zirconium, Niobium, Hafnium, and Tantalum in the Subarctic North Pacific Ocean Revisited with a Refined Analytical Method, *Geochem. J.*, **57(5)**, 143-154 (2023).

— Chemistry for Functionalized Surfaces —

Takahashi, H.; Yasui, T.; Hirano, M.; Shinjo, K.; Miyazaki, Y.; Shinoda, W.; Hasegawa, T.; Natsume, A.; Kitano, Y.; Ida, M.; Zhang, M.; Shimada, T.; Paisrisarn, P.; Zhu, Z.; Ohka, F.; Aoki, K.; Rahong, S.; Nagashima, K.; Yanagida, T.; Baba, Y., Mutation Detection of Urinary Cell-Free DNA via Catch-and-Release Isolation on Nanowires for Liquid Biopsy, *Biosens. Bioelectron.*, **234**, 115318 (2023).

Hu, S.; Zhao, P.; Nakano, K.; Oliver, R. D. J.; Pascual, J.; Smith, J. A.; Yamada, T.; Truong, M. A.; Murdey, R.; Shioya, N.; Hasegawa, T.; Ehara, M.; Johnston, M. B.; Tajima, K.; Kanemitsu, Y.; Snaith, H. J.; Wakamiya, A., Synergistic Surface Modification of Tin-Lead Perovskite Solar Cells, *Adv. Mater.*, **35(9)**, 2208320 (2023).

Truong, M. A.; Funasaki, T.; Ueberricke, L.; Nojo, W.; Murdey, R.; Yamada, T.; Hu, S.; Akatsuka, A.; Sekiguchi, N.; Hira, S.; Xie, L.; Nakamura, T.; Shioya, N.; Kan, D.; Tsuji, Y.; Iikubo, S.; Yoshida, H.; Shimakawa, Y.; Hasegawa, T.; Kanemitsu, Y.; Kanemitsu, Y.; Suzuki, T.; Wakamiya, A., Tripodal Triazatruxene Derivative as a Face-On Oriented Hole-Collecting Monolayer for Efficient and Stable Inverted Perovskite Solar Cells, *J. Am. Chem. Soc.*, **145(13)**, 7528-7539 (2023).

Oka, T.; Shioya, N.; Shimoaka, T.; Hasegawa, T., Structural Rearrangement of Organic Semiconductor Molecules with an Asymmetric Shape in Thin Films, *J. Phys. Chem. C*, **127(15)**, 7560-7564 (2023).

Kitano, S.; Tanabe, I.; Shioya, N.; Hasegawa, T.; Murata, T.; Morita, Y.; Tsuji, R.; Fukui, K., Voltammetric and *In Situ* Spectroscopic Investigations on the Redox Processes of Trioxotriangulene Neutral Radicals on Graphite Electrodes, *Langmuir*, **39(19)**, 6846-6854 (2023).

Shimoaka, T.; Yamaguchi, Y.; Shioya, N.; Ajayaghosh, A.; Mori, T.; Ariga, K.; Hasegawa, T., Insights on the Molecular Orientation of Oligo(*p*-Phenylene Vinylene) Derivatives with Alkyl Chains in Langmuir Films, *J. Phys. Chem. C*, **127(19)**, 9336-9343 (2023).

Yokoi, A.; Ukai, M.; Yasui, T.; Inokuma, Y.; Hyeon-Deuk, K.; Matsuzaki, J.; Yoshida, K.; Kitagawa, M.; Chattrairat, K.; Iida, M.; Shimada, T.; Manabe, Y.; Chang, I.-Y.; Asano-Inami, E.; Koya, Y.; Nawa, A.; Nakamura, K.; Kiyono, T.; Kato, T.; Hirakawa, A.; Yoshioka, Y.; Ochiya, T.; Hasegawa, T.; Baba, Y.; Yamamoto, Y.; Kajiyama, H., Identifying High-Grade Serous Ovarian Carcinoma-Specific Extracellular Vesicles by Polyketone-Coated Nanowires, *Sci. Adv.*, **9(27)**, eade6958 (2023).

Kitao, T.; Legrand, A.; Mori, T.; Ariga, K.; Uemura, T., Preferential Orientation of Anisotropic Polythiophene Rods toward Macroscopic Chain Ordering, *Mol. Syst. Des. Eng.*, **8(3)**, 316-322 (2023).

Akine, S.; Nomura, K.; Takahashi, M.; Sakata, Y.; Mori, T.; Nakanishi, W.; Ariga, K., Synthesis of Amphiphilic Chiral Salen Complexes and Their Conformational Manipulation at the Air-Water Interface, *Dalton Trans.*, **52(2)**, 260-268 (2023).

[Others]

Shioya, N., Hidden Thin-Film Phase of Organic Semiconductor, *MEMBRANE*, **48(4)**, 160-162 (2023).

— Molecular Microbial Science —

Kawano, K.; Kamasaka, K.; Yokoyama, F.; Kawamoto, J.; Ogawa, T.; Kurihara, T.; Matsuzaki, K., Structural Factors Governing Binding of Curvature-Sensing Peptides to Bacterial Extracellular Vesicles Covered with Hydrophilic Polysaccharide Chains, *Biophys. Chem.*, **299**, 107039 (2023).

Mullane, K. K.; Nishiyama, M.; Kurihara, T.; Bartlett, D. H., Compounding Deep Sea Physical Impacts on Marine Microbial Motility, *Front. Mar. Sci.*, **10** (2023).

DIVISION OF MULTIDISCIPLINARY CHEMISTRY

— Polymer Materials Science —

Asai, H.; Shibata, M.; Takenaka, M.; Takata, S.; Hiroi, K.; Ouchi, M.; Terashima, T., Micelle-Crosslinked Hydrogels with Stretchable, Self-Healing, and Selectively Adhesive Properties: Random Copolymers Work as Dynamic yet Self-Sorting Domains, *Aggregate*, **4(3)**, e316 (2023).

Huang, Z.; Bajaj, Y.; Carrillo, J.-M. Y.; Nakanishi, Y.; Uchida, K.; Mita, K.; Yamada, T.; Miyazaki, T.; Sumpter, B. G.; Endoh, M.; Koga, T., Local Conformations and Heterogeneities in Structures and Dynamics of Isotactic Polypropylene Adsorbed onto Carbon Fiber, *Polymer*, **265**, 125584 (2023).

Nakanishi, Y.; Ishige, R.; Ogawa, H.; Huang, Y.; Sakakibara, K.; Ohno, K.; Kanaya, T.; Takenaka, M.; Tsujii, Y., Unified Explanation for Self-Assembly of Polymer-Brush-Modified Nanoparticles in Ionic Liquids, *Polym. J.*, **55**, 1199-1209 (2023).

Watanabe, Y.; Ogawa, H.; Konishi, T.; Nishitsuji, S.; Ono, S.; Shimizu, N.; Takenaka, M., Distribution of Oriented Lamellar Structures in Injection-Molded High-Density Polyethylene Visualized via the Small Angle X-Ray Scattering-Computed Tomography Method, *Macromolecules*, **56(15)**, 5964-5973 (2023).

