

Theoretical and Computational Molecular Science

- Z. ZHU, M. HIGASHI and S. SAITO**, “Development of Molecular Dynamics Parameters and Theoretical Analysis of Excitonic and Optical Properties in the Light-Harvesting Complex II,” *J. Chem. Theory Comput.* **21(1)**, 413–427 (2025). DOI: 10.1021/acs.jctc.4c01214
- S.-I. KODA and S. SAITO**, “Correlated Flat-Bottom Elastic Network Model for Improved Bond Rearrangement in Reaction Paths,” *J. Chem. Theory Comput.* **21(7)**, 3513–3522 (2025). DOI: 10.1021/acs.jctc.4c01549
- H. LI, S. FUJIWARA, H. NAKAMURA, T. MIZUGUCHI, S. SAITO and W. SAKAI**, “Reactive Molecular Dynamics Simulations of the Intra- and Intermolecular Reactions of Hydrogen-Abstracted Polyethylene Chains,” *Mol. Simul.* **51(2)**, 122–127 (2025). DOI: 10.1080/08927022.2025.2465809
- A. CHANDRA, S. SAITO and A. CHANDRA**, “Effects of Cations on the Structure, Dynamics and Vibrational Sum Frequency Generation Spectroscopy of Liquid/Vapor Interfaces of Aqueous Solutions of Monovalent and Divalent Metal Nitrates,” *Phys. Chem. Chem. Phys.* **27**, 6154–6167 (2025). DOI: 10.1039/D4CP04413D
- Y. FURUIKE, Y. ONOUE, S. SAITO, T. MORI and S. AKIYAMA**, “The Priming Phosphorylation of KaiC Is Activated by the Release of Its Autokinase Autoinhibition,” *PNAS Nexus* **4(5)**, pgaf136 (2025). DOI: 10.1093/pnasnexus/pgaf136
- T. KATO and S. SAITO**, “A Rigorous Expression of the Hohenberg–Kohn Universal Energy Functional Based on the Analysis of the Spatial Scaling Property of the Kohn–Sham Potential,” *J. Phys. Soc. Jpn.* **94(7)**, 074303 (2025). DOI: 10.7566/JPSJ.94.074303
- G. R. KHAN, S. SAITO and S. DASCHAKRABORTY**, “Faster Diffusion of Water along Carbon Nanotubes near the Wall,” *J. Phys. Chem. B* **129(26)**, 6561–6573 (2025). DOI: 10.1021/acs.jpcc.5c02233
- B. KANG, J. YU, S. SAITO, J. JANG and B. J. SUNG**, “Non-Monotonic Ion Conductivity in Lithium-Aluminum-Chloride Glass Solid-State Electrolytes Explained by Cascading Hopping,” *Adv. Sci.* **12(35)**, e09205 (2025). DOI: 10.1002/adv.202509205
- Z. ZHANG, Z. TANG, Y. KOBAYASHI, H. ITO and S. OKAZAKI**, “Microscopic Mechanism of Accelerated Aging in Swollen Polylactic Acid by Water: Tensile Test Experiments and Molecular Dynamics Calculations,” *Polymer* **332**, 128582 (2025). DOI: 10.1016/j.polymer.2025.128582
- T. SHIRAOGAWA, S. L. KRUG, M. EHARA and O. A. VON LILIENTHAL**, “Antisymmetry Rules of Response Properties in Certain Chemical Spaces,” *J. Chem. Phys.* **163(2)**, 024133 (2025). DOI: 10.1063/5.0271350
- S. SHIRAI, S. MURATSUGU, H. MATSUI, K. HARADA, M. EHARA, H. NAKAI and M. TADA**, “Circularly Polarized Luminescence Induction on a Tb(III) Complex with a Tris(*o*-*tert*-Butylaryloxy)-Functionalized 1,4,7-Triazacyclononane Ligand Coordinating Chiral 1-Phenylethylamine,” *Chem. Commun.* **60(96)**, 14180–14183 (2024). DOI: 10.1039/D4CC05191B
- S. MASUDA, H. HIRAI, P. ZHAO, S. TAKANO, M. EHARA and T. TSUKUDA**, “Substrate-Dependent Role of a Pd Dopant in PdAu₁₂ Catalysts in the Oxidation of *p*-Substituted Benzyl Alcohols: Promotion of Hydride Abstraction and Reductive Activation of O₂,” *ACS Catal.* **14(22)**, 17123–17131 (2024). DOI: 10.1021/acscatal.4c03871
- C. H. LIN, W. K. SHIH, Y. KONNO, P. ZHAO, Y. MAEDA, M. EHARA, T. KOBAYASHI and A. YABUSHITA**, “Relaxation Dynamics of (6,5) Single-Walled Carbon Nanotube under Xylyl Functionalization,” *J. Electron. Mater.* **54(2)**, 985–995 (2025). DOI: 10.1007/s11664-024-11628-2
- S. HU, J. WANG, P. ZHAO, J. PASCUAL, J. WANG, F. ROMBACH, A. DASGUPTA, W. LIU, M. A. TRUONG, H. ZHU, M. KOBER-CZERNY, J. N. DRYSDALE, J. A. SMITH, Z. YUAN, G. J. W. AALBERS, N. R. M. SCHIPPER, J. YAO, K. NAKANO, S.-H. TURRENCRUZ, A. DALLMANN, M. GREYSON CHRISTOFORO, J. M. BALL, D. P. MCMEEKIN, K.-A. ZAININGER, Z. LIU, N. K. NOEL, K. TAJIMA, W. CHEN, M. EHARA, R. A. J. JANSSEN, A. WAKAMIYA and H. J. SNAITH**, “Steering Perovskite Precursor Solutions for Multijunction Photovoltaics,” *Nature* **639**, 93–101 (2025). DOI: 10.1038/s41586-024-08546-y
- Y. MAEDA, Y. IGUCHI, P. ZHAO, A. SUWA, Y. TAKI, K. KAWADA, M. YAMADA, M. EHARA and M. KAKO**, “Switching Photoluminescence Wavelength of Arylated Single-Walled Carbon Nanotubes by Utilizing Steric Hindrance in Reductive Arylation,” *Chem.–Eur. J.* **31(13)**, e202404529 (2025). DOI: 10.1002/chem.202404529
- Y. HAN, M. LI, M. EHARA and X. ZHAO**, “Unveiling Fullerene Formation and Interconversion through Molecular Dynamics Simulations with Deep Neural Network Potentials,” *Phys. Chem. Chem. Phys.* **27(18)**, 9767–9773 (2025). DOI: 10.1039/D5CP00837A
- Y. HAN, H. ZHENG, J. HE, M. LI, M. EHARA and X. ZHAO**, “Stabilities Referring to the f Electron Effect in Erbium-Based Endohedral Metallofullerenes: Revisiting Er₂@C₈₀ and the Missing Er₂C₂@C₇₈,” *Inorg. Chem.* **64(16)**, 8302–8312 (2025). DOI: 10.1021/acs.inorgchem.5c00661
- R. MISHIMA, T. NAGAI, H. SEGAWA, M. EHARA and T. UCHINO**, “Atomic-Scale Observation of Moiré Potential in Twisted Hexagonal Boron Nitride Layers by Electron Microscopy,” *J. Phys. Chem. C* **129(16)**, 7813–7822 (2025). DOI: 10.1021/acs.jpcc.5c00804
- S. FIRDAUSIAH, R. IDE, M. EHARA, P. ZHAO, Y. SAKATA and S. AKINE**, “Novel Helical Metallocryptand for Size-Selective Recognition of Amino Acid Derivatives with Aliphatic Side Chains,” *Chem.–Eur. J.* **31(36)**, e202501277 (2025). DOI: 10.1002/chem.202501277
- A. OHNUMA, P. ZHAO, K. MATSUNAGA, K. TAKAHASHI, T. MASUBUCHI, T. INOUE, Y. WANG, M. EHARA, N. ICHIKUNI and A. NAKAJIMA**, “Size-Selected Platinum Subnanocluster Catalysts Alloyed with Nickel (Pt_nNi_m *n* = 3–7, *m* = 1–3) or Cobalt (Pt_nCo_m *n* = 4–6, *m* = 1–2) for the Oxygen Reduction Reaction,” *ACS Appl. Nano Mater.* **8(34)**, 16748–16758 (2025). DOI: 10.1021/acsnano.5c02782
- W. ISHII, T. SHIRAOGAWA, M. EHARA, H. SOTOME, H. MIYASAKA, T. KAWAI and T. NAKASHIMA**, “Evolution of Circularly Polarized Luminescence in Atomically Precise Silver Nanoclusters with Intrinsic Chirality,” *Angew. Chem., Int. Ed.* **64(45)**, e202513118 (2025). DOI: 10.1002/anie.202513118
- M. YAGI-UTSUMI, Y. KANAOKA, S. MIYAJIMA, S. G. ITOH, K. YANAGISAWA, H. OKUMURA, T. UCHIHASHI and K. KATO**, “Single-Molecule Kinetic Observation of Antibody Interactions with Growing Amyloid β Fibrils,” *J. Am. Chem. Soc.* **146(46)**, 31518–31528 (2024). DOI: 10.1021/jacs.4c08841
- M. OTAWA, S. G. ITOH and H. OKUMURA**, “Nonequilibrium Molecular Dynamics Method to Generate Poiseuille-Like Flow between Lipid Bilayers,” *J. Chem. Theory Comput.* **20(22)**, 10199–10208 (2024). DOI: 10.1021/acs.jctc.4c00750

