

Theoretical and Computational Molecular Science

- Y. MORI, K. OKAZAKI, T. MORI, K. KIM and N. MATSUBAYASHI, "Learning Reaction Coordinates via Cross-Entropy Minimization: Application to Alanine Dipeptide," *J. Chem. Phys.* **153**, 054115 (8 pages) (2020).
- Y. NAM, M. KALATHINGAL, S. SAITO and J. Y. LEE, "Tautomeric Effect of Histidine on β -Sheet Formation of Amyloid β 1–40: 2D-IR Simulations," *Biophys. J.* **119**, 831–842 (2020).
- S.-I. KODA and S. SAITO, "An Alternative Interpretation of the Slow KaiB-KaiC Binding of the Cyanobacterial Clock Proteins," *Sci. Rep.* **10**, 10439 (7 pages) (2020).
- T. MORI and S. SAITO, "Dissecting the Dynamics during Enzyme Catalysis: A Case Study of Pin1 Peptidyl-Prolyl Isomerase," *J. Chem. Theory Comput.* **16**, 3396–3407 (2020).
- T. KATO, K. NOBUSADA and S. SAITO, "Inverse Kohn-Sham Equations Derived from the Density Equation Theory," *J. Phys. Soc. Jpn.* **89**, 024301 (15 pages) (2020).
- S. SAITO, M. HIGASHI and G. R. FLEMING, "Site-Dependent Fluctuations Optimize Electronic Energy Transfer in the Fenna-Matthews-Olson Protein," *J. Phys. Chem. B* **123**, 9762–9772 (2019).
- S. H. GAMOU, K. SHIMOSE, R. ENOKI, E. MINAMITANI, A. SHIOTARI, Y. KOTANI, K. TOYOKI, T. NAKAMURA, Y. SUGIMOTO, M. KOHDA, J. NITTA and S. MIWA, "Detection of Spin-Transfer from Metal to Molecule by Magnetoresistance Measurement," *Nano Lett.* **20**, 75–80 (2020). DOI: 10.1021/acs.nanolett.9b03110
- K. SHIMIZU, W. LIU, W. LI, S. KASAMATSU, Y. ANDO, E. MINAMITANI and S. WATANABE, "First-Principles Study of Li-Ion Distribution at γ -Li₃PO₄/Metal Interfaces," *Phys. Rev. Mater.* **4**, 015402 (10 pages) (2020). DOI: 10.1103/PhysRevMaterials.4.015402
- Z. NI, E. MINAMITANI, K. KAWAHARA, R. ARAFUNE, C.-L. LIN, N. TAKAGI and S. WATANABE, "Mechanically Tunable Spontaneous Vertical Charge Redistribution in Few-Layer WTe₂," *J. Phys. Chem. C* **124**, 2008–2012 (2020). DOI: 10.1021/acs.jpcc.9b10423
- X. YANG, Y. YUAN, Y. PENG, E. MINAMITANI, L. PENG, J.-J. XIAN, W.-H. ZHANG and Y.-S. FU, "Observation of Short-Range Yu-Shiba-Rusinov States with Threefold Symmetry in Layered Superconductor 2H-NbSe₂," *Nanoscale* **12**, 8174–8179 (2020). DOI: 10.1039/d0nr01383h
- K. IWATA, T. MIYAMACHI, E. MINAMITANI and F. KOMORI, "Sensing Surface Lattice Strain with Kondo Resonance of Single Co Adatom," *Appl. Phys. Lett.* **116**, 051604 (4 pages) (2020). DOI: 10.1063/1.5142064
- P. MANO, E. MINAMITANI and S. WATANABE, "Straintronic Effect for Superconductivity Enhancement in Li-Intercalated Bilayer MoS₂," *Nanoscale Adv.* **3**, 3150–3155 (2020). DOI: 10.1039/D0NA00420K
- N. H. SHIMADA, E. MINAMITANI and S. WATANABE, "Theoretical Prediction of Superconductivity in Monolayer h-BN Doped with Alkaline-Earth Metals (Ca, Sr, Ba)," *J. Phys.: Condens. Matter* **32**, 435002 (9 pages) (2020). DOI: 10.1088/1361-648X/aba674
- T. P. NGUYEN and A. ISHIZAKI, "Precise Determination of Excitation Energies in Condensed-Phase Molecular Systems Based on Exciton-Polariton Measurements," *Phys. Rev. Res.* **1**, 033019 (9 pages) (2019).
- A. ISHIZAKI, "Prerequisites for Relevant Spectral Density and Convergence of Reduced Density Matrices at Low Temperatures," *J. Phys. Soc. Jpn.* **89**, 015001 (2 pages) (2020).
- T. P. NGUYEN, Q. T. PHAM and A. ISHIZAKI, "Controlling the Nonadiabatic Electron-Transfer Reaction Rate through Molecular-Vibration Polaritons in the Ultrastrong Coupling Regime," *Sci. Rep.* **10**, 7318 (11 pages) (2020).
- Y. FUJIHASHI, R. SHIMIZU and A. ISHIZAKI, "Generation of Pseudo-Sunlight via Quantum Entangled Photons and the Interaction with Molecules," *Phys. Rev. Res.* **2**, 023256 (7 pages) (2020).
- A. ISHIZAKI, "Probing Excited-State Dynamics with Quantum Entangled Photons: Correspondence to Coherent Multidimensional Spectroscopy," *J. Chem. Phys.* **153**, 051102 (7 pages) (2020). [Editor's Pick]
- H. TSUNOYAMA, A. OHNUMA, K. TAKAHASHI, A. VELLOTH, M. EHARA, N. ICHIKUNI, M. TABUCHI and A. NAKAJIMA, "Enhanced Oxygen Reduction Activity of Platinum Subnanocluster Catalysts through Charge Redistribution," *Chem. Commun.* **55**, 12603–12606 (2019).
- Y.-X. ZHAO, M.-Y. LI, P. ZHAO, M. EHARA and X. ZHAO, "New Insight into U@C₈₀: Missing U@D₃(31921)-C₈₀ and Nuanced Enantiomers of U@C₁(28324)-C₈₀," *Inorg. Chem.* **58**, 14159–14166 (2019).
- Y. MAEDA, H. MURAKOSHI, H. TAMBO, P. ZHAO, K. KURODA, M. YAMADA, X. ZHAO, S. NAGASE and M. EHARA, "Thermodynamic Control of Quantum Defects on Single-Walled Carbon Nanotubes," *Chem. Commun.* **55**, 13757–13760 (2019).
- T. YANG, C. KONG, S. YANG, Z. YANG, S. YANG and M. EHARA, "Reaction Mechanism, Norbornene and Ligand Effects, and Origins of Meta-Selectivity of Pd/Norbornene-Catalyzed C–H Activation," *Chem. Sci.* **11**, 113–125 (2020).
- P. ZHAO, B. BOEKFA, T. NISHITOBA, N. TSUNOJI, T. SANO, T. YOKOI, M. OGURA and M. EHARA, "Theoretical Study on ³¹P NMR Chemical Shifts of Phosphorus-Modified CHA Zeolites," *Microporous Mesoporous Mater.* **294**, 109908 (12 pages) (2020).
- M.-Y. LI, Y.-X. ZHAO, Y.-B. HAN, K. YUAN, S. NAGASE, M. EHARA and X. ZHAO, "Theoretical Investigation of the Key Roles in Fullerene-Formation Mechanisms: Enantiomer and Enthalpy," *ACS Appl. Nano Mater.* **3**, 547–554 (2020).
- S. HU, P. ZHAO, W. SHEN, M. EHARA, Y. XIE, T. AKASAKA and X. LU, "Crystallographic Characterization of Er₂C₂@C₈₀₋₈₈: Cluster Stretching with Cage Elongation," *Inorg. Chem.* **59**, 1940–1946 (2020).
- H. YOSHIDA, M. EHARA, U. DEVA PRIYAKUMAR, T. KAWAI and T. NAKASHIMA, "Enantioseparation and Chiral Induction in Ag₂₉ Nanoclusters with Intrinsic Chirality," *Chem. Sci.* **11**, 2394–2400 (2020).
- S. SARTYOUNGKUL, M. EHARA and H. SAKURAI, "Time-Dependent Density Functional Theory Investigation of Excited State Intramolecular Proton Transfer in Tris(2-hydroxyphenyl)triazasumanene," *J. Phys. Chem. A* **124**, 1227–1234 (2020).
- T. SADHUKHAN, A. JUNKAEW, P. ZHAO, H. MIURA, T. SHISHIDO and M. EHARA, "Importance of the Pd and Surrounding Site in Hydrosilylation of Internal Alkynes by Palladium-Gold Alloy Catalyst," *Organometallics* **39**, 528–537 (2020).