Shibata, M.; Nakanishi, Y.; Abe, J.; Arima-Osonoi, H.; Iwase, H.; Shibayama, M.; Motokawa, R.; Kumada, T.; Takata, S.; Yamamoto, K.; Takenaka, M.; Miyazaki, T., Structural Changes of Polystyrene Particles in Subcritical and Supercritical Water Revealed by in Situ Small-Angle Neutron Scattering, *Polym. J.*, **55**, 1165-1170 (2023).

Shimokita, K.; Yamamoto, K.; Miyata, N.; Nakanishi, Y.; Shibata, M.; Takenaka, M.; Yamada, N. L.; Seto, H.; Aoki, H.; Miyazaki, T., Neutron Reflectivity Study on the Nanostructure of PMMA Chains near Substrate Interfaces Based on Contrast Variation Accompanied with Small Molecule Sorption, *Soft Matter*, **19**, 2082-2089 (2023).

— Molecular Rheology —

Matsumiya, Y.; Sato, T.; Chen, Q.; Watanabe, H., Rouse Analysis of Nonlinear Rheology of Unentangled Polymer Melts under Fast Shear: Viscoelastic Response to Superposed Oscillatory Strain, *Macromolecules*, **56**(8), 2930-2938 (2023).

Miyamoto, S.; Sato, T.; Taniguchi, T., Stretch-Orientation-Induced Reduction of Friction in Well-Entangled Bidisperse Blends: A Dual Slip-Link Simulation Study, *Rheol. Acta*, **62**(1), 57-70 (2023).

Sato, T.; Gong, Y.; Larson, R. G., Testing the Ability of the Slip-Spring Model to Describe Constraint Release Effects Using Experimental Linear and Nonlinear Rheology, *Macromolecules*, **56**(20), 8116-8132 (2023).

— Molecular Aggregates —

Tsuchiya, T.; Hamano, T.; Inoue, M.; Nakamura, T.; Wakamiya, A.; Mazaki, Y., Intense Absorption of Azulene Realized by Molecular Orbital Inversion, *Chem. Commun.*, **59**(71), 10604-10607 (2023).

Hashimoto, R.; Nakamura, T.; Truong, M. A.; Murdey, R.; Wakamiya, A., Effects of Electron-Accepting Substituents on the Fluorescence of Oxygen-Bridged Triarylamine, *Dyes Pigm.*, **215**, 111281 (2023).

Hu, S.; Zhao, P.; Nakano, K.; Oliver, R. D. J.; Pascual, J.; Smith, J. A.; Yamada, T.; Truong, M. A.; Murdey, R.; Shioya, N.; Hasegawa, T.; Ehara, M.; Johnston, M. B.; Tajima, K.; Kanemitsu, Y.; Snaith, H. J.; Wakamiya, A., Synergistic Surface Modification of Tin-Lead Perovskite Solar Cells, *Adv. Mater.*, **35**(9), 2208320 (2023).

Truong, M. A.; Funasaki, T.; Ueberricke, L.; Nojo, W.; Murdey, R.; Yamada, T.; Hu, S.; Akatsuka, A.; Sekiguchi, N.; Hira, S.; Xie, L.; Nakamura, T.; Shioya, N.; Kan, D.; Tsuji, Y.; Iikubo, S.; Yoshida, H.; Shimakawa, Y.; Hasegawa, T.; Kanemitsu, Y.; Suzuki, T.; Wakamiya, A., Tripodal Triazatruxene Derivative as a Face-On Oriented Hole-Collecting Monolayer for Efficient and Stable Inverted Perovskite Solar Cells, *J. Am. Chem. Soc.*, **145**(13), 7528-7539 (2023).

Hu, S.; Smith, J. A.; Snaith, H. J.; Wakamiya, A., Prospects for Tin-Containing Halide Perovskite Photovoltaics, *Precis. Chem.*, **1**(2), 69-82 (2023).

Tan, T.; Nakamura, T.; Murdey, R.; Hu, S.; Truong, M. A.; Wakamiya, A., BAR₂-Bridged Azafulvene Dimers with Tunable Energy Levels for Photostable Near-Infrared Dyes, *Chem. Eur. J.*, **29**(34), e202300529 (2023).

Ohashi, N.; Kaneko, R.; Sakai, C.; Wasai, Y.; Higuchi, S.; Yazawa, K.; Tahara, H.; Handa, T.; Nakamura, T.; Murdey, R.; Kanemitsu, Y.; Wakamiya, A., Bilayer Indium Tin Oxide Electrodes for Deformation-Free Ultrathin Flexible Perovskite Solar Cells, *Sol. RRL*, **7**(13), 2300221 (2023).

Liu, W.; Hu, S.; Pascual, J.; Nakano, K.; Murdey, R.; Tajima, K.; Wakamiya, A., Tin Halide Perovskite Solar Cells with Open-Circuit Voltages Approaching the Shockley–Queisser Limit, *ACS Appl. Mater. Interfaces*, **15**(27), 32487-32495 (2023).

Iwai, K.; Mizuhata, Y.; Nakamura, T.; Goto, M.; Wakamiya, A.; Shimakawa, Y.; Tokitoh, N., Solid-State Chromism of Zwitterionic Triarylmethyl Salts, *Eur. J. Inorg. Chem.*, **26**(31), e202300337 (2023).

Higashimura, C.; Yumoto, G.; Yamada, T.; Nakamura, T.; Harata, F.; Hirori, H.; Wakamiya, A.; Kanemitsu, Y., Spontaneous Polarization Induced Optical Responses in a Two-Dimensional Ferroelectric Halide Perovskite, *J. Phys. Chem. A*, **14**(37), 8360-8366 (2023).

ADVANCED RESEARCH CENTER FOR BEAM SCIENCE — Particle Beam Science —

Tsukada, K.; Abe, Y.; Enokizono, A.; Goke, T.; Hara, M.; Honda, Y.; Hori, T.; Ichikawa, S.; Ito, Y.; Kurita, K.; Legris, C.; Maehara, Y.; Ohnishi, T.; Ogawara, R.; Suda, T.; Tamae, T.; Wakasugi, M.; Watanabe, M.; Wauke, H., First Observation of Electron Scattering from Online-Produced Radioactive Target, *Phys. Rev. Lett.*, **131**(9), 92502 (2023).

Ogawara, R.; Abe, Y.; Ohnishi, T.; Enokizono, A.; Hara, M.; Hori, T.; Ichikawa, S.; Kurita, K.; Maehara, Y.; Suda, T.; Tsukada, K.; Wakasugi, M.; Watanabe, M.; Wauke, H., Ion-Trapping Properties of SCRIT: Time Evolutions of ¹³⁸Ba Charge State Distributions, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, **541**, 90-92 (2023).

Miyata, K.; Ogawara, R.; Ishikawa, M., Improvement of Crystal Identification Accuracy for Depth-of-Interaction Detector System with Peak-to-Charge Discrimination Method, *Sensors*, **23**(10), 4584 (2023).