- H. X. SUZUKI, H. OKUMURA and S. G. ITOH**, “Why Do Histone Monomethylation and Dimethylation Cause a Significant Difference in Binding to LEDGF?” *J. Chem. Phys.* **162**(18), 185102 (2025). DOI: 10.1063/5.0259337
- H. KOYAMA, A. M. ITO, H. OKUMURA, T. OTANI, K. NAKAMURA and T. FUJIMORI**, “Cell Position-Based Evaluation of Mechanical Features of Cells in Multicellular Systems,” *J. Theor. Biol.* **604**, 112070 (2025). DOI: 10.1016/j.jtbi.2025.112070
- T. SAITO, T. ISHIYAMA, M. SAKONO, S. G. ITOH and H. OKUMURA**, “Oligomerization Mechanism of Amyloid- β Peptides at Hydrophobic Interfaces Revealed by Molecular Dynamics Simulations,” *J. Phys. Chem. B* **129**(27), 6794–6804 (2025). DOI: 10.1021/acs.jpcc.5c01837
- J. KISHIKAWA, Y. NISHIDA, A. NAKANO, T. KATO, K. MITSUOKA, K. OKAZAKI and K. YOKOYAMA**, “Rotary Mechanism of the Prokaryotic V_0 Motor Driven by Proton Motive Force,” *Nat. Commun.* **15**(1), 9883 (2024). DOI: 10.1038/s41467-024-53504-x
- R. KOBAYASHI and K. OKAZAKI**, “Rotation-Direction-Dependent Mechanism of the Inhibitor Protein IF₁ for Mitochondrial ATP Synthase from Atomistic Simulations,” *JACS Au* **5**(6), 2654–2665 (2025). DOI: 10.1021/jacsau.5c00261
- K. KAWASHIMA, T. SATO, K. OKAZAKI, K. KIM, N. MATUBAYASI and T. MORI**, “Investigating the Hyperparameter Space of Deep Neural Network Models for Reaction Coordinates,” *APL Mach. Learn.* **3**, 016113 (2025). DOI: 10.1063/5.0252631

Photo-Molecular Science

- T. TOMITA, Y. CHEW, R. VILLELA, T. P. MAHESH, H. SAKAI, K. NISHIMURA, T. ANDO, S. DE LÉSÉLEUC and K. OHMORI**, “Atom Camera: Super-Resolution Scanning Microscope of a Light Pattern with a Single Ultracold Atom,” *arXiv* 2410.03241 (2024). DOI: 10.48550/arXiv.2410.03241
- Y. CHEW, M. POITRINAL, T. TOMITA, S. KITADE, J. MAURICIO, K. OHMORI and S. DE LÉSÉLEUC**, “Ultraprecise Holographic Optical Tweezer Array,” *Phys. Rev. A* **110**(5), 053518 (2024). DOI: 10.1103/PhysRevA.110.053518
- T. P. MAHESH, T. MATSUBARA, Y. T. CHEW, T. TOMITA, S. DE LÉSÉLEUC and K. OHMORI**, “Generation of 480 nm Picosecond Pulses for Ultrafast Excitation of Rydberg Atoms,” *Opt. Lett.* **50**(2), 403–406 (2025). DOI: 10.1364/OL.538707
- T. DENECKER, Y. T. CHEW, O. GUILLEMANT, G. WATANABE, T. TOMITA, K. OHMORI and S. DE LÉSÉLEUC**, “Measurement and Feedforward Correction of the Fast Phase Noise of Lasers,” *Phys. Rev. A* **111**(4), 042614 (2025). DOI: 10.1103/PhysRevA.111.042614
- V. LIENHARD, R. MARTIN, Y. T. CHEW, T. TOMITA, K. OHMORI and S. DE LÉSÉLEUC**, “Generation of Motional Squeezed States for Neutral Atoms in Optical Tweezers,” *arXiv* 2505.10092 (2025). DOI: 10.48550/arXiv.2505.10092
- F. NISHINO, P. KRÜGER, C. H. WANG, R. NEMOTO, Y. H. CHANG, T. HOSOKAI, Y. HASEGAWA, K. FUKUTANI, S. KERA, M. HORIE and T. YAMADA**, “Reversible Sliding Motion by Hole-Injection in Ammonium-Linked Ferrocene, Electronically Decoupled from Noble Metal Substrate by Crown-Ether Template Layer,” *Small* **21**(7), 2408217 (2024). DOI: 10.1002/sml.202408217
- F. NISHINO, K. FUKUTANI, J. BRANDHOFF, M. GRUENEWALD, E. FUERCH, M. SCHAAL, F. OTTO, D. STELTER, R. FORKER, Z. ZHANG, T. HIROSE, T. FRITZ and S. KERA**, “Enantiospecific Mirror-Imaged Growth in Overlayers of Enantiopure Thiadiazole-[9] helicene on Au(111) without Commensurability,” *Appl. Phys. Express* **18**(1), 015502 (2025). DOI: 10.35848/1882-0786/ada688
- Y. HASEGAWA, T. YAMAGUCHI, M. MEISSNER, T. UEBA, F. BUSSOLOTTI, S. IDETA, K. TANAKA, S. YANAGISAWA and S. KERA**, “Fingerprinting Weak Electronic Interaction at a van der Waals Interface: Fano Signatures in a Pentacene Monolayer on Graphite,” *Phys. Rev. B* **112**(8), 085301 (2025). DOI: 10.1103/2k7h-h8jm
- Y. YU, B. F. WANG, Y. SHEN, Y. T. WANG, Y. H. ZHANG, Y. Y. LI, Z. H. SU, L. X. CAO, S. C. FENG, Y. H. WU, X. Y. GAO, S. KERA, N. UENO, J. X. TANG and Y. Q. LI**, “Efficient Blue Perovskite LEDs via Bottom-Up Charge Manipulation for Solution-Processed Active-Matrix Displays,” *Adv. Mater.* **37**(37), 2503234 (2025). DOI: 10.1002/adma.202503234
- Y. NAKAYAMA, Y. KOYAMA, S. MIYATA, J. MIYAMOTO, T. HOSOKAI, K. FUKUTANI, S. KERA, R. KUMARA, T. KOGANEZAWA, F. KOBAYASHI and M. TADOKORO**, “Epitaxial Molecular Heterojunction with Spontaneous Charge Transfer: A Novel Strong Acceptor, Perfluorotetraazaphthalene, on Single-Crystal Pentacene,” *Synth. Met.* **314**, 117941 (2025). DOI: 10.1016/j.synthmet.2025.117941
- L. X. CAO, Y. SHEN, K. ZHANG, Z. H. SU, S. C. FENG, X. M. HU, Y. H. ZHANG, B. F. WANG, Y. Y. LI, X. GAO, W. J. WANG, S. KERA, N. UENO, Y. Q. LI and J. X. TANG**, “In Situ Interface Reaction Enables Efficient Deep-Blue Perovskite Light-Emitting Diodes,” *Angew. Chem., Int. Ed.* **64**(39), e202513617, (2025). DOI: 10.1002/anie.202513617
- S. W. HAN, W. S. YUN, G.-B. CHA, S. SEONG, J. C. KIM, H. Y. JEONG, C. W. AHN, K. FUKUTANI, R. STANIA and J. KANG**, “Twist-Induced Dimensional Crossover and Topological Phase Transitions in Bismuthene Quasicrystals,” *Chem. Mater.* **37**, 2358 (2025). DOI: 10.1021/acs.chemmater.5c00204
- C. DE, K. FUKUTANI, J. SEO, R. STANIA, K. YAJI, K. KURODA, K. SHIMADA, J. S. KIM, H. W. YEOM and S.-W. CHEONG**, “Multiple Magnetic Transitions, Anomalous Hall Effect, and Tunable Surface States in $\text{Mn}(\text{Bi}_{1-x}\text{Sb}_x)_4\text{Te}_7$,” *Phys. Rev. B* **112**, 085151 (2025). DOI: 10.1103/7swz-xkrt
- M. KOBAYASHI, S. YOSHIMURA, H. IWAYAMA, N. KONDO, J. TAKAHASHI, H. OTA, M. KATOH, K. KOBAYASHI and H. NAKAMURA**, “First Attempt at Photoionized Plasma Production with VUV Radiation in Synchrotron Light Source UVSOR-III,” *Plasma Fusion Res.* **19**, 1301028 (2024). DOI: 10.1585/pfr.19.1301028
- M. KOBAYASHI, J. TAKAHASHI, H. OTA, K. MATSUO, M.I.A. IBRAHIM, T. MINATO, G. FUJIMORI, M. KATOH, K. KOBAYASHI, Y. KEBUKAWA and H. NAKAMURA**, “Emergence of Optical Activity and Surface Morphology Changes in Racemic Amino Acid Films under Circularly Polarized Lyman- α Light Irradiation,” *Chirality* **36**(11), e70004 (2024). DOI: 10.1002/chir.70004

LIST OF PUBLICATIONS

T. KANEYASU, Y. HIKOSAKA, S. WADA, H. OTA, H. IWAYAMA, K. SHIMIZU, M. FUJIMOTO and M. KATOH, “Attosecond Interferometry Experiments at the Tandem Undulator Beamline BL1U of UVSOR-III Synchrotron,” *J. Phys.: Conf. Ser.* **3010(1)**, 012086 (2025). DOI: 10.1088/1742-6596/3010/1/012086

T. KANEYASU, H. TAKEDA, K. HOSAKA and J. ADACHI, “Polarization Measurement of Vacuum Ultraviolet Light Using Visible Fluorescence from Neon Atoms,” *J. Electron Spectrosc. Relat. Phenom.* **276**, 147488 (2024). DOI: 10.1016/j.elspec.2024.147488

T. ODAGIRI, Y. SUGAWARA, T. KANEYASU, J. ADACHI, H. TANAKA, I. H. SUZUKI, S. SUZUKI and Y. HIKOSAKA, “Spin Dependence in Core-Valence Double Photoionization of Neon,” *Phys. Rev. A* **111(2)**, L020801 (2025). DOI: 10.1103/PhysRevA.111.L020801

T. KANEYASU, Y. HIKOSAKA, S. WADA, H. OTA, H. IWAYAMA, K. SHIMIZU, M. FUJIMOTO and M. KATOH, “Attosecond Interferometry Experiments at the Tandem Undulator Beamline BL1U of UVSOR-III Synchrotron,” *J. Phys.: Conf. Ser.* **3010(1)**, 012086 (2025). DOI: 10.1088/1742-6596/3010/1/012086