LIST OF PUBLICATIONS

M.-Y. LI, Z.-B. GAO, Y.-B. HAN, Y.-X. ZHAO, K. YUAN, S. NAGASE, M. EHARA and X. ZHAO, “Potential Molecular Semiconductor Devices: Cyclo- C_n ($n = 10$ and 14) with Higher Stabilities and Aromaticities than Acknowledged Cyclo- C_{18} ,” *Phys. Chem. Chem. Phys.* **22**, 4823–4831 (2020).

M. PROMKATKAEW, S. SURAMITR, T. KARPKIRD, M. EHARA and S. HANNONGBUA, “DFT/TD-DFT Investigation on the Photoinduced Electron Transfer of Diruthenium and Viologen Complexes,” *J. Lumin.* **222**, 117121 (9 pages) (2020).

Q. M. PHUNG, Y. KOMORI, T. YANAI, T. SOMMERFELD and M. EHARA, “Combination of a Voronoi-Type Complex Absorbing Potential with the XMS-CASPT2 Method and Pilot Applications,” *J. Chem. Theory Comput.* **16**, 2606–2616 (2020).

B. ZHU, M. EHARA and S. SAKAKI, “Propene Oxidation Catalysis and Electronic Structure of M_{55} Particle ($M = Pd$ or Rh): Differences and Similarities between Pd_{55} and Rh_{55} ,” *Phys. Chem. Chem. Phys.* **22**, 11783–11796 (2020).

H. YOSHIDA, J. KUMAR, M. EHARA, Y. OKAJIMA, F. ASANOMA, T. KAWAI and T. NAKASHIMA, “Impact of Enantiomeric Ligand Composition on the Photophysical Properties of Chiral Ag_{29} Nanoclusters,” *Bull. Chem. Soc. Jpn.* **93**, 834–840 (2020).

T. SHIRAOGAWA and M. EHARA, “Theoretical Design of Photofunctional Molecular Aggregates for Optical Properties: An Inverse Design Approach,” *J. Phys. Chem. C* **124**, 13329–13337 (2020).

M.-Y. LI, Y.-X. ZHAO, Y.-B. HAN, K. YUAN, K.-N. ZHANG, Y.-Q. CHEN, M. EHARA, S. NAGASE and X. ZHAO, “Covalent Interactions Depended on the Distances between Metals and Fullerenes for Thermodynamically Stable $M@C_{78}$ ($M = La, Ce, \text{ and } Sm$),” *Inorg. Chem. Front.* **7**, 2538–2547 (2020).

H. OKUMURA and S. G. ITOH, “Molecular Dynamics Simulations of Amyloid- β (16-22) Peptide Aggregation at Air–Water Interfaces,” *J. Chem. Phys.* **151**, 095101 (12 pages) (2020).

M. YAMAUCHI and H. OKUMURA, “Replica Sub-Permutation Method for Molecular Dynamics and Monte Carlo Simulations,” *J. Comput. Chem.* **40**, 2694–2711 (2019).

N. MURAKI, K. ISHII, S. UCHIYAMA, S. G. ITOH, H. OKUMURA and S. AONO, “Structural Characterization of HypX Responsible for CO Biosynthesis in the Maturation of NiFe-Hydrogenase,” *Commun. Biol.* **2**, 385 (12 pages) (2019).

T. FUJITA, Y. NOGUCHI and T. HOSHI, “Revisiting the Charge-Transfer States at Pentacene/ C_{60} Interfaces with the GW/Bethe–Salpeter Equation Approach,” *Materials* **13**, 2728 (15 pages) (2020).

M. I. MAHMOOD, H. NOGUCHI and K. OKAZAKI, “Curvature Induction and Sensing of the F-BAR Protein Pacsin1 on Lipid Membranes via Molecular Dynamics Simulations,” *Sci. Rep.* **9**, 14557 (11 pages) (2019).

J. WARNAU, D. WÖHLERT, K. OKAZAKI, Ö. YILDIZ, A. P. GAMIZ-HERNANDEZ, V. R. I. KAILA, W. KÜHLBRANDT and G. HUMMER, “Ion Binding and Selectivity of the Na^+/H^+ Antiporter MjNhaP1 from Experiment and Simulation,” *J. Phys. Chem. B* **124**, 336–344 (2020).

K. OKAZAKI, A. NAKAMURA and R. IINO, “Chemical-State-Dependent Free Energy Profile from Single-Molecule Trajectories of Biomolecular Motors: Application to Processive Chitinase,” *J. Phys. Chem. B* **124**, 6475–6487 (2020).

Y. MORI, K. OKAZAKI, T. MORI, K. KIM and N. MATUBAYASI, “Learning Reaction Coordinates via Cross-Entropy Minimization: Application to Alanine Dipeptide,” *J. Chem. Phys.* **153**, 054115 (8 pages) (2020).

T. ISHIDA, “Theoretical Investigation of Dissolution and Decomposition Mechanisms of a Cellulose Fiber in Ionic Liquids,” *J. Phys. Chem. B* **124**, 3090–3102 (2020).

S. SUMITA and Y. YANASE, “Superconductivity Induced by Fluctuations of Momentum-Based Multipoles,” *Phys. Rev. Res.* **2**, 033225 (19 pages) (2020).

K. IMAMURA, T. YAMAZAKI, D. YOKOGAWA, M. HIGASHI and H. SATO, “Nuclear Magnetic Shielding of Molecule in Solution Based on Reference Interaction Site Model Self-Consistent Field with Spatial Electron Density Distribution,” *J. Chem. Phys.* **152**, 194102 (11 pages) (2020).