— Laser Matter Interaction Science —

Li, E.; Uehara, H.; Tokita, S.; Yao, W.; Yasuhara, R., A Hybrid Quantum Cascade Laser/Fe:ZnSe Amplifier System for Power Scaling of CW Lasers at 4.0–4.6 Mm, *Opt. Laser Technol.*, **157**, 108783 (2023).

Ozaki, T.; Abe, Y.; Arikawa, Y.; Sentoku, Y.; Kawanaka, J.; Tokita, S.; Miyanaga, N.; Jitsuno, T.; Nakata, Y.; Tsubakimoto, K.; Sunahara, A.; Johzaki, T.; Miura, E.; Komeda, O.; Iwamoto, A.; Sakagami, H.; Okihara, S.; Ishii, K.; Hanayama, R.; Mori, Y.; Kitagawa, Y., Hot Electron and Ion Spectra on Blow-off Plasma Free Target in GXII-LFEX Direct Fast Ignition Experiment, *Nucl. Fusion*, **63**, 36009 (2023).

Arikawa, Y.; Morace, A.; Abe, Y.; Iwata, N.; Sentoku, Y.; Yogo, A.; Matsuo, K.; Nakai, M.; Nagatomo, H.; Mima, K.; Nishimura, H.; Fujioka, S.; Kodama, R.; Inoue, S.; Hashida, M.; Sakabe, S.; De Luis, D.; Gatti, G.; Huault, M.; Pérez-Hernández, J. A.; Roso, L.; Volpe, L., Demonstration of Efficient Relativistic Electron Acceleration by Surface Plasmonics with Sequential Target Processing Using High Repetition Lasers, *Phys. Rev. Res.*, **5**(1), 13062 (2023).

Ishibashi, F.; Hasada, T.; Homma, K.; Kirita, Y.; Kanai, T.; Masuno, S.; Tokita, S.; Hashida, M., Pilot Search for Axion-Like Particles by a Three-Beam Stimulated Resonant Photon Collider with Short Pulse Lasers, *Universe*, **9(3)**, 123 (2023).

Fujiwara, M.; Inoue, S.; Masuno, S.-I.; Fu, H.; Tokita, S.; Hashida, M.; Mizuochi, N., Creation of NV Centers over a Millimeter-Sized Region by Intense Single-Shot Ultrashort Laser Irradiation, *APL Photonics*, **8(3)**, 36108 (2023).

Arai, K.; Okazaki, D.; Morichika, I.; Ashihara, S., All-Solid-State Optical-Field-Sensitive Detector for Sub-Nanojoule Pulses Using Metal-Insulator Hybrid Nanostructure, *ACS Photonics*, **10(6)**, 1702-1707 (2023).

Goya, K.; Sasanuma, H.; Ishida, G.; Uehara, H.; Tokita, S., Fusion Splicing of Plastic Optical Fibers Using a Mid-IR Fiber Laser, *Appl. Phys. Express*, **16(5)**, 52006 (2023).

Homma, K.; Tesileanu, O.; Nakamiya, Y.; Kirita, Y.; Chiochiu, C.; Cuciuc, M.; Giubega, G.; Hasada, T.; Hashida, M.; Ishibashi, F.; Kanai, T.; Kodama, A.; Masuno, S.; Miyamaru, T.; Neagu, L.; Rodrigues, V. R. M.; Rosu, M. M.; Sakabe, S.; Tamlyn, J.; Tazlauanu, S. V.; Tokita, S., Challenge of Search for Cosmological Dark Components with High-Intensity Lasers and Beyond, *Eur. Phys. J. A*, **59**, 109 (2023).

Masuno, S.; Hashida, M.; Zen, H., Formation of Periodic Surface Structures on Semiconductors under Mid-Infrared Free-Electron Laser Irradiation, *EEJ Trans. Fundam. Mater.*, **143(10)**, 320-324 (2023).

[Others]

Okazaki, D.; Song, W.; Morichika, I.; Ashihara, S., Mode-Locked Cr:ZnS Laser with Multiple Spectral Peaks at Molecular Vibrational Resonances, *Proceedings of the 2022 Conference on Lasers and Electro-Optics Pacific Rim*, CTuA1A-04 (2023).

Tokita, S., Progress in Mid-Infrared Fiber Lasers, *Review of Laser Engineering*, **51(1)**, 22-26 (2023).

— Electron Microscopy and Crystal Chemistry —

Iwashimizu, C.; Haruta, M.; Nemoto, T.; Kurata, H., Different Atomic Contrasts in HAADF Images and EELS Maps of Rutile TiO₂, *Microscopy*, **72(4)**, 353-360 (2023).

Lin, I.-C.; Haruta, M.; Nemoto, T.; Goto, M.; Shimakawa, Y.; Kurata, H., Extraction of Anisotropic Thermal Vibration Factors for Oxygen from the Ti L_{2,3}-Edge in SrTiO₃, *J. Phys. Chem. C*, **127(36)**, 17802-17808 (2023).

Shen, Y.; Haruta, M.; Lin, I.-C.; Xie, L.; Kan, D.; Shimakawa, Y., Stabilization of Ferroelectric Hf_{0.5}Zr_{0.5}O₂ Epitaxial Films via Monolayer Reconstruction Driven by Valence-Dependent Interfacial Redox Reaction and Intralayer Electron Transfer, *Phys. Rev. Mater.*, **7**, 114405 (2023).

Watanabe, H.; Ekuni, K.; Okuda, Y.; Nakayama, R.; Kawano, K.; Iwanaga, T.; Yamaguchi, A.; Kiyomura, T.; Miyake, H.; Yamagami, M.; Tajima, T.; Kitai, T.; Hayashi, T.; Nishiyama, N.; Kusano, Y.; Kurata, H.; Takaguchi, Y.; Orita, A., Composite Formation of Anthrylene- and Ferrocenoyl-Substituted Phenyleneethynyls with Single-Wall Carbon Nanotubes (SWCNTs), *Bull. Chem. Soc. Jpn.*, **96(1)**, 57-64 (2023).

Sugimoto, Y.; Hara, K.; Haruta, M.; Kurata, H.; Kim, J.-H.; Hwang, T.; Nakamichi, M.; Miyamoto, M., Effect of the Internal Pressure of Helium Bubbles on the Morphology and Mobility of Beryllium, *Fusion Eng. Des.*, **191**, 113720 (2023).

Miyamoto, M.; Sano, K.; Sawae, T.; Haruta, M.; Kurata, H., Effect of Helium Irradiation on the Hydrogen Isotope Retention in Tungsten by in situ TEM and STEM-EELS Analysis, *Nucl. Mater. Energy*, **36**, 101484-1-101484-6 (2023).

Ruangchai, K.; Tongsri, R.; Pearce, J. T. H.; Chairuangri, T.; Nusen, S.; Kurata, H.; Haruta, M.; Kiyomura, T.; Yamaguchi, A.; Wiengmoon, A., Electron Microscopy of Carbides in Annealed 28 wt% Cr - 1 wt% (Mo/W) Cast Irons, *Mater. Charact.*, **198**, 112723 (2023).