Y. IWASAKI, T. KANEYASU, Y. TAKABAYASHI, H. TAKEDA and S. KODA, “Operation of Two Superconducting Wigglers at SAGA Light Source,” *J. Phys.: Conf. Ser.* **3010(1)**, 012021 (2025). DOI: 10.1088/1742-6596/3010/1/012021

H. TAKEDA, T. KANEYASU, Y. TAKABAYASHI and Y. IWASAKI, “Twenty Years of Operation of the SAGA Light Source,” *J. Phys.: Conf. Ser.* **3010(1)**, 012013 (2025). DOI: 10.1088/1742-6596/3010/1/012013

Y. TAIRA, “Spatial Distribution of Gamma Rays Produced by Axially Symmetric Polarized and Optical Vortex Lasers,” *Phys. Rev. A* **110(10)**, 043525 (2024). DOI: 10.1103/PhysRevA.110.043525

Y. TAIRA, Y. YANG, T. SHIZUMA and M. OMER, “Generation and Measurement of Gamma Rays with Axially Symmetric Polarization States via Compton Scattering,” *Phys. Rev. Res.* **7**, 033130 (2025). DOI: 10.1103/pn68-rjd2

R. SATO, M. HAMDAN, K. SHIMAZOE, M. UENOMACHI and Y. TAIRA, “Measurement of Scattering Azimuthal Distribution of Polarized Gamma-Rays in Compton Scattering Using GAGG(Ce) Scintillator,” *J. Instrum.* **20(2)**, C02007 (2025). DOI: 10.1088/1748-0221/20/02/C02007

Y. TAIRA, Y. OKANO and T. HIRADE, “Gamma-Ray-Induced Positron Annihilation Lifetime Spectroscopy at UVSOR,” *J. Phys.: Conf. Ser.* **3029(1)**, 012022 (2025). DOI: 10.1088/1742-6596/3029/1/012022

T. KOBAYASHI, F. MATSUI, E. IWAMOTO, H. KIZAKI, M. MIYATA, M. KOYANO, I. YAMAMOTO, S. SUGA and K. SAKAMOTO, “Temperature-Dependent Electronic Structure of a Quasi-Two-Dimensional Conductor η -Mo₄O₁₁,” *Sci. Rep.* **15**, 9034 (2025). DOI: 10.1038/s41598-025-93355-0

Y. HASHIMOTO, J. MIZUNO, H. MATSUDA, F. MATSUI and T. MATSUSHITA, “High-Resolution Electron Energy Analyzer with Wide Acceptance Angle for Hard X-Ray Photoelectron Holography: Integrating PESCATORA and Retarding Field Analyzer,” *Jpn. J. Appl. Phys.* **63(12)**, 124001 (2024). DOI: 10.35848/1347-4065/ad9447

Y. HIGUCHI, R. ITAYA, H. SAITO, Y. TOICHI, T. KOBAYASHI, M. TOMITA, S. TERAKAWA, K. SUZUKI, K. KURODA, T. KOTANI, F. MATSUI, S. SUGA, H. SATO, K. SATO and K. SAKAMOTO, “Determination of the Actual Valence Band of a Topological Insulator Bi₂Se₃,” *Vacuum* **233**, 113944 (2024). DOI: 10.1016/j.vacuum.2024.113944

Y. MIYAI, S. IDETA, M. ARITA, K. TANAKA, M. ODA, T. KUROSAWA and K. SHIMADA, “Dual Origin in the Temperature Dependence of the Coupling Parameter for the Strange Metal State in Heavily Overdoped Cuprate Superconductor,” *Phys. Rev. Res.* **7(1)**, L012039 (2025). DOI: 10.1103/PhysRevResearch.7.L012039

T. KAWATE, H. A. SAKAUE, C. SUZUKI, N. NAKAMURA, K. TANAKA, E. NAKAMURA, K. FUJII, D. KATO, A. SASAKI and I. MURAKAMI, “Optical Design and Efficiency Measurement of an Extreme Ultraviolet High-Resolution Spectrometer for Unresolved Transition Array Research,” *Rev. Sci. Instrum.* **96(4)**, 043512 (2025). DOI: 10.1063/5.0250066

T. KAWASAKI, A. NAGASE, K. HAYAKAWA, F. TESHIMA, K. TANAKA, H. ZEN, F. SHISHIKURA, N. SEI, T. SAKAI and Y. HAYAKAWA, “Infrared Free-Electron Laser: A Versatile Molecular Cutter for Analyzing Solid-State Biomacromolecules,” *ACS Omega* **10(14)**, 13860–13867 (2025). DOI: 10.1021/acsomega.4c07531

K. SASAKI, H. MURAKAMI, K. KAMINAGA, F. TESHIMA, A. KIKUCHI, K. TANAKA, S. MARUYAMA and Y. MATSUMOTO, “Infrared Laser Deposition of High-Quality KBH₄ Epitaxial Thin Films as an Epitaxial Template for Heterostructures of Alkali Borohydrides,” *Cryst. Growth Des.* **25(12)**, 4494–4502 (2025). DOI: 10.1021/acs.cgd.5c00396

J. A. LAUX, T. OHIGASHI, M. R. BITTERMANN, T. ARAKI, H. YUZAWA, F. RANCAN, A. VOGT and E. RÜHL, “Scanning Transmission Soft X-Ray Microscopy Probes Topical Drug Delivery of Rapamycin Facilitated by Microneedles,” *ChemPhysChem* **26(2)**, e202400819 (2025). DOI: 10.1002/cphc.202400819

T. MATSUMOTO, T. NOGUCHI, A. MIYAKE, Y. IGAMI, M. MATSUMOTO, T. YADA, M. UESUGI, M. YASUTAKE, K. UESUGI, A. TAKEUCHI, H. YUZAWA, T. OHIGASHI and T. ARAKI, “Sodium Carbonates on Ryugu as Evidence of Highly Saline Water in the Outer Solar System,” *Nat. Astron.* **8(12)**, 1536–1543 (2024). DOI: 10.1038/s41550-024-02418-1

R. L. JONES, J. R. HAWKINGS, M. P. MEREDITH, M. C. LOHAN, O. W. MOORE, R. M. SHERRELL, J. N. FITZSIMMONS, M. KAZEMIAN, T. ARAKI, B. KAULICH and A. L. ANNETT, “Antarctic Glaciers Export Carbon-Stabilised Iron(II)-Rich Particles to the Surface Southern Ocean,” *Nat. Commun.* **16(1)**, 5015 (2025). DOI: 10.1038/s41467-025-59981-y

T. N. TRAN, T. HAYASHI, H. IWAYAMA, M. SEKINE, M. HORI and K. ISHIKAWA, “Hydrofluoroethane Plasma Etching of SiN, SiO₂, and poly-Si Films with CHF₂CF₃, CF₃CH₃, and CHF₂CH₃,” *Appl. Surf. Sci.* **684**, 161815 (2025). DOI: 10.1016/j.apsusc.2024.161815

- M. NAGASAKA, Y. YAO and K. MOCHIZUKI**, “Oxygen K-Edge Inner-Shell Calculations of Polymers in Solutions Realized by the Extraction of Local Structures from Molecular Dynamics Simulations,” *J. Chem. Phys.* **162**(5), 054901 (2025). DOI: 10.1063/5.0245456
- S. TSURU and M. NAGASAKA**, “Solvatochromism Observed in the X-Ray Absorption Spectrum of Indole Dissolved in Water,” *J. Phys. Chem. A* **129**(13), 3020–3031 (2025). DOI: 10.1021/acs.jpca.5c00456
- T. MIBU, R. MATSUOKA, M. NAGASAKA and T. KUSAMOTO**, “Emission Enhancement in a Luminescent Polychlorinated Diphenylpyridylmethyl Radical through Coordination to Silver(I),” *Dalton Trans.* **54**(6), 2265–2270 (2025). DOI: 10.1039/D4DT03129F
- K. HARADA, A. SAKAI, S. TSUNEKAWA, Y. TAKAKI, M. NAGASAKA, H. YUZAWA, K.-H. WANG, T. INA, H. KONDOH and M. YOSHIDA**, “Improved Water Electrolysis Over Cobalt Oxyhydroxide by Carbonate Anion Adsorption: Direct Observation of Active Species Using Operando Hard/Soft X-Ray Absorption Spectroscopy,” *ChemSusChem* **18**(16), e202500559 (2025). DOI: 10.1002/cssc.202500559
- Y. YAMADA, Y. TOYODA, M. NAGASAKA, N. NAKATANI, T. KOITAYA, A. KUZUME and K. TANAKA**, “Room-Temperature Direct Spectroscopic Observation of High-Valent Terminal Iron-Oxo Species of a μ -Nitrido-Bridged Iron Phthalocyanine Dimer Deposited on a Highly Oriented Pyrolytic Graphite Surface,” *ChemistryEurope* **3**(5), e202500277 (2025). DOI: 10.1002/ceur.202500277