H. NAKANO, M. HIGASHI and H. SATO, “Uniform Potential Difference Scheme to Evaluate Effective Electronic Couplings for Superexchange Electron Transfer in Donor–Bridge–Acceptor Systems,” *J. Chem. Phys.* **152**, 224103 (13 pages) (2020).

Photo-Molecular Science

M. MIZOGUCHI, Y. ZHANG, M. KUNIMI, A. TANAKA, S. TAKEDA, N. TAKEI, V. BHARTI, K. KOYASU, T. KISHIMOTO, D. JAKSCH, A. GLÄTZLE, M. KIFFNER, G. MASELLA, G. PUPILLO, M. WEIDEMÜLLER and K. OHMORI, “Ultrafast Creation of Overlapping Rydberg Electrons in an Atomic BEC and Mott-Insulator Lattice,” *Phys. Rev. Lett.* **124**, 253201 (7 pages) (2020).

H. KATSUKI, Y. OHTSUKI, T. AJIKI, H. GOTO and K. OHMORI, “Engineering Quantum Wave-Packet Dispersion with a Strong Non-Resonant Femtosecond Laser Pulse,” *arXiv* 1910.08241 (2019).

H. SAKAI (Hamamatsu Photonics K.K.), K. OHMORI (NINS), T. ANDO (Hamamatsu Photonics K.K.), N. TAKEI (NINS), H. TOYODA, Y. OHTAKE, T. HYODO and Y. TAKIGUCHI (Hamamatsu Photonics K.K.), Patent Publication (15th Nov. 2018), “Quantum Simulator and Quantum Simulation Method.”

H. SAKAI (Hamamatsu Photonics K.K.), K. OHMORI (NINS), T. ANDO (Hamamatsu Photonics K.K.), N. TAKEI (NINS), H. TOYODA, Y. OHTAKE, T. HYODO and Y. TAKIGUCHI (Hamamatsu Photonics K.K.), US Patent (3rd Nov. 2020), “Quantum Simulator and Quantum Simulation Method.”