Makming, P.; Homnan, S.; Ngamjarurojana, A.; Rimjaem, S.; Gardchareon, A.; Sawada, T.; Haruta, M.; Pakawatpanurut, P.; Wongratanaphisan, D.; Kanjanaboos, P.; Intaniwet, A.; Ruankham, P., Efficient and Stable Carbon-Based Perovskite Solar Cells Enabled by Mixed CuPc:CuSCN Hole Transporting Layer for Indoor Applications, *ACS Appl. Mater. Interfaces*, **15(12)**, 15486-15497 (2023).

Pimta, K.; Autthawong, T.; Yodying, W.; Phomma, C.; Haruta, M.; Kurata, H.; Sarakonsri, T.; Chimupala, Y., Development of Bronze Phase Titanium Dioxide Nanorods for Use as Fast-Charging Anode Materials in Lithium-Ion Batteries, *ACS Omega*, **8(17)**, 15360-15370 (2023).

Yodying, W.; Autthawong, T.; Namsar, O.; Kiyomura, T.; Haruta, M.; Kurata, H.; Chairuangri, T.; Sarakonsri, T., Recycling Water Hyacinth Stem Waste for Cost-Effective Production of Carbon/FeO_x Nanocomposite Anodes for Sustainable Fast-Charging Lithium-Ion Batteries, *J. Mater. Sci. Mater. Electron.*, **34(16)**, 1319-1-1319-13 (2023).

Yodying, W.; Sarakonsri, T.; Ratsameetammajak, N.; Khunpakdee, K.; Haruta, M.; Autthawong, T., Low-Cost Production of Fe₃O₄/C Nanocomposite Anodes Derived from Banana Stem Waste Recycling for Sustainable Lithium-Ion Batteries, *Crystals*, **13(2)**, 280-1-280-17 (2023).

Dobrică, E.; Ishii, H. A.; Bradley, J. P.; Ohtaki, K.; Brearley, A. J.; Noguchi, T.; Matsumoto, T.; Miyake, A.; Igami, Y.; Haruta, M.; Saito, H.; Hata, S.; Seto, Y.; Miyahara, M.; Tomioka, N.; Leroux, H.; Le Guillou, C.; Jacob, D.; de la Peña, F.; Laforet, S.; Marinova, M.; Langenhorst, F.; Harries, D.; Beck, P.; Phan, T. H. V.; Rebois, R.; Abreu, N. M.; Gray, J.; Zega, T.; Zanetta, P.-M.; Thompson, M. S.; Stroud, R.; Burgess, K.; Cymes, B. A.; Bridges, J. C.; Hicks, L.; Lee, M. R.; Daly, L.; Bland, P. A.; Zolensky, M. E.; Frank, D. R.; Martinez, J.; Tsuchiyama, A.; Yasutake, M.; Matsuno, J.; Okumura, S.; Mitsukawa, I.; Uesugi, K.; Uesugi, M.; Takeuchi, A.; Sun, M.; Enju, S.; Takigawa, A.; Michikami, T.; Nakamura, T.; Matsumoto, M.; Nakauchi, Y.; Yurimoto, H.; Okazaki, R.; Yabuta, H.; Naraoka, H.; Sakamoto, K.; Tachibana, S.; Yada, T.; Nishimura, M.; Nakato, A.; Miyazaki, A.; Yogata, K.; Abe, M.; Okada, T.; Usui, T.; Yoshikawa, M.; Saiki, T.; Tanaka, S.; Terui, F.; Nakazawa, S.; Watanabe, S.; Tsuda, Y., Nonequilibrium Spherulitic Magnetite in the Ryugu Samples, *Geochim. Cosmochim. Acta*, **346**, 65-75 (2023).

Noguchi, T.; Matsumoto, T.; Miyake, A.; Igami, Y.; Haruta, M.; Saito, H.; Hata, S.; Seto, Y.; Miyahara, M.; Tomioka, N.; Ishii, H. A.; Bradley, J. P.; Ohtaki, K. K.; Dobrică, E.; Leroux, H.; Le Guillou, C.; Jacob, D.; de la Peña, F.; Laforet, S.; Marinova, M.; Langenhorst, F.; Harries, D.; Beck, P.; Phan, T. H. V.; Rebois, R.; Abreu, N. M.; Gray, J.; Zega, T.; Zanetta, P.-M.; Thompson, M. S.; Stroud, R.; Burgess, K.; Cymes, B. A.; Bridges, J. C.; Hicks, L.; Lee, M. R.; Daly, L.; Bland, P. A.; Zolensky, M. E.; Frank, D. R.; Martinez, J.; Tsuchiyama, A.; Yasutake, M.; Matsuno, J.; Okumura, S.; Mitsukawa, I.; Uesugi, K.; Uesugi, M.; Takeuchi, A.; Sun, M.; Enju, S.; Takigawa, A.; Michikami, T.; Nakamura, T.; Matsumoto, M.; Nakauchi, Y.; Abe, M.; Arakawa, M.; Fujii, A.; Hayakawa, M.; Hirata, N.; Hirata, N.; Honda, R.; Honda, C.; Hosoda, S.; Iijima, Y.; Ikeda, H.; Ishiguro, M.; Ishihara, Y.; Iwata, T.; Kawahara, K.; Kikuchi, S.; Kitazato, K.; Matsumoto, K.; Matsuoka, M.; Mimasu, Y.; Miura, A.; Morota, T.; Nakazawa, S.; Namiki, N.; Noda, H.; Noguchi, R.; Ogawa, N.; Ogawa, K.; Okada, T.; Okamoto, C.; Ono, G.; Ozaki, M.; Saiki, T.; Sakatani, N.; Sawada, H.; Senshu, H.; Shimaki, Y.; Shirai, K.; Sugita, S.; Takei, Y.; Takeuchi, H.; Tanaka, S.; Tatsumi, E.; Terui, F.; Tsukizaki, R.; Wada, K.; Yamada, M.; Yamada, T.; Yamamoto, Y.; Yano, H.; Yokota, Y.; Yoshihara, K.; Yoshikawa, M.; Yoshikawa, K.; Fukai, R.; Furuya, S.; Hatakeda, K.; Hayashi, T.; Hitomi, Y.; Kumagai, K.; Miyazaki, A.; Nakato, A.; Nishimura, M.; Soejima, H.; Suzuki, A. I.; Usui, T.; Yada, T.; Yamamoto, D.; Yogata, K.; Yoshitake, M.; Connolly, H. C., Jr; Lauretta, D. S.; Yurimoto, H.; Nagashima, K.; Kawasaki, N.; Sakamoto, N.; Okazaki, R.; Yabuta, H.; Naraoka, H.; Sakamoto, K.; Tachibana, S.; Watanabe, S.; Tsuda, Y., A Dehydrated Space-Weathered Skin Cloaking the Hydrated Interior of Ryugu, *Nat. Astron.*, **7**, 170-181 (2023).

INTERNATIONAL RESEARCH CENTER FOR ELEMENTS SCIENCE

— Synthetic Organotransformation —

Negi, S.; Imanishi, M.; Hamori, M.; Kawahara-Nakagawa, Y.; Nomura, W.; Kishi, K.; Shibata, N.; Sugiura, Y., The Past, Present, and Future of Artificial Zinc Finger Proteins: Design Strategies and Chemical and Biological Applications, *J. Biol. Inorg. Chem.*, **28(3)**, 249-261 (2023).