Materials Molecular Science

- Y. UEMURA, K. YAMAMOTO, Y. NIWA, T. BUTTIENS, H. ELNAGGAR, R. -P. WANG, M. LAZEMI, F. DE GROOT, T. KATAYAMA, M. YABASHI, C. J. MILNE and T. YOKOYAMA**, “Electronic and Structural Relaxation of Photoexcited WO_3 Observed by Femtosecond Resonant X-Ray Emission Spectra,” *J. Phys. Chem. Lett.* **16**, 6138–6145 (2025). DOI: 10.1021/acs.jpclett.5c01062
- T. FUJINO, M. HISHIDA, M. ITO, T. NAKAMURA, M. ASADA, N. KURAHASHI, H. KIUCHI, Y. HARADA, K. HARANO, R. MAKIURA, K. J. TAKENO, S. YOKOMORI, H. OIKE and H. MORI**, “Macroscopic Structural Transition of Nickel Dithiolate Capsule with Uniaxial Magnetic Anisotropy in Water,” *Adv. Sci.* **12**(29), 2504967 (2025). DOI: 10.1002/advs.202504967
- Y. IZUMI, R. UGALINO, J. MIYAWAKI, C. SHIBAZAKI, M. ADACHI, N. KURAHASHI, H. KIUCHI, Y. HARADA and K. FUJII**, “Electronic Structures of Blue Copper Centers of Amicyanin and Azurin in the Solution State,” *Dalt. Trans.* **54**, 1980 (2025). DOI: 10.1039/D4DT02891K
- S. NISHIMURA, N. KURAHASHI, S. SHIOMOTO, Y. HARADA and M. TANAKA**, “Effects of Hydration Water on Bioresponsiveness of Polymer Interfaces Revealed by Analysis of Linear and Cyclic Polymer-Grafted Substrates,” *Soft Matter* **20**, 9454 (2024). DOI: 10.1039/D4SM00977K
- H. SATO, H. SAITO, T. HIGASHI and T. SUGIMOTO**, “Critical Impacts of Metal Cocatalysts on Oxidation Kinetics and Optimal Reaction Conditions of Photocatalytic Methane Reforming,” *Chem. Commun.* **61**, 5942–5945 (2025). DOI: 10.1039/D4CC06774F
- A. SAKURAI, S. TAKAHASHI, T. MOCHIZUKI and T. SUGIMOTO**, “Tip-Enhanced Sum Frequency Generation for Molecular Vibrational Nanospectroscopy,” *Nano Lett.* **25**(16), 6390–6398 (2025). DOI: 10.1021/acs.nanolett.4c06065
- A. SHIOTARI, S. LIU, G. TRENINS, T. SUGIMOTO, M. WOLF, M. ROSSI and T. KUMAGAI**, “Picocavity-Enhanced Raman Spectroscopy of Physisorbed H_2 and D_2 Molecules,” *Phys. Rev. Lett.* **134**(20), 206901 (2025). DOI: 10.1103/PhysRevLett.134.206901
- T. OZAWA, Y. SUGISAWA, Y. KOMATSU, R. SHIMIZU, T. HITOSUGI, D. SEKIBA, K. YAMAUCHI, I. HAMADA and K. FUKUTANI**, “Isotope-Dependent Site Occupation of Hydrogen in Epitaxial Titanium Hydride Nanofilms,” *Nat. Commun.* **15**(1), 9558 (2024). DOI: 10.1038/s41467-024-53838-6
- Y. WATANABE, S. KOBAYASHI, Z. RUIJIE, D. JUN, K. TANAKA, K. NISHIO, R. NAKAYAMA, R. SHIMIZU, M. MORIYA and T. HITOSUGI**, “Reduced Resistance at Molecular-Crystal Electrolyte and LiCoO_2 Interfaces for High-Performance Solid-State Lithium Batteries,” *APL Mater.* **13**(1), 011122 (2025). DOI: 10.1063/5.0241289
- T. SUDARE, R. SHIMIZU, N. YAMADA, Y. MIURA, R. UEDA, R. NAKAYAMA, S. KOBAYASHI, K. KANEKO and T. HITOSUGI**, “Elucidating the Role of Interstitial Oxygen in Transparent Conducting Anatase TiO_2 by Polarized X-Ray Absorption Spectroscopy Study,” *Chem. Mater.* **37**(1), 480–488 (2025). DOI: 10.1021/acs.chemmater.4c02896
- T. SUDARE, H. XU, R. NAKAYAMA, R. UEDA, R. NAITO, R. SHIMIZU, Y. MIURA, K. KANEKO, N. YAMADA and T. HITOSUGI**, “Extremely Low Electrical Contact Resistance at the Interface of Carbon-Fiber-Based Gas Diffusion Layer and Anatase TiO_2 Thin Films,” *ACS Appl. Electron. Mater.* **7**(7), 2785–2792 (2025). DOI: 10.1021/acsaelm.4c02236
- R. ZHENG, S. KOBAYASHI, M. OGAWA, H. KATSURAGAWA, Y. WATANABE, J. DENG, R. NAKAYAMA, K. NISHIO, R. SHIMIZU, Y. TATEYAMA, M. MORIYA and T. HITOSUGI**, “Investigating the Interface of $\text{Li}\{\text{N}(\text{SO}_2\text{F})_2\}(\text{NCCH}_2\text{CH}_2\text{CN})_2$ Molecular Crystal Electrolytes for 5 V Class Solid-State Batteries,” *ACS Appl. Mater. Interfaces* **17**(14), 21951–21957 (2025). DOI: 10.1021/acsami.4c22076
- S. KOBAYASHI, N. ZETTSU, K. NISHIO, R. SHIMIZU, T. IMABORI, Y. SAITO, K. TESHIMA and T. HITOSUGI**, “Solid Thin-Film Battery Using a Densely Packed $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ Crystal Layer,” *ACS Omega* **10**(16), 16073–16078 (2025). DOI: 10.1021/acsomega.4c09393
- K. NISHIO, A. AIBA, K. TAKIHARA, Y. SUZUKI, R. NAKAYAMA, S. KOBAYASHI, A. ABE, H. BABA, S. KATAGIRI, K. OMOTO, K. ITO, R. SHIMIZU and T. HITOSUGI**, “A Digital Laboratory with a Modular Measurement System and Standardized Data Format,” *Digital Discovery* **4**(7), 1734–1742 (2025). DOI: 10.1039/d4dd00326h
- N. KISHI, S. SHINOHARA, Y. SUGISAWA, K. YAMAMOTO, S. KOBAYASHI, R. SHIMIZU, T. HITOSUGI and D. SEKIBA**, “Application of $^7\text{Li}(p, \alpha)^4\text{He}$ NRA for Thin Film Type All-Solid-State Li Battery; Reinvestigation of $^7\text{Li}(p, \alpha)^4\text{He}$ Cross-Section and Optimization of Experimental Arrangement,” *Nucl. Instrum. Methods Phys. Res., Sect. B* **566**, 165787 (2025). DOI: 10.1016/j.nimb.2025.165787
- H. WANG, H. KIM, D. DONG, K. SHINOKITA, K. WATANABE, T. TANIGUCHI and K. MATSUDA**, “Quantum Coherence and Interference of a Single Moiré Exciton in Nano-Fabricated Twisted Monolayer Semiconductor Heterobilayers,” *Nat. Commun.* **15**(1), 4905 (2024). DOI: 10.1038/s41467-024-48623-4