- F. MATSUI, S. MAKITA, H. MATSUDA, T. YANO, E. NAKAMURA, K. TANAKA, S. SUGA and S. KERA**, “Photoelectron Momentum Microscope at BL6U of UVSOR-III Synchrotron,” *Jpn. J. Appl. Phys.* **59**, 067001 (9 pages) (2020). DOI: 10.35848/1347-4065/ab9184
- F. MATSUI, S. MAKITA, H. MATSUDA, T. UEBA, T. HORIGOME, H. YAMANE, K. TANAKA, S. KERA and N. KOSUGI**, “Bulk and Surface Band Dispersion Mapping of the Au(111) Surface by Acceptance-Cone Tunable PES System,” *e-J. Surf. Sci. Nanotechnol.* **18**, 18–23 (2020). DOI: 10.1380/ejsnt.2020.18
- G. D'AVINO, S. DUHM, R. DELLA VALLE, G. HEIMEL, M. OEHZELT, S. KERA, N. UENO, D. BELJONNE and I. SALZMANN**, “Electrostatic Interactions Shape Molecular Organization and Electronic Structure of Organic Semiconductor Blends,” *Chem. Mater.* **32**, 1261–1271 (2020). DOI: 10.1021/acs.chemmater.9b04763
- J. YANG, S.-X. REN, T. YAMAGUCHI, M. MEISSNER, L. CHENG, L. ZHOU, S. IDETA, K. TANAKA and S. KERA**, “Valence Band Dispersion Measured in the Surface Normal Direction of $\text{CH}_3\text{NH}_3\text{PbI}_3$ Single Crystals,” *Appl. Phys. Express* **13**, 011009 (4 pages) (2020). DOI: 10.7567/1882-0786/ab6134
- H. YAMANE, F. MATSUI, T. UEBA, T. HORIGOME, S. MAKITA, K. TANAKA, S. KERA and N. KOSUGI**, “Acceptance-Cone-Tunable Electron Spectrometer for Highly-Efficient Constant Energy Mapping,” *Rev. Sci. Instrum.* **90**, 093102 (7 pages) (2019). DOI: 10.1063/1.5109453
- Y. NAKAYAMA, S. KERA and N. UENO**, “Photoelectron Spectroscopy on Single Crystals of Organic Semiconductors: Experimental Electronic Band Structure for Optoelectronic Properties,” *J. Mater. Chem. C* **8**, 9090–9132 (2020). DOI: 10.1039/D0TC00891E [Invited review]
- Y. HIKOSAKA, T. KANEYASU, M. FUJIMOTO, H. IWAYAMA and M. KATOH**, “Coherent Control in the Extreme Ultraviolet and Attosecond Regime by Synchrotron Radiation,” *Nat. Commun.* **10**, 4988 (5 pages) (2019).
- T. KANEYASU, Y. HIKOSAKA, M. FUJIMOTO, H. IWAYAMA and M. KATOH**, “Controlling the Orbital Alignment in Atoms Using Cross-Circularly Polarized Extreme Ultraviolet Wave Packet,” *Phys. Rev. Lett.* **123**, 233401 (5 pages) (2019).
- L. GUO, H. YAMAGUCHI, M. YAMAMOTO, F. MATSUI, G. WANG, F. LIU, P. YANG, E. R. BATISTA, N. A. MOODY, Y. TAKASHIMA and M. KATOH**, “Graphene as Reusable Substrate for Bialkali Photocathodes,” *Appl. Phys. Lett.* **116**, 251903 (5 pages) (2020).
- K. FUJIMORI, M. KITaura, Y. TAIRA, M. FUJIMOTO, H. ZEN, S. WATANABE, K. KAMADA, Y. OKANO, M. KATOH, M. HOSAKA, J. YAMAZAKI, T. HIRADE, Y. KOBAYASHI and A. OHNISHI**, “Visualizing Cation Vacancies in $\text{Ce:Gd}_3\text{Al}_2\text{Ga}_3\text{O}_{12}$ Scintillators by Gamma-Ray-Induced Positron Annihilation Lifetime Spectroscopy,” *Appl. Phys. Express* **13**, 085505 (4 pages) (2020).
- K. ALI, H. OHGAKI, H. ZEN, T. KII, T. HAYAKAWA, T. SHIZUMA, H. TOYOKAWA, Y. TAIRA, V. IANCU, G. TURTURICA, C. ALEXANDRU UR, M. FUJIMOTO and M. KATOH**, “Selective Isotope CT Imaging Based on Nuclear Resonance Fluorescence Transmission Method,” *IEEE Trans. Nucl. Sci.* **67**(8), 1976–1984 (2020).
- T. KANEYASU, Y. HIKOSAKA, M. FUJIMOTO, H. IWAYAMA and M. KATOH**, “Polarization Control in a Crossed Undulator without a Monochromator,” *New J. Phys.* **22**, 083062 (8 pages) (2020).
- K. FUJIMORI, M. KITaura, Y. TAIRA, M. FUJIMOTO, H. ZEN, S. WATANABE, K. KAMADA, Y. OKANO, M. KATOH, M. HOSAKA, J. YAMAZAKI, T. HIRADE, Y. KOBAYASHI and A. OHNISHI**, “Visualizing Cation Vacancies in $\text{Ce:Gd}_3\text{Al}_2\text{Ga}_3\text{O}_{12}$ Scintillators by Gamma-Ray-Induced Positron Annihilation Lifetime Spectroscopy,” *Appl. Phys. Express* **13**, 085505 (4 pages) (2020).
- D. PINEK, T. ITO, K. FURUTA, Y. KIM, M. IKEMOTO, S. IDETA, K. TANAKA, M. NAKATAKE, P.L. FEVRE, F. BERTRAN and T. OUISSE**, “Near Fermi Level Electronic Structure of Ti_3SiC_2 Revealed by Angle-Resolved Photoemission Spectroscopy,” *Phys. Rev. B* **102**, 075111 (11 pages) (2020).
- H. ANZAI, K. MORIKAWA, H. SHIONO, H. SATO, S. IDETA, K. TANAKA, T. ZHUANG, K. T. MATSUMOTO and K. HIRAOKA**, “Temperature Dependence of the Kondo Resonance in the Photoemission Spectra of the Heavy-Fermion Compounds YbXCu_4 ($X = \text{Mg, Cd, and Sn}$),” *Phys. Rev. B* **101**, 235160 (7 pages) (2020).
- F. MATSUI, S. MAKITA, H. MATSUDA, T. YANO, E. NAKAMURA, K. TANAKA, S. SUGA and S. KERA**, “Photoelectron Momentum Microscope at BL6U of UVSOR-III Synchrotron,” *Jpn. J. Appl. Phys.* **59**, 067001 (9 pages) (2020).
- J. YANG, S.-X. REN, T. YAMAGUCHI, M. MEISSNER, L. CHENG, L. ZHOU, S. IDETA, K. TANAKA and S. KERA**, “Valence Band Dispersion Measured in the Surface Normal Direction of $\text{CH}_3\text{NH}_3\text{PbI}_3$ Single Crystals,” *Appl. Phys. Express* **13**, 011009 (4 pages) (2020).
- S. IDETA, N. MURAI, M. NAKAJIMA, R. KAJIMOTO and K. TANAKA**, “Experimental Investigation of the Suppressed Superconducting Gap and Double-Resonance Mode in $\text{Ba}_{1-x}\text{K}_x\text{Fe}_2\text{As}_2$,” *Phys. Rev. B* **100**, 235135 (7 pages) (2019).
- G. VINCINI, S. TAJIMA, S. MIYASAKA and K. TANAKA**, “Multilayer Effects in $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{10+z}$ Superconductors,” *Supercond. Sci. Technol.* **32**, 113001 (12 pages) (2019).
- M. HORIO, K. KOSHIISHI, S. NAKATA, K. HAGIWARA, Y. OTA, K. OKAZAKI, S. SHIN, S. IDETA, K. TANAKA, A. TAKAHASHI, T. OHGI, T. ADACHI, Y. KOIKE and A. FUJIMORI**, “ d -Wave Superconducting Gap Observed in Protect-Annealed Electron-Doped Cuprate Superconductors $\text{Pr}_{1.3-x}\text{La}_{0.7}\text{Ce}_x\text{CuO}_4$,” *Phys. Rev. B* **100**, 054517 (5 pages) (2019).
- Y. OHTSUBO, Y. YAMASHITA, J. KISHI, S. IDETA, K. TANAKA, H. YAMANE, J. E. RAULT, P. LE. FEVRE, F. BERTRAN and S. KIMURA**, “Temperature-Driven Modification of Surface Electronic Structure on Bismuth, a Topological Border Material,” *J. Phys. D: Appl. Phys.* **52**, 254002 (6 pages) (2019).
- T. MATSUSHITA T. MURO, T. YOKOYA, K. TERASHIMA, Y. KATO, H. MATSUI, N. MAEJIMA, Y. HASHIMOTO and F. MATSUI**, “Theory for High-Angular-Resolution Photoelectron Holograms Considering the Inelastic Mean Free Path and the Formation Mechanism of Quasi-Kikuchi Band,” *Phys. Status Solidi B* **257**, 2000117 (5 pages) (2020).
- L. GUO, H. YAMAGUCHI, M. YAMAMOTO, F. MATSUI, G. WANG, F. LIU, P. YANG, E. R. BATISTA, N. A. MOODY, Y. TAKASHIMA and M. KATOH**, “Graphene as Reusable Substrate for Bialkali Photocathodes,” *Appl. Phys. Lett.* **116**, 251903 (5 pages) (2020).
- F. MATSUI, S. MAKITA, H. MATSUDA, T. YANO, E. NAKAMURA, K. TANAKA, S. SUGA and S. KERA**, “Photoelectron Momentum Microscope at BL6U of UVSOR-III Synchrotron,” *Jpn. J. Appl. Phys.* **59**, 067001 (9 pages) (2020).