Mineo, K., Aspects of Forestry Economics in Japan before World War II, *Applied Forest Science*, **32(1)**, 21-29 (2023).

Doba, T., Iron-Catalyzed C-H/C-H Coupling for Synthesis of Functional Small Molecules and Polymers; Springer Nature Singapore, 2023, *Springer Theses*, 1-153 (2023).

Nakajima, S.; Hashimoto, T.; Lu, S.; Hashizume, D.; Matsuda, H.; Hatakeyama, T.; Isozaki, K.; Takaya, H.; Nakamura, M., SciPROP-R: An Effective Bisphosphine Ligand for the Chemo-Selective Iron-Catalyzed Suzuki-Miyaura Coupling of Alkyl Chlorides, *Bull. Chem. Soc. Jpn.*, **96(11)**, 1298-1309 (2023).

Shang, R.; Nakamura, E.; Doba, T.; Fukuma, S., Versatile Synthesis of Triphosphines Bearing Phenylene and Vinylene Backbones Useful for Metal Catalysis and Materials Applications, *Synthesis*, **55(11)**, 1690-1699 (2023).

[Others]

Mineo, K., Prospects for the Forest Chemical Industry (Open Online Seminar), *FOREST ECONOMY*, **76(4)**, 22-28 (2023).

— Advanced Solid State Chemistry —

Ham, W. S.; Ho, T. H.; Shiota, Y.; Iino, T.; Ando, F.; Ikebuchi, T.; Kotani, Y.; Nakamura, T.; Kan, D.; Shimakawa, Y.; Moriyma, T.; Im, E.; Lee, N. J.; Kim, K. W.; Hong, S. C.; Rhim, S. H.; Ono, T.; Kim, S., Bulk Rashba-Type Spin Splitting in Non-Centrosymmetric Artificial Superlattices, *Adv. Sci.*, **10(12)**, 2206800 (2023).

Isoda, Y.; Kan, D.; Majima, T.; Shimakawa, Y., Orientation-Dependent Electrochemical Reduction and Proton Evolution in the Oxygen-Deficient Perovskite SrFe_{0.25+y}, *Appl. Phys. Express*, **16(1)**, 15506 (2023).

Kamada, T.; Ueda, T.; Fukuura, S.; Yumura, T.; Hosokawa, S.; Tanaka, T.; Kan, D.; Shimakawa, Y., Ultralong Distance Hydrogen Spillover Enabled by Valence Changes in a Metal Oxide Surface, *J. Am. Chem. Soc.*, **145(3)**, 1631 (2023).

Takahashi, R.; Ohkochi, T.; Kan, D.; Shimakawa, Y.; Wadati, H., Optically Induced Magnetization Switching in NiCo₂O₄ Thin Films Using Ultrafast Lasers, *ACS Appl. Electron. Mater.*, **5(2)**, 748-753 (2023).

Truong, M. A.; Funasaki, T.; Ueberricke, L.; Nojo, W.; Murdey, R.; Yamada, T.; Hu, S.; Akatsuka, A.; Sekiguchi, N.; Hira, S.; Xie, L.; Nakamura, T.; Shioya, N.; Kan, D.; Tsuji, Y.; Ikubo, S.; Yoshida, H.; Shimakawa, Y.; Hasegawa, T.; Kanemitsu, Y.; Kanemitsu, Y.; Suzuki, T.; Wakamiya, A., Tripodal Triazatruxene Derivative as a Face-On Oriented Hole-Collecting Monolayer for Efficient and Stable Inverted Perovskite Solar Cells, *J. Am. Chem. Soc.*, **145(13)**, 7528-7539 (2023).

Narita, H.; Ishizuka, J.; Kan, D.; Shimakawa, Y.; Yanase, Y.; Ono, T., Magnetization Control of Zero-Field Intrinsic Superconducting Diode Effect, *Adv. Mater.*, **35(40)**, 2304083 (2023).

Iwai, K.; Mizuhata, Y.; Nakamura, T.; Goto, M.; Wakamiya, A.; Shimakawa, Y.; Tokitoh, N., Solid-State Chromism of Zwitterionic Triarylmethylium Salts, *Eur. J. Inorg. Chem.*, **26(31)**, e202300337 (2023).

Lin, I.-C.; Haruta, M.; Nemoto, T.; Goto, M.; Shimakawa, Y.; Kurata, H., Extraction of Anisotropic Thermal Vibration Factors for Oxygen from the Ti L_{2,3}-Edge in SrTiO₃, *J. Phys. Chem. C*, **127(36)**, 17802-17808 (2023).

Chen, C.; Kosugi, Y.; Goto, M.; Shimakawa, Y., Thermal Properties and Phase Transition Behaviors of Possible Caloric Materials Bi_{0.95}Ln_{0.05}NiO₃, *J. Mater. Chem. A*, **11**, 15389-15393 (2023).

Shimakawa, Y.; Kosugi, Y., Giant Caloric Effects in Charge-Spin-Lattice Coupled Transition-Metal Oxides, *J. Mater. Chem. A*, **11**, 12695-12702 (2023).

Zhang, Y.; Sawamura, M.; Harada, M.; Noda, Y.; Nakayama, M.; Goto, M.; Kan, D.; Shimakawa, Y.; Campéon, B. D. L.; Shibata, D.; Ohta, T.; Yabuuchi, N., Partially Reversible Anionic Redox for Lithium-Excess Cobalt Oxides with Cation-Disordered Rocksalt Structure, *J. Phys. Chem. C*, **127(5)**, 2194-2203 (2023).

Iihoshi, M.; Goto, M.; Kosugi, Y.; Shimakawa, Y., Cascade Charge Transitions of Unusually High and Mixed Valence Fe^{3.5+} in the A-Site Layer-Ordered Double Perovskite SmBaFe₂O₆, *J. Am. Chem. Soc.*, **145(19)**, 10756-10762 (2023).

Kurian, M. M.; Tan, Z.; Shimakawa, Y.; Santhosh, P. N., Probing Griffiths Phase like Behavior and Exchange Bias Phenomena in 6H Ba₃Co_{0.5}Mn_{0.5}Ru₂O₉ by B-Site Doping, *J. Appl. Phys.*, **134**, 43901 (2023).

— Organometallic Chemistry —

Masaoka, K.; Taue, H.; Higaki, T.; Ohki, Y.; Ogasawara, M., Competitive Double Friedel–Crafts 2,5- and 1',2-Diacylation of Monophosphaferrrocenes, *Organometallics*, **42(13)**, 1667-1673 (2023).

Tanifuji, K.; Ohta, S.; Ohki, Y.; Seino, H., Activation of Unsaturated Small Molecules by Bio-Relevant Multinuclear Metal-Sulfur Clusters, *Coord. Chem. Rev.*, **475**, 214838 (2023).