LIST OF PUBLICATIONS

- H. KIM, H. WANG, Y. WANG, K. SHINOKITA, K. WATANABE, T. TANIGUCHI, S. KONABE and K. MATSUDA**, “Identification of Two-Dimensional Interlayer Excitons and Their Valley Polarization in MoSe₂/WSe₂ Heterostructure with h-BN Spacer Layer,” *ACS Nano* **19**(1), 322–330 (2024). DOI: 10.1021/acsnano.4c05963
- D. MURASE, K. SHINOKITA, Y. WAKAFUJI, M. ONODERA, T. MACHIDA, K. WATANABE, T. TANIGUCHI, J. BI, Z. ZHOU, S. ZHAO and K. MATSUDA**, “All Dry Transfer Processes Utilizing Au Exfoliation for Predetermined Shapes of Transition Metal Dichalcogenide,” *Langmuir* **41**(16), 10099–10107 (2025). DOI: 10.1021/acs.langmuir.4c04629
- Y. XIANG, K. SHINOKITA, K. WATANABE, T. TANIGUCHI and K. MATSUDA**, “Magnetic Brightening and Its Dynamics of Defect-Localized Exciton Emission in Monolayer Two-Dimensional Semiconductor,” *Sci. Adv.* **11**(23), eadr5562 (2025). DOI: 10.1126/sciadv.adr5562
- H. WANG, K. SHINOKITA, K. WATANABE, T. TANIGUCHI, S. KONABE and K. MATSUDA**, “Direct Identification of Valley Coherence and Its Manipulation in Monolayer Two-Dimensional Semiconductor,” *ACS Nano* **19**(23), 21484–21491 (2025). DOI: 10.1021/acsnano.5c02659
- K. RONG, K. SHINOKITA, P. YU, T. ENDO, T. ARAKI, Y. MIYATA, K. MATSUDA and S. MOURI**, “Heavy Electron Doping in Monolayer MoS₂ on a Freestanding N-Face GaN Substrate,” *Appl. Phys. Express* **17**(11), 115002 (2024). DOI: 10.35848/1882-0786/ad8c9b
- A. AHAD, Y. YOMOGIDA, M. A. RAHMAN, A. IHARA, Y. MIYATA, Y. HIROSE, K. SHINOKITA, K. MATSUDA, Z. LIU and K. YANAGI**, “Synthesis of Arrayed Tungsten Disulfide Nanotubes,” *Nano Lett.* **24**(45), 14286–14292 (2024). DOI: 10.1021/acs.nanolett.4c03895
- H. OU, K. OI, R. USAMI, T. ENDO, K. SHINOKITA, R. KITaura, K. MATSUDA, Y. MIYATA, J. PU and T. TAKENOBU**, “Continuous Strain Modulation of Moiré Superlattice Symmetry From Triangle to Rectangle,” *Small* **21**(25), 2407316 (2025). DOI: 10.1002/sml.202407316
- H. AGO, Y.-C. LIN, K. MATSUDA, S. OKADA, M. MARUYAMA, K. SHINOKITA, K. SUENAGA, Y. TAKAHASHI, P. SOLÍS-FERNÁNDEZ, Z. MA, K. HIRATA, K. HONDA, T. KATO, A. UCHIDA, H. OGURA, T. OTSUKA, M. HARA and T. KATO**, “Lattice-Guided Growth of Dense Arrays of Aligned Transition Metal Dichalcogenide Nanoribbons with High Catalytic Reactivity,” *Sci. Adv.* **11**, eadr8046 (2025). DOI: 10.1126/sciadv.adr8046
- K. WATANABE, J. USUBA, Y. HIJIKATA, T. TOYA, Y. TOYOTA, Y. KOBAYASHI, R. MATSUDA, K. NISHIMURA, H. SUGIYAMA and Y. SEGAWA**, “Synthesis of Fully Fused Tetrapyrizinoporphyrazine Polymers Bearing Three-Dimensional Structures Controlled by steric Repulsion,” *Chem. Commun.* **61**, 2822–2825 (2025). DOI: 10.1039/d4cc06293k
- P. KAISOOK, P. ATHIKAPHAN, S. NIJPANICH, T. MINATO, S. NERAMITTAGAPONG and A. NERAMITTAGAPONG**, “Ni/CeO₂ Catalyst with La and Zr Additives for Improved Low-Temperature CO₂ Methanation Efficiency,” *Results Eng.* **25**, 103795 (2024). DOI: 10.1016/j.rineng.2024.103795
- T. LEELA, P. KONGKOED, P. ATHIKAPHAN, A. NERAMITTAGAPONG, T. MINATO and S. NERAMITTAGAPONG**, “Synergistic Effect of Ni and CeO₂ on ZSM-5 Catalysts for Efficient Hydrogenation of Glucose to Sorbitol,” *Results Eng.* **25**, 104020 (2025). DOI: 10.1016/j.rineng.2025.104020
- Z. LU, R. YANAGISAWA, S. MORIGUCHI, T. UEDA, K. NAKAMOTO, T. MINATO and H. ONISHI**, “Frequency-Modulation AFM in Sub-Zero Antifreeze Liquid,” *Jpn. J. Appl. Phys.* **64**(5), 05SP05 (2025). DOI: 10.35848/1347-4065/adccce
- N. TABTIMTONG, A. PADUNGWAT, N. LERTNA, P. ATHIKAPHAN, A. NERAMITTAGAPONG, T. MINATO and S. NERAMITTAGAPONG**, “Sucrose Conversion to 5-Hydroxymethylfurfural over Commercial Ion-Exchange Resin,” *Biomass Bioenergy* **199**, 107940 (2025). DOI: 10.1016/j.biombioe.2025.107940
- M. KOBAYASHI, J. TAKAHASHI, H. OTA, K. MATSUO, M. I. A. IBRAHIM, T. MINATO, G. FUJIMORI, M. KATOH, K. KOBAYASHI, Y. KEBUKAWA and H. NAKAMURA**, “Emergence of Optical Activity and Surface Morphology Changes in Racemic Amino Acid Films Under Circularly Polarized Lyman- α Light Irradiation,” *Chirality* **36**(11), e70004 (2024). DOI: 10.1002/chir.70004
- J. NISHIDA, K. OTSUKA, T. MINATO, Y. K. KATO and T. KUMAGAI**, “Ultrafast Infrared Nano-Imaging of Local Electron-Hole Dynamics in CVD-Grown Single-Walled Carbon Nanotubes,” *Sci. Adv.* **11**(25), eadv9584 (2025). DOI: 10.1126/sciadv.adv9584
- T. ISHIZAKI, M. ASADA, T. NAKAMURA and T. OZEKI**, “Spin Coherence Phenomena of an $S = 1/2$ Copper(II) System in a Polyoxometalate with a Less-Abundant Nuclear Spin,” *Dalton Trans.* **54**(9), 3581–3585 (2024). DOI: 10.1039/D4DT02832E
- T. FUJINO, M. HISHIDA, M. ITO, T. NAKAMURA, M. ASADA, N. KURAHASHI, H. KIUCHI, Y. HARADA, K. HARANO, R. MAKIURA, K. J. TAKENO, S. YOKOMORI, H. OIKE and H. MORI**, “Macroscopic Structural Transition of Nickel Dithiolate Capsule with Uniaxial Magnetic Anisotropy in Water,” *Adv. Sci.* **12**, 2504967 (2025). DOI: 10.1002/advs.202504967

Life and Coordination-Complex Molecular Science

- M. YAGI-UTSUMI, Y. KANAOKA, S. MIYAJIMA, S. G. ITOH, K. YANAGISAWA, H. OKUMURA, T. UCHIHASHI and K. KATO**, “Single-Molecule Kinetic Observation of Antibody Interactions with Growing Amyloid β Fibrils,” *J. Am. Chem. Soc.* **146**(46), 31518–31528 (2024). DOI: 10.1021/jacs.4c08841
- H. YAGI, R. YAMADA, T. SAITO, R. HONDA, R. NAKANO, K. INUTSUKA, S. TATEO, H. KUSANO, K. NISHIMURA, S. YANAKA, T. TOJIMA, A. NAKANO, J. FURUKAWA, M. YAGI-UTSUMI, S. ADACHI and K. KATO**, “Molecular Tag for Promoting *N*-Glycan Maturation in the Cargo Receptor-Mediated Secretion Pathway,” *iScience* **27**(12), 111457 (2024). DOI: 10.1016/j.isci.2024.111457
- R. N. BURTON-SMITH, M. YAGI-UTSUMI, S. YANAKA, C. SONG, K. MURATA and K. KATO**, “Elucidating the Unique J-Shaped Protomer Structure of Amyloid- β (1-40) Fibril with Cryo-Electron Microscopy,” *Int. J. Mol. Sci.* **26**(3), 1179 (2025). DOI: 10.3390/ijms26031179
- H. YAGI, T. SAITO, S. Y. GUU, N. YAMAKAWA, S. SHIMAMURA, S. KONDO, M. YAGI-UTSUMI, K. TAKAI, J. FURUKAWA, Y. GUÉRARDEL, K. H. KHOO, K. ARAKAWA and K. KATO**, “Uncommon *N*-Glycan Structures in Anhydrobiotic Tardigrades,” *Mol. Cell. Proteomics* **24**(6), 100979 (2025). DOI: 10.1016/j.mcpro.2025.100979