LIST OF PUBLICATIONS

- H. MATSUDA and F. MATSUI**, “Principle and Basic Design of Omnidirectional Photoelectron Acceptance Lens,” *Jpn. J. Appl. Phys.* **59**, 046503 (11 pages) (2020).
- I. I. OGORODNIKOV, M. V. KUZNETSOV, F. MATSUI, D. Y. USACHOV and L. V. YASHINA**, “Enhanced Surface Sensitivity of X-Ray Photoelectron Holography through the Example of Bi₂Te₃(111) Surface,” *Appl. Surf. Sci.* **505**, 144531 (6 pages) (2020).
- T. MATSUSHITA, T. MURO, F. MATSUI, N. HAPPO and K. HAYASHI**, “Data Processing for Atomic Resolution Holography,” *Jpn. J. Appl. Phys.* **59**, 020502 (10 pages) (2020).
- F. MATSUI, S. MAKITA, H. MATSUDA, T. UEBA, T. HORIGOME, H. YAMANE, K. TANAKA, S. KERA and N. KOSUGI**, “Bulk and Surface Band Dispersion Mapping of the Au(111) Surface by Acceptance-Cone Tunable PES System,” *e-J. Surf. Sci. Nanotechnol.* **18**, 18–23 (2020).
- F. MATSUI, S. MAKITA, H. MATSUDA, T. OHIGASHI, H., YAMANE and N. KOSUGI**, “Identification of Twinning-Induced Edges on the Cleaved Graphite Crystal Surface,” *J. Phys. Soc. Jpn.* **88**, 114704 (3 pages) (2019).
- F. MATSUI, K. YASUDA, N. MAEJIMA, H. MATSUI, T. MATSUSHITA and H. DAIMON**, “Chemical and Magnetic Properties of Polycrystalline Iron Surface Revealed by Auger Electron Holography, Spectroscopy, and Microscopy,” *Jpn. J. Appl. Phys.* **58**, 110602 (8 pages) (2019).
- H. YAMANE, F. MATSUI, T. UEBA, T. HORIGOME, S. MAKITA, K. TANAKA, S. KERA and N. KOSUGI**, “Acceptance-Cone-Tunable Electron Spectrometer for Highly-Efficient Constant Energy Mapping,” *Rev. Sci. Instrum.* **90**, 093102 (7 pages) (2019).
- D. Y. USACHOV, A. V. TARASOV, F. MATSUI, M. MUNTWILER, K. A. BOKAI, V. O. SHEVELEV, O. Y. VILKOV, M. V. KUZNETSOV, L. V. YASHINA, C. LAUBSCHAT, A. COSSARO, L. FLOREANO, A. VERDINI and D. V. VYALIKH**, “Decoding the Structure of Interfaces and Impurities in 2D Materials by Photoelectron Holography,” *2D Mater.* **6**, 045046 (13 pages) (2019).
- F. MATSUI and H. MATSUDA**, “Electrostatic Lens, and Parallel Beam Generation Device and Parallel Beam Convergence Device which use Electrostatic Lens and Collimator,” US 10614992, 2020.04.07 patented.
- M. NAGASAKA and H. IWAYAMA**, “Photoelectron Based Soft X-Ray Detector for Removing High Order X Rays,” *Rev. Sci. Instrum.* **91**, 083103 (7 pages) (2020).
- M. NAGASAKA**, “Soft X-Ray Absorption Spectroscopy in the Low-Energy Region Explored Using an Argon Gas Window,” *J. Synchrotron Radiat.* **27**, 959–962 (2020).
- M. NAGASAKA, H. YUZAWA and N. KOSUGI**, “Microheterogeneity in Aqueous Acetonitrile Solution Probed by Soft X-Ray Absorption Spectroscopy,” *J. Phys. Chem. B* **124**, 1259–1265 (2020).
- M. NAGASAKA, H. YUZAWA, N. TAKADA, M. AOYAMA, E. RÜHL and N. KOSUGI**, “Laminar Flow in Microfluidics Investigated by Spatially-Resolved Soft X-Ray Absorption and Infrared Spectroscopy,” *J. Chem. Phys.* **151**, 114201 (7 pages) (2019).
- T. MANSIKKALA, M. PATANEN, A. KARKONEN, R. KORPINEN, A. PRANOVICH, T. OHIGASHI, S. SWARAJ, J. SEITOSONEN, J. RUOKOLAINEN, M. HUTTULA, P. SARANPAA and R. PIISPANEN**, “Lignans in Knotwood of Norway Spruce: Localisation with Soft X-Ray Microscopy and Scanning Transmission Electron Microscopy with Energy Dispersive X-Ray Spectroscopy,” *Molecules* **25**, 2997 (22 pages) (2020).
- Y. R. LU, Y. F. WANG, Y. C. HUANG, J. L. CHEN, C. L. CHEN, Y. C. LIN, Y. G. LIN, W. F. PONG, T. OHIGASHI, N. KOSUGI, C. H. KUO, W. C. CHOU and C. L. DONG**, “Effect of Fe₂Co₃ Coating on ZnO Nanowires in Photoelectrochemical Water Splitting: A Synchrotron X-Ray Spectroscopic and Spectromicroscopic Investigation,” *Sol. Energy Mater. Sol. Cells* **209**, 110469 (7 pages) (2020).
- M. NAGASAKA and H. IWAYAMA**, “Photoelectron Based Soft X-Ray Detector for Removing High Order X Rays,” *Rev. Sci. Instrum.* **91**, 083103 (7 pages) (2020).
- A. FERTE, J. PALAUDOUX, F. PENENT, H. IWAYAMA, E. SHIGEMASA, Y. HIKOSAKA, K. SOEJIMA, K. ITO, P. LABLANQUIE, R. TAIEB and S. CARNIATO**, “Advanced Computation Method for Double Core Hole Spectra: Insight into the Nature of Intense Shake-up Satellites,” *J. Phys. Chem. Lett.* **11**, 4359 (11 pages) (2020).
- Y. HIKOSAKA, H. IWAYAMA and T. KANEYASU**, “Zeeman Quantum Beats of Helium Rydberg States Excited by Synchrotron Radiation,” *J. Synchrotron Radiat.* **27**, 675 (6 pages) (2020).
- S. KOSUGI, N. SUZUKI, KUMAGAI, H. IWAYAMA, E. SHIGEMASA, F. KOIKE and Y. AZUMA**, “Dominance of Angular Momentum Exchange in the PCI Recapture of Photoelectrons Revealed by High Resolution Auger Electron Measurements of Kr,” *J. Phys. B* **52**, 245002 (6 pages) (2019).
- T. KANEYASU, Y. HIKOSAKA, M. FUJIMOTO, H. IWAYAMA and M. KATOH**, “Controlling the Orbital Alignment in Atoms Using Cross-Circularly Polarized Extreme Ultraviolet Wave Packet,” *Phys. Rev. Lett.* **123**, 233401 (5 pages) (2019).
- Y. HIKOSAKA, T. KANEYASU, M. FUJIMOTO, H. IWAYAMA and M. KATOH**, “Coherent Control in the Extreme Ultraviolet and Attosecond Regime by Synchrotron Radiation,” *Nat. Commun.* **10**, 4988 (5 pages) (2019).
- M. IMAI, Y. YOKOTA, I. TANABE, K. INAGAKI, Y. MORIKAWA and K. FUKUI**, “Correlation between Mobility and Hydrogen Bonding Network of Water at Electrified-Graphite Electrode Using Molecular Dynamics Simulation,” *Phys. Chem. Chem. Phys.* **22**, 1767–1773 (2020).
- D. OKAUE, I. TANABE, S. ONO, K. SAKAMOTO, T. SATO, A. IMANISHI, Y. MORIKAWA, J. TAKEYA and K. FUKUI**, “Ionic-Liquid-Originated Carrier Trapping Dynamics at the Interface in Electric Double-Layer Organic FET Revealed by Operando Interfacial Analyses,” *J. Phys. Chem. C* **124**, 2543–2552 (2020).
- Y. MORINO, Y. YOKOTA, H. HARA, K. BANDO, S. ONO, A. IMANISHI, Y. OKADA, H. MATSUI, T. UEMURA, J. TAKEYA and K. FUKUI**, “Rapid Improvements in Charge Carrier Mobility at Ionic Liquid/Pentacene Single Crystal Interfaces by Self-Cleaning,” *Phys. Chem. Chem. Phys.* **22**, 6131–6135 (2020).