Wakabayashi, S.; Takumi, M.; Kamio, S.; Wakioka, M.; Ohki, Y.; Nagaki, A., Flow-Chemistry-Enabled Synthesis of 5-Diethylboryl-2,3'-bipyridine and Its Self-Assembly Dynamics, *Chem. Eur. J.*, **29(9)**, e202202882 (2023).

Masaoka, K.; Taue, H.; Wakioka, M.; Ohki, Y.; Ogasawara, M., Asymmetric Metathesis Dimerization/Kinetic Resolution of Racemic Planar-Chiral Vinylphosphaferrrocenes, *Organometallics*, **42(13)**, 1629-1638 (2023).

Izu, H.; Tabe, H.; Namiki, Y.; Yamada, H.; Horike, S., Heterogeneous CO₂ Reduction Photocatalysis of Transparent Coordination Polymer Glass Membranes Containing Metalloporphyrins, *Inorg. Chem.*, **62(29)**, 11342-11349 (2023).

Izu, H.; Bhave, D. G.; Matsuoka, Y.; Sameera, W. M. C.; Tanifuji, K.; Ohki, Y., Synthesis, Characterization, and Catalytic Activity of a Cubic [Mo₃S₄Pd] Cluster Bearing Bulky Cyclopentadienyl Ligands, *Eur. J. Inorg. Chem.*, **26(29)**, e202300399 (2023).

[Others]

Tanifuji, K.; Ohki, Y., Studies on Biosynthesis and Catalysis of Metal-Sulfur Clusters, *Bulletin of Japan Society of Coordination Chemistry*, **81**, 58-65 (2023).

Tanifuji, K.; Ohki, Y., Reduction of Nitrogen by Synthetic Metal Complexes Mimicking the Active Site of Nitrogenase, *BIOSCIENCE & INDUSTRY*, **81(1)**, 40-42 (2023).

— Nanophotonics —

Sekiguchi, F.; Sakamoto, M.; Nakagawa, K.; Tahara, H.; Sato, S. A.; Hirori, H.; Kanemitsu, Y., Enhancing High Harmonic Generation in GaAs by Elliptically Polarized Light Excitation, *Phys. Rev. B*, **108**, 205201 (2023).

Nakagawa, K.; Ishii, N.; Kanemitsu, Y.; Hirori, H., Mid-Infrared Pulse Generation Using Multi-Plate White-Light Generation and Optical Parametric Amplification in LiGaS₂ Crystals, *Appl. Phys. Express*, **16(3)**, 32001 (2023).

Yamada, Y.; Kajino, Y.; Kanemitsu, Y., Evaluation of Electron-Phonon Interactions in Halide Perovskites toward Semiconductor Optical Refrigeration, *Photonic Heat Engines: Science and Applications V*, **12437**, 1243704 (2023).

Truong, M. A.; Funasaki, T.; Ueberricke, L.; Nojo, W.; Murdey, R.; Yamada, T.; Hu, S.; Akatsuka, A.; Sekiguchi, N.; Hira, S.; Xie, L.; Nakamura, T.; Shioya, N.; Kan, D.; Tsuji, Y.; Iikubo, S.; Yoshida, H.; Shimakawa, Y.; Hasegawa, T.; Kanemitsu, Y.; Suzuki, T.; Wakamiya, A., Tripodal Triazatruxene Derivative as a Face-On Oriented Hole-Collecting Monolayer for Efficient and Stable Inverted Perovskite Solar Cells, *J. Am. Chem. Soc.*, **145(13)**, 7528-7539 (2023).

Zhang, Z.; Sekiguchi, F.; Moriyama, T.; Furuya, S. C.; Sato, M.; Satoh, T.; Mukai, Y.; Tanaka, K.; Yamamoto, T.; Kageyama, H.; Kanemitsu, Y.; Hirori, H., Generation of Third-Harmonic Spin Oscillation from Strong Spin Precession Induced by Terahertz Magnetic near Fields, *Nat. Commun.*, **14(1)**, 1795 (2023).

Handa, T.; Yamada, T.; Kanemitsu, Y., Review—Photoluminescence Characterization of Halide Perovskite Materials and Solar Cells, *ECS J. Solid State Sci. Technol.*, **12(5)**, 56004 (2023).

Ohashi, N.; Kaneko, R.; Sakai, C.; Wasai, Y.; Higuchi, S.; Yazawa, K.; Tahara, H.; Handa, T.; Nakamura, T.; Murdey, R.; Kanemitsu, Y.; Wakamiya, A., Bilayer Indium Tin Oxide Electrodes for Deformation-Free Ultrathin Flexible Perovskite Solar Cells, *Sol. RRL*, **7(13)**, 2300221 (2023).

Cho, K.; Yamada, T.; Saruyama, M.; Sato, R.; Teranishi, T.; Kanemitsu, Y., Temperature Dependence of Photoluminescence Spectrum of Single Lead Halide Perovskite Nanocrystals: Effect of Size on the Phase Transition Temperature, *J. Chem. Phys.*, **158(20)**, 201104 (2023).

Kobiyama, E.; Tahara, H.; Saruyama, M.; Sato, R.; Teranishi, T.; Kanemitsu, Y., Picosecond Trion Photocurrent Dynamics in FAPbI₃ Quantum Dot Films, *Appl. Phys. Lett.*, **122(25)**, 252106 (2023).

Higashimura, C.; Yumoto, G.; Yamada, T.; Nakamura, T.; Harata, F.; Hirori, H.; Wakamiya, A.; Kanemitsu, Y., Spontaneous Polarization Induced Optical Responses in a Two-Dimensional Ferroelectric Halide Perovskite, *J. Phys. Chem. Lett.*, **14(37)**, 8360-8366 (2023).

Hu, S.; Zhao, P.; Nakano, K.; Oliver, R. D. J.; Pascual, J.; Smith, J. A.; Yamada, T.; Truong, M. A.; Murdey, R.; Shioya, N.; Hasegawa, T.; Ehara, M.; Johnston, M. B.; Tajima, K.; Kanemitsu, Y.; Snaith, H. J.; Wakamiya, A., Synergistic Surface Modification of Tin-Lead Perovskite Solar Cells, *Adv. Mater.*, **35(9)**, 2208320 (2023).

[Others]

Kanemitsu, Y.; Hirori, H., Nonlinear Laser Spectroscopy of Halide Perovskite Semiconductors, *OYO BUTURI*, **92(1)**, 30-34 (2023).

BIOINFORMATICS CENTER

— Chemical Life Science —

Zhang, R.; Takemura, M.; Murata, K.; Ogata, H., Create a New Family (“Mamonoviridae”), a Genus (“Medusavirus”), and Two Species (“Medusavirus Medusae” and “Medusavirus Sthenus”) in the Phylum Nucleocytoviricota., *ICTV Taxonomic Proposal*, **168(3)** (2023).

Muro, T.; Hikida, H.; Fujii, T.; Kiuchi, T.; Katsuma, S., Two Complete Genomes of Male-Killing *Wolbachia* Infecting *Ostrinia* Moth Species Illuminate Their Evolutionary Dynamics and Association with Hosts, *Microb. Ecol.*, **86(3)**, 1740-1754 (2023).