- K. KATO, T. WATANABE and T. YAMAGUCHI**, “Deciphering Glycan Dynamics through Nonlinear Correlation Analysis,” *Chem. Pharm. Bull.* **73(7)**, 639–644 (2025). DOI: 10.1248/cpb.c25-00243
- M. YAGI-UTSUMI, S. YANAKA, R. N. BURTON-SMITH, C. SONG, C. GANSER, C. YAMAZAKI, H. KASAHARA, T. SHIMAZU, T. UCHIHASHI, K. MURATA and K. KATO**, “Microgravity-Assisted Exploration of the Conformational Space of Amyloid β Affected by Tottori-Type Familial Mutation D7N,” *ACS Chem. Neurosci.* **16(14)**, 2682–2690 (2025). DOI: 10.1021/acscchemneuro.5c00217
- H. YAGI, S. KONDO, R. MURAKAMI, R. YOGO, S. YANAKA, F. UMEZAWA, M. YAGI-UTSUMI, A. FUJITA, M. OKINA, Y. HASHIMOTO, Y. HOTTA, Y. KATO, K. NAKAJIMA, J. FURUKAWA and K. KATO**, “Temporal and Sex-Dependent *N*-Glycosylation Dynamics in Rat Serum,” *Int. J. Mol. Sci.* **26(15)**, 7266 (2025). DOI: 10.3390/ijms26157266
- S. YANAKA, Y. SAKAE, Y. MIYANOIRI, T. YAMAGUCHI, Y. ISONO, S. KONDO, M. IWASAKI, M. ONITSUKAH, H. YAGI and K. KATO**, “Exploring Glycoform-Dependent Dynamic Modulations in Human Immunoglobulin G via Computational and Experimental Approaches,” *Proc. Natl. Acad. Sci. U. S. A.* **122**, e2505473122 (2025). DOI: 10.1073/pnas.2505473122
- S. NINAGAWA, M. MATSUO, D. YING, S. OSHITA, S. ASO, K. MATSUSHITA, M. TANIGUCHI, A. FUEKI, M. YAMASHIRO, K. SUGASAWA, S. SAITO, K. IMAMI, Y. KIZUKA, T. SAKUMA, T. YAMAMOTO, H. YAGI, K. KATO and K. MORI**, “UGGT1-Mediated Reglucosylation of *N*-Glycan Competes with ER-Associated Degradation of Unstable and Misfolded Glycoproteins,” *eLife* **12**, RP93117 (2024). DOI: 10.7554/eLife.93117.4
- P. ARUNRATTIYAKORN, C. JUIPRASERT, S. M. KOULAS, P. BOONSRI, T. AREE, M. YAGI-UTSUMI, K. KATO and D. D. LEONIDAS**, “Synthesis and Evaluation of Tetrahydrobenzo[*cd*]indole Derivatives as Glycogen Phosphorylase Inhibitors,” *Med. Chem. Res.* **34**, 870–881 (2025). DOI: 10.1007/s00044-025-03384-7
- T. NAKAMA, M. TADOKORO, R. EBIHARA, M. YAGI-UTSUMI, K. KATO and M. FUJITA**, “Proximity-Induced Saccharide Binding to a Protein’s Active Site within a Confined Cavity of Coordination Cages,” *Chem. Sci.* **16(23)**, 10549–10554 (2025). DOI: 10.1039/d5sc00782h
- S. NAKAGAWA, H. YAGI, T. SUYAMA, S. SHIMAMURA, S. YANAKA, M. YAGI-UTSUMI, S. KATO, M. OHKUMA, K. KATO and K. TAKAI**, “Exploring Protein *N*-Glycosylation in Ammonia-Oxidizing *Nitrososphaerota archaea* through Glycoproteomic Analysis,” *mBio* **16(6)**, e03859-24 (2025). DOI: 10.1128/mbio.03859-24
- H. OZAWA, A. MIYATA, S. HAYASHI, N. MIYOSHI, K. KATO, S. ITO and D. FUJINAMI**, “Expanding the Chemical Space of Antimicrobial Peptides via Enzymatic Prenylation,” *J. Am. Chem. Soc.* **147(29)**, 25642–25651 (2025). DOI: 10.1021/jacs.5c06850
- A. OTOMO, J. WIEMANN, S. BHATTACHARYYA, M. YAMAMOTO, Y. YU and R. IINO**, “Visualizing Single V-ATPase Rotation Using Janus Nanoparticles,” *Nano Lett.* **24(49)**, 15638–15644 (2024). DOI: 10.1021/acs.nanolett.4c04109
- T. HARASHIMA, A. OTOMO and R. IINO**, “Rational Engineering of DNA-Nanoparticle Motor with High Speed and Processivity Comparable to Motor Proteins,” *Nat. Commun.* **16(1)**, 729 (2025). DOI: 10.1038/s41467-025-56036-0
- A. OTOMO, L. G. HUI ZHU, Y. OKUNI, M. YAMAMOTO and R. IINO**, “ATP Synthesis of *Enterococcus hirae* V-ATPase Driven by Sodium Motive Force,” *J. Biol. Chem.* **301(4)**, 108422 (2025). DOI: 10.1016/j.jbc.2025.108422
- K. SUZUKI, Y. GOTO, A. OTOMO, K. SHIMIZU, S. ABE, K. MORIYAMA, S. YASUDA, Y. HASHIMOTO, J. KURUSHIMA, S. MIKURIYA, F. L. IMAI, N. ADACHI, M. KAWASAKI, Y. SATO, S. OGASAWARA, S. IWATA, T. SENDA, M. IKEGUCHI, H. TOMITA, R. IINO, T. MORIYA and T. MURATA**, “Na⁺-V-ATPase Inhibitor Curbs VRE Growth and Unveils Na⁺ Pathway Structure,” *Nat. Struct. Mol. Biol.* **32**, 450–458 (2025). DOI: 10.1038/s41594-024-01419-y
- T. MATSUZAKI, T. SAEKI, F. YAMAZAKI, N. KOYAMA, T. OKUBO, D. HOMBE, Y. OGURA, Y. HASHINO, R. TATSUMI-KOGA, N. KOGA, R. IINO and A. NAKAMURA**, “Development and Production of Moderate-Thermophilic PET Hydrolase for PET Bottle and Fiber Recycling,” *ACS Sustainable Chem. Eng.* **13(27)**, 10404–10417 (2025). DOI: 10.1021/acssuschemeng.5c01602
- H. OHTA, H. GODA, H. FUJINAGA, Y. SUENAGA, K. KANBARA, A. TAZAWA, G. HAMASAKA, Y. UOZUMI and M. HAYASHI**, “Synthesis of Oligo(Triarylphosphine Sulfide)s for Stabilizing Pd Nanoparticles and Modulating Selective Semihydrogenation of Terminal Aryl Alkynes,” *Asian J. Org. Chem.* **14(8)**, e00361 (2025). DOI: 10.1002/ajoc.202500361
- T. SAKAGUCHI, K. FUKUOKA, T. MATSUKI, M. KAWASE, A. TAZAWA, Y. UOZUMI, Y. MATSUMURA, O. SHIMOMURA and A. OHTAKA**, “Silver-Mediated Homocoupling of Arylboronic Acids,” *Synlett* **36(2)**, 161–165 (2025). DOI: 10.1055/a-2315-8369
- H. SUGIYAMA, K. WATANABE, C. SONG, K. MURATA and Y. SEGAWA**, “Structure Determination of Tweezer-Shaped π -Extended Tetraphenylenes by Microcrystal Electron Diffraction,” *Chem. Lett.* **53(10)**, upae192 (2024). DOI: 10.1093/chemle/upae192
- K. WATANABE, J. USUBA, Y. HIJIKATA, T. TOYA, Y. TOYOTA, Y. KOBAYASHI, R. MATSUDA, K. NISHIMURA, H. SUGIYAMA and Y. SEGAWA**, “Synthesis of Fully Fused Tetrapyrazinoporphyrazine Polymers Bearing Three-Dimensional Structures Controlled by Steric Repulsion,” *Chem. Commun.* **61(13)**, 2822–2825 (2025). DOI: 10.1039/d4cc06293k
- K. WATANABE, H. SUGIYAMA and Y. SEGAWA**, “Diverse Tetracyanodihydropyrazinopyrazine Clathrate Crystals Assembled from Weak Intermolecular Interactions,” *CrystEngComm* **27(21)**, 3552–3559 (2025). DOI: 10.1039/D5CE00289C
- M. NAGASE, R. YOSHIDA, S. NAKANO, T. HIROSE and Y. SEGAWA**, “Synthesis, Structure, and Properties of Twisted π -Conjugated Molecules Featuring Three-Dimensional π - π Interactions in Solid States,” *Chem. Commun.* **61(60)**, 11187–11190 (2025). DOI: 10.1039/D5CC02387D
- A. NAKAGAWA, K. M. SEPURU, S. J. YIP, H. SEO, C. M. COFFIN, K. HASHIMOTO, Z. LI, Y. SEGAWA, R. IWASAKI, H. KATO, D. KURIHARA, Y. AIHARA, S. KIM, T. KINOSHITA, K. ITAMI, S.-K. HAN, K. MURAKAMI and K. U. TORII**, “Chemical Inhibition of Stomatal Differentiation by Perturbation of the Master-Regulatory bHLH Heterodimer via an ACT-Like Domain,” *Nat. Commun.* **15(1)**, 8996 (2024). DOI: 10.1038/s41467-024-53214-4
- T. HARIMOTO, M. KIKUCHI, T. SUZUKI and Y. ISHIGAKI**, “Diverse Redox-Mediated Transformations to Realize the *para*-Quinoid, σ -Bond, and *ortho*-Diphenquinoid Forms,” *Nat. Commun.* **16(1)**, 4088 (2025). DOI: 10.1038/s41467-025-59317-w
- K. NORO, A. TANI, T. TADOKORO, T. HARIMOTO, K. SUGAWARA, T. SUZUKI, T. ONO and Y. ISHIGAKI**, “Dual-State Mechano- and Electrochromic Responses Enabled by Sterically Strained Diazaanthraquinodimethanes,” *J. Org. Chem.* **90(36)**, 12727–12733 (2025). DOI: 10.1021/acs.joc.5c01545

LIST OF PUBLICATIONS

Research Center of Integrative Molecular Systems

A. MUKAIYAMA, Y. FURUIKE, K. ITO-MIWA, Y. ONOUE, K. HORIUCHI, K. KONDO, E. YAMASHITA and S. AKIYAMA, “Evolutionary Origins of Self-Sustained Kai Protein Circadian Oscillators in Cyanobacteria,” *Nat. Commun.* **16**(1), 4541 (2025). DOI: 10.1038/s41467-025-59908-7

Y. FURUIKE, Y. ONOUE, S. SAITO, T. MORI and S. AKIYAMA, “The Priming Phosphorylation of KaiC Is Activated by the Release of Its Autokinase Autoinhibition,” *PNAS Nexus* **4**(5), pgaf136 (2025). DOI: 10.1093/pnasnexus/pgaf136

Y. YONEDA, T. KONISHI, K. SUGA, S. SAITO and H. KURAMOCHI, “Excited-State Aromatization Drives Nonequilibrium Planarization Dynamics,” *J. Am. Chem. Soc.* **147**(14), 12051–12060 (2025). DOI: 10.1021/jacs.4c18623

H. WATANABE, M. IWAMURA, K. NOZAKI, T. TAKANASHI, H. KURAMOCHI and T. TAHARA, “Torsional Structural Relaxation Caused by Pt–Pt Bond Formation in the Photoexcited Dimer of Pt(II) N⁺C⁻N Complex in Solution,” *J. Phys. Chem. Lett.* **16**(1), 406–414 (2025). DOI: 10.1021/acs.jpcclett.4c03170

K. SUGA, K. OCHIAI, Y. YONEDA, H. KURAMOCHI and S. SAITO, “An Energy-Tunable Dual Emission Mechanism of the Hybridized Local and Charge Transfer (HLCT) and the Excited State Conjugation Enhancement (ESCE),” *Chem. –Eur. J.* **31**(18), e202404376 (2024). DOI: 10.1002/chem.202404376

T. EHARA, Y. YONEDA, T. YOSHIDA, T. OGAWA, Y. KONISHI, T. ONO, A. MURANAKA, H. KURAMOCHI, K. MIYATA and K. ONDA, “Dynamic Excited-State Localization Induced by Jahn-Teller Distortion Observed by Coherent Vibrational Spectroscopy,” *J. Am. Chem. Soc.* **147**(30), 26446–26455 (2025). DOI: 10.1021/jacs.5c06020

A. UENO, F. TAKIDA, T. KITA, T. ISHII, T. HIMIYAMA, T. MABUCHI and Y. OKAMOTO, “A Cytokine-Based Designer Enzyme with an Abiological Multinuclear Metal Center Exhibits Intrinsic and Extrinsic Catalysis,” *Nat. Commun.* **16**(1), 6781 (2025). DOI: 10.1038/s41467-025-61909-5

H. M. YAMAMOTO, “Rolling Carbon on a Rock: Graphene,” *Nat. Mater.* **24**, 330–331 (2025). DOI: 10.1038/s41563-025-02151-8

T. SATO, H. GOTO and H. M. YAMAMOTO, “Sturdy Spin-Momentum Locking in a Chiral Organic Superconductor,” *Phys. Rev. Res.* **7**(2), 023056 (2025). DOI: 10.1103/PhysRevResearch.7.023056

Y. DAIGO, Y. KAWASUGI, H. M. YAMAMOTO, R. KATO and N. TAJIMA, “Off-Diagonal Thermoelectric Effect and Its Gate Tuning in Molecular Conductor κ -(BEDT-TTF)₂Cu[N(CN)₂]Cl,” *Appl. Phys. Lett.* **126**(26), 261901 (2025). DOI: 10.1063/5.0278441