- P. E. EVANS, T. KOMESU, L. ZHANG, D.-F. SHAO, A. J. YOST, S. KUMAR, E. F. SCHWIER, K. SHIMADA, E. TSYMBAL, X. HONG and P. A. DOWBEN, "Detection of Decoupled Surface and Bulk States in Epitaxial Orthorhombic SrIrO₃ Thin Films," *APL Adv.* **10**, 045027 (5 pages) (2020).
- D. GENG, K. YU, S. YUE, J. CAO, W. LI, D. MA, C. CUI, M. ARITA, S. KUMAR, E. F. SCHWIER, K. SHIMADA, P. CHENG, L. CHEN, K. WU, Y. YAO and B. FENG, "Experimental Evidence of Monolayer AlB₂ with Symmetry-Protected Dirac Cones," *Phys. Rev. B* **101**, 161407(R) (5 pages) (2020).
- A. SINGH, S. KUMAR, M. SINGHA, P. SINGHA, R. SINGH, V. K. GANGWAR, A. LAKHANI, S. PATIL, E. F. SCHWIER, T. MATSUMURA, K. SHIMADA, A. K. GHOSH and S. CHATTERJEE, "Anomalous Hall Effect in Cu Doped Topological Insulator Bi₂Te₃," *J. Phys.: Condens. Matter* **32**, 305602 (11 pages) (2020).
- A. G. RYBKIN, A. A. RYBKINA, A. V. TARASOV, D. A. PUDI KOV, I. I. KLIMOVSKIKH, O. YU. VILKOV, A. E. PETUKHOV, D. Y. USACHOV, D. A. ESTYUNIN, V. Y. VOROSHININ, A. VARYKHALOV, G. DI SANTO, L. PETACCIA, E. F. SCHWIER, K. SHIMADA, A. KIMURA and A. M. SHIKIN, "A New Approach for Synthesis of Epitaxial Nano-Thin Pt₅Gd Alloy via Intercalation Underneath a Graphene," *Appl. Surf. Sci.* **526**, 146687 (8 pages) (2020).
- Y. ZHANG, K. DENG, X. ZHANG, M. WANG, Y. WANG, C. LIU, J.-W. MEI, S. KUMAR, E. F. SCHWIER, K. SHIMADA, C. CHEN and B. SHEN, "In-Plane Antiferromagnetic Moments and Magnetic Polaron in the Axion Topological Insulator Candidate EuIn₂As₂," *Phys. Rev. B* **101**, 205126 (7 pages) (2020).
- M. ZHENG, E. F. SCHWIER, H. IWASAWA and K. SHIMADA, "High-Resolution Angle-Resolved Photoemission Study of Oxygen Adsorbed Fe/MgO(001)," *Chin. Phys. B* **29**, 067901 (9 pages) (2020).
- X. WU, J. LI, X.-M. MA, Y. ZHAN, Y. LIU, C.-S. ZHOU, J. SHAO, Q. WANG, Y.-J. HAO, Y. FENG, E. F. SCHWIER, S. KUMAR, H. SUN, P. LIU, K. SHIMADA, K. MIYAMOTO, T. OKUDA, K. WANG, M. XIE, C. CHEN, Q. LIU, C. LIU and Y. ZHAO, "Distinct Topological Surface States on the Two Terminations of MnBi₄Te₇," *Phys. Rev. X* **10**, 031013 (10 pages) (2020).
- M. NURMAMAT, K. OKAMOTO, S. ZHU, T. V. MENSCHIKOVA, I. P. RUSINOV, V. O. KOROSTELEV, K. MIYAMOTO, T. OKUDA, T. MIYASHITA, X. WANG, Y. ISHIDA, K. SUMIDA, E. F. SCHWIER, M. YE, Z. S. ALIEV, M. B. BABANLY, I. R. AMIRASLANOV, E. V. CHULKOV, K. A. KOKH, O. E. TERESHCHENKO, K. SHIMADA, S. SHIN and A. KIMURA, "Topologically Nontrivial Phase-Change Compound GeSb₂Te₄," *ACS Nano* **14**, 9059–9065 (2020).
- P. SINGH, M. ALAM, S. KUMAR, K. ANAND, V. K. GANGWAR, S. GHOSH, M. SAWADA, K. SHIMADA, R. K. SINGH, A. K. GHOSH and S. CHATTERJEE, "Roles of Re-Entrant Cluster Glass State and Spin–Lattice Coupling in Magneto–Dielectric Behavior of Giant Dielectric Double Perovskite La_{1.8}Pr_{0.2}CoFeO₆," *J. Phys.: Condens. Matter* **32**, 445801 (9 pages) (2020).
- P. E. EVANS, T. KOMESU, E. F. SCHWIER, S. KUMAR, K. SHIMADA and P. A. DOWBEN, "The Band Shifts in MoS₂(0001) and WS₂(0001) Induced by Palladium Adsorption," *J. Phys.: Condens. Matter* **32**, 465001 (7 pages) (2020).
- C. M. LAURIO, H. KATSUKI and H. YANAGI, "Numerical Simulations on Strong Coupling of Bloch Surface Waves and Excitons in Dielectric–Organic Multilayer Structures," *J. Phys.: Condens. Matter* **32**, 415003 (11 pages) (2020).
- H. OKOCHI, H. KATSUKI, M. TSUBOUCHI, R. ITAKURA and H. YANAGI, "Photon Energy Dependent Ultrafast Photoinduced Terahertz Response in a Microcrystalline Film of CH₃NH₃PbBr₃," *J. Phys. Chem. Lett.* **11**, 6068–6076 (2020).
- H. MIZUNO, T. JINJYO, C. LAURIO, H. KATSUKI, I. HIROMITSU, F. SASAKI and H. YANAGI, "Fabrication and Characterization of Vertical Microcavities Containing a Submicron Particle Film of 5,5'-di(4-biphenyl)-2,2'-bithiophene," *Jpn. J. Appl. Phys.* **59**, SDDA14 (5 pages) (2020).
- T. AKAZAWA, F. SASAKI, K. BANDO, H. MIZUNO, H. KATSUKI and H. YANAGI, "Fabrication of Low-Dimensional Microstructures with Distyrylbenzene Derivatives," *Jpn. J. Appl. Phys.* **59**, SDDA07 (5 pages) (2020).