Gaia, M.; Meng, L.; Pelletier, E.; Forterre, P.; Vanni, C.; Fernandez-Guerra, A.; Jaillon, O.; Wincker, P.; Ogata, H.; Krupovic, M.; Delmont, T. O., Mirusviruses Link Herpesviruses to Giant Viruses, *Nature*, **616(7958)**, 783-789 (2023).

Okazaki, Y.; Nguyen, T. T.; Nishihara, A.; Endo, H.; Ogata, H.; Nakano, S.; Tamaki, H., A Fast and Easy Method to Co-Extract DNA and RNA from an Environmental Microbial Sample, *Microbes Environ.*, **38(1)**, ME22102 (2023).

- Fujita, H.; Ushio, M.; Suzuki, K.; Abe, M.S.; Yamamichi, M.; Okazaki, Y.; Canarini, A.; Hayashi, I.; Fukushima, K.; Fukuda, S.; Kiers, E.T.; Toju, H., Metagenomic Analysis of Ecological Niche Overlap and Community Collapse in Microbiome Dynamics, *Front. Microbiol.*, **14** (2023).
- Tominaga, K.; Ogawa-Haruki, N.; Nishimura, Y.; Watai, H.; Yamamoto, K.; Ogata, H.; Yoshida, T., Prevalence of Viral Frequency-Dependent Infection in Coastal Marine Prokaryotes Revealed Using Monthly Time Series Virome Analysis, *mSystems*, **8(1)**, e0093122 (2023).
- Zhang, R.; Takemura, M.; Murata, K.; Ogata, H., “Mamonoviridae”, a Proposed New Family of the Phylum *Nucleocyotviricota*, *Arch. Virol.*, **168(3)**, 80 (2023).
- Tanabe, Y.; Yamaguchi, H.; Yoshida, M.; Kai, A.; Okazaki, Y., Characterization of a Bloom-Associated Alphaproteobacterial Lineage, ‘*Candidatus Phycosocius*’: Insights into Freshwater Algal-Bacterial Interactions, *ISME commun.*, **3(1)**, 20 (2023).
- Fujita, H.; Ushio, M.; Suzuki, K.; Abe, M. S.; Yamamichi, M.; Okazaki, Y.; Canarini, A.; Hayashi, I.; Fukushima, K.; Fukuda, S.; Kiers, E. T.; Toju, H., Facilitative Interaction Networks in Experimental Microbial Community Dynamics, *Front. Microbiol.*, **14** (2023).
- Ban, H.; Sato, S.; Yoshikawa, S.; Yamada, K.; Nakamura, Y.; Ichinomiya, M.; Sato, N.; Blanc-Mathieu, R.; Endo, H.; Kuwata, A.; Ogata, H., Genome Analysis of Parmales, the Sister Group of Diatoms, Reveals the Evolutionary Specialization of Diatoms from Phago-Mixotrophs to Photoautotrophs, *Commun. Biol.*, **6(1)**, 697 (2023).
- Hikida, H.; Okazaki, Y.; Zhang, R.; Nguyen, T. T.; Ogata, H., A Rapid Genome-Wide Analysis of Isolated Giant Viruses Using MinION Sequencing, *Environ. Microbiol.*, **25(11)**, 2621-2635 (2023).
- Rigonato, J.; Budinich, M.; Murillo, A. A.; Brandao, M. C.; Karlusich, J. J. P.; Soviadan, Y. D.; Gregory, A. C.; Endo, H.; Kokoszka, F.; Vik, D.; Henry, N.; Fremont, P.; Labadie, K.; Zayed, A. A.; Dimier, C.; Picheral, M.; Searson, S.; Poulain, J.; Kandels, S.; Pesant, S.; Karsenti, E.; Acinas, S. G.; Boss, E.; Cochrane, G.; Gorsky, G.; Grimsley, N.; Guidi, L.; Hingamp, P.; Karp-Boss, L.; Not, F.; Raes, J.; Sardet, C.; Speich, S.; Bork, P.; Bowler, C.; de Vargas, C.; Eveillard, D.; Gehlen, M.; Iudicone, D.; Lombard, F.; Ogata, H.; Stemmann, L.; Sullivan, M. B.; Sunagawa, S.; Wincker, P.; Chaffron, S.; Jaillon, O., Ocean-Wide Comparisons of Mesopelagic Planktonic Community Structures, *ISME commun.*, **3(1)**, 83 (2023).
- Pascoal, F.; Tomasino, M. P.; Piredda, R.; Quero, G. M.; Torgo, L.; Poulain, J.; Galand, P. E.; Fuhrman, J.; Mitchell, A.; Tinta, T.; Dermastia, T. T.; Fernandez-Guerra, A.; Vezzi, A.; Logares, R.; Malfatti, F.; Endo, H.; Dąbrowska, A. M.; De Pascale, F.; Sánchez, P.; Henry, N.; Fosso, B.; Wilson, B.; Toshchakov, S.; Ferrant, G. K.; Grigorov, I.; Vieira, F. R. J.; Costa, R.; Pesant, S.; Magalhaes, C., Inter-Comparison of Marine Microbiome Sampling Protocols, *ISME commun.*, **3(1)**, 84 (2023).
- Kaneko, H.; Endo, H.; Henry, N.; Berney, C.; Mahe, F.; Poulain, J.; Labadie, K.; Beluche, O.; El Hourany, R.; Acinas, S. G.; Babin, M.; Bork, P.; Bowler, C.; Cochrane, G.; de Vargas, C.; Gorsky, G.; Guidi, L.; Grimsley, N.; Hingamp, P.; Iudicone, D.; Jaillon, O.; Kandels, S.; Karsenti, E.; Not, F.; Poulton, N.; Pesant, S.; Sardet, C.; Speich, S.; Stemmann, L.; Sullivan, M. B.; Sunagawa, S.; Chaffron, S.; Wincker, P.; Nakamura, R.; Karp-Boss, L.; Boss, E.; Bowler, C.; de Vargas, C.; Tomii, K.; Ogata, H., Predicting Global Distributions of Eukaryotic Plankton Communities from Satellite Data, *ISME commun.*, **3(1)**, 101 (2023).
- Meng, L.; Delmont, T. O.; Gaia, M.; Pelletier, E.; Fernandez-Guerra, A.; Chaffron, S.; Neches, R. Y.; Wu, J.; Kaneko, H.; Endo, H.; Ogata, H., Genomic Adaptation of Giant Viruses in Polar Oceans, *Nat. Commun.*, **14**, 6233 (2023).
- Zhao, H.; Zhang, R.; Wu, J.; Meng, L.; Okazaki, Y.; Hikida, H.; Ogata, H., A 1.5-Mb Continuous Endogenous Viral Region in the Arbuscular Mycorrhizal Fungus *Rhizophagus Irregularis*, *Virus Evol.*, **9(2)**, vead064 (2023).