F. POP, N. MROWEH, P. AUBAN-SENZIER, G. L. J. A. RIKKEN, D. HIROBE, H. M. YAMAMOTO, A. FRĄCKOWIAK, I. OLEJNICZAK, S. PILLET, E. E. BENDEIF, P. ALEMANY, E. CANADELL and N. AVARVARI, “Chiral Metallic DM-EDT-TTF Radical Cation Salts: Anion Size-Dependent Structural and Electronic Transitions, Charge Ordering, and Chirality-Induced Spin Selectivity,” *J. Am. Chem. Soc.* **147**(31), 27749–27767 (2025). DOI: 10.1021/jacs.5c06549

T. KOSUGI, M. TANABE and N. KOGA, “De Novo Design of ATPase Based on a Blueprint Optimized for Harboring the P-Loop Motif,” *Protein Sci.* **34**(6), e70132 (2025). DOI: 10.1002/pro.70132

Center for Mesoscopic Sciences

Y. WANG, J. NISHIDA, K. NAKAMOTO, X. YANG, Y. SAKUMA, W. ZHANG, T. ENDO, Y. MIYATA and T. KUMAGAI, “Ultrafast Nano-Imaging of Spatially Modulated Many-Body Dynamics in CVD-Grown Monolayer WS₂,” *ACS Photonics* **12**(1), 207–218 (2025). DOI: 10.1021/acsp Photonics.4c01545

C. LIN, J. LI, G. LI, W. LUO, S. LIU, A. HAMMUD, Y. XIA, A. PAN, M. WOLF, M. MÜLLER and T. KUMAGAI, “Quantitative Comparison of Local Field Enhancement from Tip-Apex and Plasmonic Nanofocusing Excitation via Plasmon-Assisted Field Emission Resonances,” *Nanoscale* **17**, 7164 (2025). DOI: 10.1039/D4NR04262J

A. SHIOTARI, S. LIU, G. TRENINS, T. SUGIMOTO, M. WOLF, M. ROSSI and T. KUMAGAI, “Picocavity-Enhanced Raman Spectroscopy of Physisorbed H₂ and D₂ Molecules,” *Phys. Rev. Lett.* **134**(20), 206901 (2025). DOI: 10.1103/PhysRevLett.134.206901

J. NISHIDA, K. OTSUKA, T. MINATO, Y. K. KATO and T. KUMAGAI, “Ultrafast Infrared Nano-Imaging of Local Electron–Hole Dynamics in CVD-Grown Single-Walled Carbon Nanotubes,” *Sci. Adv.* **11**(25), eadv9584 (2025). DOI: 10.1126/sciadv.adv9584

H. WIEDENHAUPT, F. SCHULZ, L. E. PARRA LÓPEZ, A. HAMMUD, Y. PARK, A. SHIOTARI, T. KUMAGAI, M. WOLF and M. MÜLLER, “Plasmonic Light Emission by Inelastic Charge Transport in Ultrathin Zinc Oxide/Metal Heterostructures,” *Nano Lett.* **25**(7), 2870–2877 (2025). DOI: 10.1021/acs.nanolett.4c06099

A. SHIOTARI, J. NISHIDA, A. HAMMUD, F. SCHULZ, M. WOLF, T. KUMAGAI and M. MÜLLER, “Scattering Near-Field Optical Microscopy at 1-nm Resolution Using Ultralow Tip Oscillation Amplitudes,” *Sci. Adv.* **11**(24), eadu1415 (2025). DOI: 10.1126/sciadv.adu1415

X. ZHANG, R. MATSUO, Y. YAHANO, J. NISHIDA, K. NAMURA and M. SUZUKI, “Configurable Vibrational Coupling in Laser-Induced Microsecond Oscillations of Multi-Microbubble System,” *Small* **21**(20), 2408979 (2025). DOI: 10.1002/sml.202408979

Division of Advanced Molecular Science

- E. TSUNEKAWA, M. FUJITA and T. SAWADA**, “A Discrete Four-Stranded β -Sheet through Catenation of M_2L_2 Metal–Peptide Rings,” *Angew. Chem., Int. Ed.* **64**(4), e202416442 (2025). DOI: 10.1002/anie.202416442
- C. PARK, T. MITSUHASHI, N. WADA, T. KIKUCHI and M. FUJITA**, “New Workflow for the Structure Elucidation of Trace Amount Natural Products with Microgram-Scale Crystalline Sponge Method: A Scaled-Down Genome-Mining Study,” *Chem. Lett.* **53**(11), upae202 (2024). DOI: 10.1093/chemle/upae202
- K. IIZUKA, H. TAKEZAWA and M. FUJITA**, “Template and Solid-State-Assisted Assembly of an M_9L_6 Expanded Coordination Cage for Medium-Sized Molecule Encapsulation,” *J. Am. Chem. Soc.* **146**(47), 32311–32316 (2024). DOI: 10.1021/jacs.4c14509
- Y. DOMOTO, R. NAKABAYASHI, T. TSURUMI, K. YAMAMOTO, H. HAYASHI, Y. NAKAMURA and M. FUJITA**, “Fine-Tuning of the Sequential Self-Assembly of Entangled Polyhedra by Exploiting the Side-Chain Effect,” *Chem. –Asian J.* **20**(6), e202401378 (2025). DOI: 10.1002/asia.202401378
- K. IIZUKA, H. TAKEZAWA and M. FUJITA**, “Host-in-Host Complexation: Activating Classical Hosts through Complete Encapsulation within an M_9L_6 Coordination Cage,” *Angew. Chem., Int. Ed.* **64**(6), e202422143 (2025). DOI: 10.1002/anie.202422143
- R. EBIHARA, T. NAKAMA, K. MORISHIMA, M. YAGI-UTSUMI, M. SUGIYAMA, D. FUJITA, S. SATO and M. FUJITA**, “Physical Isolation of Single Protein Molecules within Well-Defined Coordination Cages to Enhance Their Stability,” *Angew. Chem., Int. Ed.* **64**(7), e202419476 (2025). DOI: 10.1002/anie.202419476
- W. HE, Y. YU, K. IIZUKA, H. TAKEZAWA and M. FUJITA**, “Supramolecular Coordination Cages as Crystalline Sponges through a Symmetry Mismatch Strategy,” *Nat. Chem.* **17**, 653–662 (2025). DOI: 10.1038/s41557-025-01750-x
- W. HE, H. TAKEZAWA, R. YAKUSHIJI, S. YOSHIDA, S. SATO and M. FUJITA**, “Host-Guest Chemistry in a Capillary Applied to the Facilitation of the Crystalline Sponge Method,” *Angew. Chem., Int. Ed.* **64**(20), e202501025 (2025). DOI: 10.1002/anie.202501025
- S. OGUMA, Y. INOMATA, A. HAYAKAWA, T. NAKAMA, M. FUJITA and T. SAWADA**, “Helical Sense Control of Metal–Peptide Torus Frameworks Leading to the Folding and Assembly of a $Ag_{21}L_{14}$ Braided Peptide Nanotube,” *J. Am. Chem. Soc.* **147**(11), 9098–9102 (2025). DOI: 10.1021/jacs.5c01458
- Y. INOMATA, S. OGUMA, N. SAGARA, A. NISHIJIMA, Y. SABUROMARU, S. YOSHIDA, T. KAJITANI, K. SHIMOKAWA, S. SATO, M. YOSHIZAWA, M. FUJITA and T. SAWADA**, “An $M_{60}L_{60}$ Metal–Peptide Capsid with a 60-Crossing Woven Network,” *Chem* **11**(9), 102555 (2025). DOI: 10.1016/j.chempr.2025.102555
- H. TAKEZAWA, Y. TAMURA and M. FUJITA**, “Step-by-Step Self-Assembly of a Double-Walled Knotted Cage with Increasing Topological Complexity,” *Chem. –Eur. J.* **31**(27), e202500009 (2025). DOI: 10.1002/chem.202500009
- S. YOSHIDA, S. BABA, N. MIZUNO, Y. NAKAMURA, S. SATO and M. FUJITA**, “Micro Crystalline Sponge Method Combined with Small-Wedge Synchrotron Crystallography for Nanogram Scale Molecular Structure Elucidation,” *J. Am. Chem. Soc.* **147**(27), 23917–23922 (2025). DOI: 10.1021/jacs.5c06360
- R. TANAKA, H. TAKEZAWA and M. FUJITA**, “A Visible-Light-Responsive Octahedral Cage for Efficient and Selective Cross-[2 + 2] Cycloadditions,” *J. Am. Chem. Soc.* **147**(29), 25142–25147 (2025). DOI: 10.1021/jacs.5c07355
- C. PARK, S. TSUTSUMI, T. MITSUHASHI and M. FUJITA**, “Discovery of a New Type of Terpene Synthase Coded by an Orphan Gene in a Giant Virus,” *Biochemistry* **64**(18), 3866–3871 (2025). DOI: 10.1021/acs.biochem.5c00354
- T. NAKAMA, M. TADOKORO, R. EBIHARA, M. YAGI-UTSUMI, K. KATO and M. FUJITA**, “Proximity-Induced Saccharide Binding to a Protein’s Active Site within a Confined Cavity of Coordination Cages,” *Chem. Sci.* **16**(23), 10549–10554 (2025). DOI: 10.1039/d5sc00782h
- Y. CHEN, T. NAKAMURA, H. WATANABE, T. SUZUKI, Q. REN, K. LIU, Y. ZHONG, T. KANAI, J. ITATANI, K. OKAZAKI, H. S. SUZUKI, S. SHIN, K. IMURA, N. K. SATO and S. KIMURA**, “Photo-Induced Nonlinear Band Shift and Valence Transition in SmS ,” *J. Phys. Soc. Jpn.* **94**(1), 013702 (2025). DOI: 10.7566/JPSJ.94.013702
- K. WANG, S. KIMURA, K. YAMAUCHI, H. YAMAHARA, H. MURAKAMI, M. SEKI, T. OGUCHI, H. TABATA and M. TONOUCHI**, “Temperature Dependence of Low-Frequency Phonon Behavior in Gadolinium Gallium Garnet and Yttrium Aluminum Garnet,” *J. Appl. Phys.* **136**(24), 245105 (2024). DOI: 10.1063/5.0242789
- H. WATANABE, Y. TAKENO, Y. NEGORO, R. IKEDA, Y. SHIBATA, Y. CHEN, T. NAKAMURA, K. YAMAGAMI, Y. HIRATA, Y. ZHANG, R. TAKAHASHI, H. WADATI, K. TAMASAKU, K. IMURA, H. S. SUZUKI, N. K. SATO and S. KIMURA**, “Photoinduced Phase Transition on Black Samarium Monosulfide,” *Phys. Rev. B* **110**(24), 245133 (2024). DOI: 10.1103/PhysRevB.110.245133
- J. H. PARK, M. T. PARK, G. W. BAEK, S. KIMURA, M. H. JUNG and K. J. KIM**, “Unraveling the Origin of Conductivity Change in Co-Doped $FeRh$ Phase Transition,” *Commun. Mater.* **5**(1), 250 (2024). DOI: 10.1038/s43246-024-00694-y
- S. KIMURA, M. F. LUBIS, H. WATANABE, Y. SHIMURA and T. TAKABATAKE**, “Anisotropic Non-Fermi Liquid and Dynamical Planckian Scaling of a Quasi-Kagome Kondo Lattice System,” *npj Quantum Mater.* **10**, 85 (2025). DOI: 10.1038/s41535-025-00797-w
- Y. H. CHEW, N. SAIJO, Y. KUMABE, T. TACHIKAWA and H. ONISHI**, “Unravelling the Influence of Major Seawater Salt Ions on the Photogenerated Charge Carriers in a Sr-Doped $NaTaO_3$ Photocatalyst via ATR-FTIR,” *J. Phys. Chem. C* **129**(7), 3531–3538 (2025). DOI: 10.1021/acs.jpcc.4c07833
- Z. LU, R. YANAGISAWA, S. MORIGUCHI, T. UEDA, K. NAKAMOTO, T. MINATO and H. ONISHI**, “Frequency-Modulation AFM in Sub-Zero Antifreeze Liquid,” *Jpn. J. Appl. Phys.* **64**(5), 05SP05 (2025). DOI: 10.35848/1347-4065/adcccc
- H. URATANI and H. ONISHI**, “Quantum-Chemical Molecular Dynamics Study of Polarons in Perovskite $NaTaO_3$ as a Water-Splitting Photocatalyst,” *Phys. Chem. Chem. Phys.* **27**(28), 14748–14753 (2025). DOI: 10.1039/D5CP01859E
- C.-M. FUNG, B.-J. NG, Y.-H. CHEW, C.-C. ER, J. LOW, X. GUO, X. Y. KONG, L.-L. TAN, H. ONISHI, A. R. MOHAMED and S.-P. CHAI**, “MXene Quantum Dot-Sensitized Heterostructures for Broad Solar Spectrum CO_2 Reduction,” *Cell Rep. Phys. Sci.* **5**, 102296 (2024). DOI: 10.1016/j.xcrp.2024.102296