Materials Molecular Science

- A. ISHIHARA, T. NAGAI, K. UKITA, M. ARAO, M. MATSUMOTO, L. YU, T. NAKAMURA, O. SEKIZAWA, Y. TAKAGI, K. MATSUZAWA, T. NAPPORN, S. MITSUSHIMA, T. URUGA, T. YOKOYAMA, Y. IWASAWA, H. IMAI and K. OTA, "Emergence of Oxygen Reduction Activity in Zirconium Oxide-Based Compounds in Acidic Media: Creation of Active Sites for Oxygen Reduction Reaction," *J. Phys. Chem. C* **123**, 18150–18159 (2019).
- T. NAKAMURA, Y. TAKAGI, S. CHAVEANGHONG, T. URUGA, M. TADA, Y. IWASAWA and T. YOKOYAMA, "Quick Operando Ambient Pressure Hard X-Ray Photoelectron Spectroscopy for Reaction Kinetic Measurements of Polymer Electrolyte Fuel Cells," *J. Phys. Chem. C* **124**, 17520–17527 (2020).
- K. KAWAGUCHI, T. MIYAMACHI, T. IIMORI, Y. TAKAHASHI, T. HATTORI, T. YOKOYAMA, M. KOTSUGI and F. KOMORI, "Realizing Large Out-of-Plane Magnetic Anisotropy in L10-FeNi Films Grown by Nitrogen-Surfactant Epitaxy on Cu(001)," *Phys. Rev. Mater.* **4**, 054403 (7 pages) (2020).
- Y. SONG, Q. SUN, T. YOKOYAMA, H. ZHU, Q. LI, R. HUANG, Y. REN, Q. HUANG, X. XING and J. CHEN, "Transforming Thermal Expansion from Positive to Negative: The Case of Cubic Magnetic Compounds of (Zr,Nb)Fe₂," *J. Phys. Chem. Lett.* **11**, 1954–1961 (2020).
- Y. WAKISAKA, D. KIDO, H. UEHARA, Q. YUAN, F. E. FEITEN, S. MUKAI, S. TAKAKUSAGI, Y. UEMURA, T. YOKOYAMA, T. WADA, M. UO, O. SEKIZAWA, T. URUGA, Y. IWASAWA and K. ASAKURA, "Development of Surface Fluorescence X-Ray Absorption Fine Structure Spectroscopy Using a Laue-Type Monochromator," *Chem. Rec.* **19**, 1157–1165 (2019).
- S. IKEMOTO, S. HUANG, S. MURATSUGU, S. NAGASE, T. KOITAYA, H. MATSUI, G. YOKOTA, T. SUDO, A. HASHIMOTO, Y. TAN, S. YAMAMOTO, J. TANG, I. MATSUDA, J. YOSHINOBU, T. YOKOYAMA, S. KUSAKA, R. MATSUDA and M. TADA, "Reversible Low-Temperature Redox Activity and Selective Oxidation Catalysis Derived from the Concerted Activation of Multiple Metal Species on Cr and Rh-Incorporated Ceria Catalysts," *Phys. Chem. Chem. Phys.* **21**, 20868–20877 (2019).

LIST OF PUBLICATIONS

- K. YAMAMOTO, S. E. MOUSSAOUI, Y. HIRATA, S. YAMAMOTO, Y. KUBOTA, S. OWADA, M. YABASHI, T. SEKI, K. TAKANASHI, I. MATSUDA and H. WADATI**, “Element-Selective Tracking Ultrafast Demagnetization Process in Co/Pt Multilayer Thin Films by the Resonant Magneto-Optical Kerr Effect,” *Appl. Phys. Lett.* **116**, 172406 (5 pages) (2020).
- T. SUGIMOTO and Y. MATSUMOTO**, “Orientational Ordering in Heteroepitaxial Water Ice on Metal Surfaces,” *Phys. Chem. Chem. Phys.* **29**, 16435–17012 (2020).
- F. KATO, T. SUGIMOTO and Y. MATSUMOTO**, “Direct Experimental Evidence for Markedly Enhanced Surface Proton Activity Inherent to Water Ice,” *J. Phys. Chem. Lett.* **11**, 2524–2529 (2020).
- K. HARADA, T. SUGIMOTO, F. KATO, K. WATANABE and Y. MATSUMOTO**, “Thickness Dependent Homogeneous Crystallization of Ultrathin Amorphous Solid Water Films,” *Phys. Chem. Chem. Phys.* **22**, 1963–1973 (2020).
- Y. OTSUKI, K. WATANABE, T. SUGIMOTO and Y. MATSUMOTO**, “Enhanced Structural Disorder at a Nanocrystalline Ice Surface,” *Phys. Chem. Chem. Phys.* **21**, 20442–20453 (2019).
- M. KIKUCHI, S. IZAWA, N. RAI and M. HIRAMOTO**, “Very Low Activation Energy for Carrier Generation of Surface Doped Organic Single Crystals Observed by Hall Effects,” *Appl. Phys. Lett.* **115**, 113301 (4 pages) (2019).
- H. UENO, I. JEON, H. LIN, A. THOTE, T. NAKAGAWA, H. OKADA, S. IZAWA, M. HIRAMOTO, S. MARUYAMA and Y. MATSUO**, “Li@C₆₀ Endohedral Fullerene as Supramolecular Dopant for C₆₀ Electron-transporting Layer Promoting Efficiency in Perovskite Solar Cells,” *Chem. Commun.* **55**, 11837–11839 (2019).
- S. IZAWA, N. SHINTAKU, M. KIKUCHI and M. HIRAMOTO**, “Importance of Interfacial Crystallinity to Reduce Open-Circuit Voltage Loss in Organic Solar Cells,” *Appl. Phys. Lett.* **115**, 153301 (4 pages) (2019).
- K. FUJIMOTO, S. IZAWA, Y. ARIKAI, S. SUGIMOTO, H. OUE, T. INUZUKA, N. UEMURA, M. SAKAMOTO, M. HIRAMOTO and M. TAKAHASHI**, “Regioselective Bay-Functionalization of Perylenes toward Tailor-Made Synthesis of Acceptor Materials for Organic Photovoltaics,” *ChemPlusChem* **85**, 285–293 (2020).
- M. KATAYAMA, T. KAJI, S. NAKAO and M. HIRAMOTO**, “Ultra-Thick Organic Pigment Layer up to 10 μm Activated by Crystallization in Organic Photovoltaic Cells,” *Front. Energy Res. Section Solar Energy* **8**, 1–12 (2019).
- J. LEE, A. PERROT, M. HIRAMOTO and S. IZAWA**, “Photoconversion Mechanism at *pn*-Homojunction Interface in Single Organic Semiconductor,” *Materials* **13**, 1727 (8 pages) (2020).
- Y. NAKAMURA, M. IWASHITA, M. KIKUCHI, R. TSURUTA, K. YOSHIDA, Y. GUNJO, Y. YABARA, T. HOSOKAI, T. KOGANEZAWA, S. IZAWA and M. HIRAMOTO**, “Electronic and Crystallographic Examinations of the Homoepitaxially-Grown Rubrene Single Crystals,” *Materials* **13**, 1978 (11 pages) (2020).
- Y. YABARA, S. IZAWA and M. HIRAMOTO**, “Donor/Acceptor Photovoltaic Cells Fabricated on *p*-Doped Organic Single-Crystal Substrates,” *Materials* **13**, 2068 (8 pages) (2020).
- K. FUJIMOTO, M. TAKAHASHI, S. IZAWA and M. HIRAMOTO**, “Development of Perylene-Based Non-Fullerene Acceptors,” *Materials* **13**, 1978 (11 pages) (2020).
- H. NAWAZ, T. TAKEIRI, A. KUWABARA, M. YONEMURA and G. KOBAYASHI**, “Synthesis and H⁻ Conductivity of a New Oxide Ba₂YHO₃ with Anion-Ordered Rock-Salt Layers,” *Chem. Commun.* **56**, 10373–10376 (2020).
- J. YANAGISAWA, T. HIRAOKA, F. KAOBAYASHI, D. SAITO, M. YOSHIDA, M. KATO, F. TAKEIRI, G. KOBAYASHI, M. OHBA, L. F. LINDOY, R. OHTANI and S. HAYAMI**, “Luminescent Ionic Liquid Formed from a Melted Rhenium(V) Cluster,” *Chem. Commun.* **56**, 7957–7960 (2020).
- Y. MATSUDA, K. FUNAKOSHI, R. SEBE, G. KOBAYASHI, M. YONEMURA, N. IMANICHI, D. MORI and S. HIGASHIMOTO**, “Arrangement of Water Molecules and High Proton Conductivity of Tunnel Structure Phosphates, KMg_{1-x}H_{2x}(PO₃)₃·yH₂O,” *RSC Adv.* **10**, 7803–7811 (2020).
- F. TAKEIRI, T. YAJIMA, S. HOSOKAWA, Y. MATSUSHITA and H. KAGEYAMA**, “Topochemical Anion Insertion into One-Dimensional Bi Channels in Bi₂PdO₄,” *J. Solid State Chem.* **286**, 121273 (2020).
- H. UBUKATA, T. BROUX, F. TAKEIRI, K. SHITARA, H. YAMASHITA, A. KUWABARA, G. KOBAYASHI and H. KAGEYAMA**, “Hydride Conductivity in an Anion-Ordered Fluorite Structure LnHO with an Enlarged Bottleneck,” *Chem. Mater.* **31**, 7360–7366 (2019).
- D. YOSHIZAWA, Y. SAWADA, Y. KOUSAKA, J. KISHINE, Y. TOGAWA, M. MITO, K. INOUE, J. AKIMITSU, T. NAKANO, Y. NOZUE and M. HAGIWARA**, “Anomalous Spiked Structures in ESR Signals from the Chiral Helimagnet CrNb₃S₆,” *Phys. Rev. B* **100**, 104413 (6 pages) (2019).
- I. G. BOSTREM, E. G. EKOMASOV, J. KISHINE, A. S. OVCHINNIKOV and V. E. SINITSYN**, “Discrete Magnetic Breathers in Monoaxial Chiral Helimagnet,” *Chelyabinsk Phys. Math. J.* **5**(2), 194–201 (2020).
- A. INUI, R. AOKI, Y. NISHIUE, K. SHIOTA, Y. KOUSAKA, H. SHISHIDO, D. HIROBE, M. SUDA, J. OHE, J. KISHINE, H. M. YAMAMOTO and Y. TOGAWA**, “Chirality-Induced Spin-Polarized State of a Chiral Crystal CrNb₃S₆,” *Phys. Rev. Lett.* **124**, 166602 (6 pages) (2020).
- G. W. PATERSON, A. A. TERESHCHENKO, S. NAKAYAMA, Y. KOUSAKA, J. KISHINE, S. MCVITIE, A. S. OVCHINNIKOV, I. PROSKURIN and Y. TOGAWA**, “Tensile Deformations of the Magnetic Chiral Soliton Lattice Probed by Lorentz Transmission Electron Microscopy,” *Phys. Rev. B* **101**, 184424 (12 pages) (2020).
- J. KISHINE and A. S. OVCHINNIKOV**, “Magnetic Response of a Highly Nonlinear Soliton Lattice in a Monoaxial Chiral Helimagnet,” *Phys. Rev. B* **101**, 184425 (12 pages) (2020).
- T. TAJIRI, M. MITO, Y. KOUSAKA, J. AKIMITSU, J. KISHINE and K. INOUE**, “Spontaneous Magnetostriction Effects in the Chiral Magnet CrNb₃S₆,” *Phys. Rev. B* **102**, 014446 (7 pages) (2020).