— Mathematical Bioinformatics —

- Tamura, T., Trimming Gene Deletion Strategies for Growth-Coupled Production in Constraint-Based Metabolic Networks: TrimGdel, *IEEE/ACM Trans. Comput. Biol. Bioinf.*, **20(2)**, 1540-1549 (2023).
- Pan, T.; Li, C.; Bi, Y.; Wang, Z.; Gasser, R. B.; Purcell, A. W.; Akutsu, T.; Webb, G. I.; Imoto, S.; Song, J., PFresGO: An Attention Mechanism-Based Deep-Learning Approach for Protein Annotation by Integrating Gene Ontology Inter-Relationships, *Bioinformatics*, **39(3)**, btad094 (2023).
- Jia, X.; Zhao, P.; Li, F.; Qin, Z.; Ren, H.; Li, J.; Miao, C.; Zhao, Q.; Akutsu, T.; Dou, G.; Chen, Z.; Song, J., ResNetKhib: A Novel Cell Type-Specific Tool for Predicting Lysine 2-Hydroxyisobutylation Sites via Transfer Learning, *Briefings Bioinf.*, **24(2)**, bbad063 (2023).
- Melkman, A. A.; Guo, S.; Ching, W.-K.; Liu, P.; Akutsu, T., On the Compressive Power of Boolean Threshold Autoencoders, *IEEE Trans. Neural Networks Learn. Syst.*, **34(2)**, 921-931 (2023).
- Tamura, T., MetNetComp: Database for Minimal and Maximal Gene-Deletion Strategies for Growth-Coupled Production of Genome-Scale Metabolic Networks, *IEEE/ACM Trans. Comput. Biol. Bioinform.*, **20(6)**, 3748-3758 (2023).
- Tamura, T.; Muto-fujita, A.; Tohsato, Y.; Kosaka, T., Gene Deletion Algorithms for Minimum Reaction Network Design by Mixed-Integer Linear Programming for Metabolite Production in Constraint-Based Models: gDel_minRN, *J. Comput. Biol.*, **30(5)**, 553-568 (2023).
- Wang, F.; Akutsu, T.; Mori, T., Metrics for RNA Secondary Structure Comparison, *Methods Mol. Biol.*, **2586**, 79-88 (2023).
- Mori, T.; Takase, T.; Lan, K.-C.; Yamane, J.; Alev, C.; Kimura, A.; Osafune, K.; Yamashita, J. K.; Akutsu, T.; Kitano, H.; Fujibuchi, W., eSPRESSO: Topological Clustering of Single-Cell Transcriptomics Data to Reveal Informative Genes for Spatio-Temporal Architectures of Cells, *BMC Bioinf.*, **24(252)** (2023).
- Xu, J.; Li, F.; Li, C.; Guo, X.; Landersdorfer, C.; Shen, H.-H.; Peleg, A. Y.; Li, J.; Imoto, S.; Yao, J.; Akutsu, T.; Song, J., iAMPCN: A Deep-Learning Approach for Identifying Antimicrobial Peptides and Their Functional Activities, *Briefings Bioinf.*, **24(4)**, bbad240 (2023).

Shiota, K.; Suma, A.; Ogawa, H.; Yamaguchi, T.; Iida, A.; Hata, T.; Matsushita, M.; Akutsu, T.; Tateno, M., AQDnet: Deep Neural Network for Protein-Ligand Docking Simulation, *ACS Omega*, **8(26)**, 23925-23935 (2023).

Chen, J.; Han, G.; Xu, A.; Akutsu, T.; Cai, H., Identifying miRNA-Gene Common and Specific Regulatory Modules for Cancer Subtyping by a High-Order Graph Matching Model, *IEEE/ACM Trans. Comput. Biol. Bioinf.*, **20(1)**, 421-431 (2023).

Cui, Y.; Wang, Z.; Wang, X.; Zhang, Y.; Zhang, Y.; Pan, T.; Zhang, Z.; Li, S.; Guo, Y.; Akutsu, T.; Song, J., SMG: Self-Supervised Masked Graph Learning for Cancer Gene Identification, *Briefings Bioinf.*, **24(6)**, bbad406 (2023).

Shiota, K.; Akutsu, T., Multi-Shelled ECIF: Improved Extended Connectivity Interaction Features for Accurate Binding Affinity Prediction, *Bioinf. Adv.*, **3(1)**, vbad155 (2023).

Matsuda, K.; Shirakami, A.; Nakajima, R.; Akutsu, T.; Shimono, M., Whole-Brain Evaluation of Cortical Microconnectomes, *Eneuro*, **10(10)**, ENEURO.0094-23.2023 (2023).

Cao, Y.; Pi, W.; Lin, C.-Y.; Münzner, U.; Ohtomo, M.; Akutsu, T., Common Attractors in Multiple Boolean Networks, *IEEE/ACM Trans. Comput. Biol. Bioinf.*, **20(5)**, 2862-2873 (2023).

Li, F.; Wang, C.; Guo, X.; Akutsu, T.; Webb, G. I.; Coin, L. J. M.; Kurgan, L.; Song, J., ProsperousPlus: A One-Stop and Comprehensive Platform for Accurate Protease-Specific Substrate Cleavage Prediction and Machine-Learning Model Construction, *Briefings Bioinf.*, **24(6)**, bbad372 (2023).

[Others]

Akutsu, T.; Nacher, J., Complex Networks and Control Theory, *Morikita Publishing Co., Ltd.*, 1-206 (2023).

— Bio-knowledge Engineering —

Wang, X.; Sun, L.; Nguyen, C. H.; Mamitsuka, H., Multiplicative Sparse Tensor Factorization for Multi-View Multi-Task Learning, *Front. Artif. Intell. Appl.*, **372**, 2560-2567 (2023).

Qu, W.; You, R.; Mamitsuka, H.; Zhu, S., DeepMHCI: An Anchor Position-Aware Deep Interaction Model for Accurate MHC-I Peptide Binding Affinity Prediction, *Bioinformatics*, **39(9)**, btad551 (2023).

Nguyen, D. A.; Nguyen, C. H.; Mamitsuka, H., Central-Smoothing Hypergraph Neural Networks for Predicting Drug-Drug Interactions, *IEEE Trans. Neural Networks Learn. Syst.*, 1-6 (2023).

Liao, Z.; Xie, L.; Mamitsuka, H.; Zhu, S., Sc2Mol: A Scaffold-Based Two-Step Molecule Generator with Variational Autoencoder and Transformer, *Bioinformatics*, **39(1)**, btac814 (2023).

HAKUBI PROJECT

— Optoelectronic Energy Recycling and Quantum Cooperative Effects in Semiconductor Nanostructures —

Sekiguchi, F.; Sakamoto, M.; Nakagawa, K.; Tahara, H.; Sato, S. A.; Hirori, H.; Kanemitsu, Y., Enhancing High Harmonic Generation in GaAs by Elliptically Polarized Light Excitation, *Phys. Rev. B*, **108**, 205201 (2023).

Kobiyama, E.; Tahara, H.; Saruyama, M.; Sato, R.; Teranishi, T.; Kanemitsu, Y., Picosecond Trion Photocurrent Dynamics in FAPbI₃ Quantum Dot Films, *Appl. Phys. Lett.*, **122**, 252106 (2023).