LIST OF PUBLICATIONS

M. YANAGI, J. CASANOVA-CHÁFER, T. HARA, Y. H. CHEW, T. YOSHIDA, H. ONISHI, C. BITTENCOURT and N. ICHIKUNI, “Calcination-Driven Co^{4+} Incorporation in Hydrothermally Synthesized NaTaO_3 ,” *Chem. Lett.* **54**(4), upaf053 (2025). DOI: 10.1093/chemle/upaf053

T. MATSUZAKI, T. SAEKI, F. YAMAZAKI, N. KOYAMA, T. OKUBO, D. HOMBE, Y. OGURA, Y. HASHINO, R. TATSUMI-KOGA, N. KOGA, R. IINO and A. NAKAMURA, “Development and Production of Moderate-Thermophilic PET Hydrolase for PET Bottle and Fiber Recycling,” *ACS Sustainable Chem. Eng.* **13**(27), 10404–10417 (2025). DOI: 10.1021/acssuschemeng.5c01602

R. KUSHIHARA, A. NAKAMURA, K. TAKEGAMI, Y. SETO, Y. KATO, H. DOHRA, T. OHNISHI, Y. TODOROKI and J. TAKEUCHI, “Structural Requirements of KAI2 Ligands for Activation of Signal Transduction,” *Proc. Natl. Acad. Sci. U. S. A.* **122**(8), e2414779122 (2025). DOI: 10.1073/pnas.2414779122

S. TSUJINO, Y. YAMADA, M. SENDA, A. NAKAMURA, T. SENDA and T. FUJIWARA, “Structural Characterization of Pyruvic Oxime Dioxygenase, a Key Enzyme in Heterotrophic Nitrification,” *J. Bacteriol.* **207**(2), e00342-24 (2025). DOI: 10.1128/jb.00342-24

A. HORIKAWA, R. OKUBO, N. HISHIKURA, R. WATANABE, K. KURASHIMA-ITO, P. M. SAYEESH, K. INOMATA, M. MISHIMA, H. KOTEISHI, H. SAWAI, Y. SHIRO, T. IKEYA and Y. ITO, “Backbone and Side Chain ^1H , ^{13}C and ^{15}N Resonance Assignments and Secondary Structure Determination of the Rhizobial FixJ,” *Biomol. NMR Assignments* **19**, 77–82 (2025). DOI: 10.1007/s12104-025-10221-w

T. YOSHIMURA, H. KATO, S. OIKAWA, T. INAGAKI, S. ASANO, T. SUGAWARA, T. MIYAO, T. MATSUBARA, H. AJIRO, M. FUJII, Y. OHNISHI and M. HATANAKA, “CopDDB: A Descriptor Database for Copolymers and Its Applications to Machine Learning,” *Digital Discovery* **4**(1), 195–203 (2025). DOI: 10.1039/D4DD000266K

R. SOMAKI, T. INAGAKI and M. HATANAKA, “Exploration of the Global Minimum and Conical Intersection with Bayesian Optimization,” *Mol. Inf.* **44**(2), e202400041 (2025). DOI: 10.1002/minf.202400041

D. TERADA, T. INAGAKI and M. HATANAKA, “Mechanistic Elucidation of Enzymatic C-Glycosylation: Facilitation by Proton Transfer to UDP-Glucose,” *RSC Adv.* **15**(35), 28592–28600 (2025). DOI: 10.1039/d5ra02643a

R. OHNO, K. OTA, N. NISHIMURA, K. TANIGUCHI, S. KUROKAWA, T. WAKABAYASHI, M. HATANAKA, A. ROSAS-SÁNCHEZ, D. HASHIZUME and T. MATSUO, “Silicon Analogues of Cyclopropyl Radical Derived from a Highly Stable Cyclic Disilene Compound Featuring a Si–Br Bond,” *J. Am. Chem. Soc.* **146**(36), 24911–24924 (2024). DOI: 10.1021/jacs.4c06111

Division of Research Innovation and Collaboration

N. H. MATLIS, H. T. OLGUN, C. RENTSCHLER, K. RAVI, T. TAIRA, H. ISHIZUKI and F. X. KÄRTNER, “Scaling Narrowband THz Generation to Large Apertures in LiNbO_3 and KTP,” *Opt. Express* **32**(19), 33875–33893 (2024). DOI: 10.1364/OE.533354

H. ISHIZUKI and T. TAIRA, “Characterization of Crystal Quartz for QPM Wavelength-Conversion Device,” *Opt. Express* **32**(27), 48491–48499 (2024). DOI: 10.1364/OE.539371

T. TAIRA, “Room-Temperature Bonded DFC-PowerChip for Tiny Integrated Laser,” *Yosetsu Gakkai Shi (J. Jpn. Welding Soc.)* **94**(4), 191–195 (2025). DOI: 10.2207/jjws.94.191 (in Japanese)

Y. SATO, T. TAKEMASA and T. TAIRA, “Comprehensive Thermal Properties of $\text{Y}_3\text{Al}_5\text{O}_{12}$ from 160 K to 500 K,” *Opt. Express* **33**(5), 9479–9488 (2025). DOI: 10.1364/OE.540655

Y. SATO and T. TAIRA, “ Nd^{3+} -Doping in Al^{3+} -Site of $\alpha\text{-Al}_2\text{O}_3$ as a Raw Material of Nd:Sapphire Laser Ceramics,” *Opt. Express* **33**(6), 13077–13086 (2025). DOI: 10.1364/OE.554541

Y. SATO and T. TAIRA, “Augmented Spectrum Bandwidth of Nd-Doped Garnet and Bixbyite by Spectrum Tailoring,” *Opt. Express* **33**(11), 24050–24059 (2025). DOI: 10.1364/OE.554538

Y. SATO, A. KAUSAS and T. TAIRA, “Enhanced Thermal Conductivity of Distributed Face-Cooled Composite Laser Medium Included Thermal Resistance at the Bonding Interface,” *Opt. Express* **33**(11), 24039–24049 (2025). DOI: 10.1364/OE.554536

T. TAIRA, J. HAYASHI, N. PAVEL and T. SUZUKI, “Tiny Integrated Lasers and Their Application to Industrial Laser Technologies: Feature Issue Introduction,” *Opt. Express* **33**(15), 31204–31210 (2025). DOI: 10.1364/OE.571207

A. KAUSAS, V. YAHIA, H. ODAKA, M. YOSHIDA and T. TAIRA, “2.3 J, 25 Hz Nd:YAG/Sapphire Composite Powerchip Amplifier Operating at Room Temperature,” *EPJ Web Conf.* **307**, 04059 (2024). DOI: 10.1051/epjconf/202430704059

F. CASSOURET, A. KAUSAS, Y. SATO and T. TAIRA, “Enhancement of Cr:LiSAF Thermal Properties through Room Temperature Bonding,” *Proc. SPIE* **13341**, 133410G (2025). DOI: 10.1117/12.3039091