B. ADINARAYANA, D. SHIMIZU, K. FURUKAWA and A. OSUKA, “Stable Radical versus Reversible σ -Bond Formation of (Porphyrinyl) Dicyanomethyl Radicals,” *Chem. Sci.* **10**, 6007–6012 (2019).

K. SUDO, Y. SATOH, K. FURUKAWA, H. NAKANO and Y. MATANO, “Synthesis and Optical, Magnetic, and Electrochemical Properties of 5,10,15,20-Tetraaryl-5,15-diazaporphyrin-tertiary Amine Conjugates,” *J. Porphyrins Phthalocyanines* **24**, 286–297 (2020).

B. ADINARAYANA, K. KATO, D. SHIMIZU, T. TANAKA, K. FURUKAWA and A. OSUKA, “Cyclophane-Type Chlorin Dimers from Dynamic Covalent Chemistry of 2,18-Porphyrinyl Dicyanomethyl Diradicals,” *Angew. Chem., Int. Ed.* **59**, 4320–4323 (2020).

K. GOTO, M. ASADA, T. NAKAMURA and F. TANI, “Switching Photomechanical Response by Structural Phase Transition and Evaluating Responsivity from Relaxation,” *ChemPhotoChem* **4**, 1–7 (2020).

T. INOUE, M. SHIBUTA, T. SUZUKI and A. NAKAJIMA, “Occupied and Unoccupied Levels of Half-Fluorinated and Perfluorinated Rubrene Thin Films Probed by One- and Two-Photon Photoemission,” *J. Phys. Chem. C* **124**, 12409–12416 (2020).

Life and Coordination-Complex Molecular Science

N. MURAKI, K. ISHII, S. UCHIYAMA, S. G. ITOH, H. OKUMURA and S. AONO, “Structural Characterization of HypX Responsible for CO Biosynthesis in the Maturation of NiFe-Hydrogenase,” *Commun. Biol.* **2**, 385 (12 pages) (2019).

N. MURAKI, C. KITATSUJI, Y. OKAMOTO, T. UCHIDA, K. ISHIMORI and S. AONO, “Structural Basis for Heme Transfer Reaction in Heme Uptake Machinery from *Corynebacteria*,” *Chem. Commun.* **55**, 13864–13867 (2019).

R. INOUE, T. NAKAGAWA, K. MORISHIMA, N. SATO, A. OKUDA, R. URADE, R. YOGO, S. YANAKA, M. YAGI-UTSUMI, K. KATO, K. OMOTO, K. ITO and M. SUGIYAMA, “Newly Developed Laboratory-Based Size Exclusion Chromatography Small-Angle X-Ray Scattering System (La-SSS),” *Sci. Rep.* **9**, 12610 (12 pages) (2019).

R. MURAKAMI, Y. YUNOKI, K. ISHII, K. TERAUCHI, S. UCHIYAMA, H. YAGI and K. KATO, “Cooperative Bbinding of KaiB to the KaiC Hexamer Ensures Accurate Circadian Clock Oscillation in *Cyanobacteria*,” *Int. J. Mol. Sci.* **20**, 4550 (10 pages) (2019).

C. CHO, J. JANG, Y. KANG, H. WATANABE, T. UCHIHASHI, S. J. KIM, K. KATO, J. Y. LEE and J.-J. SONG, “Structural Basis of Nucleosome Assembly by the Abo1 AAA+ATPase Histone Chaperone,” *Nat. Commun.* **10**, 5764 (13 pages) (2019).

M. L. A. DE LEOZ, D. L. DUEWER, A. FUNG, L. LIU, H. K. YAU, O. POTTER, G. O. STAPLES, K. FURUKI, R. FRENKEL, Y. HU, Z. SOSIC, P. ZHANG, F. ALTMANN, C. GRUBER, C. SHAO, J. ZAIA, W. EVERS, S. PANGELLEY, D. SUCKAU, A. WIECHMANN, A. RESEMANN, W. JABS, A. BECK, J. W. FROELICH, C. HUANG, Y. LI, Y. LIU, S. SUN, Y. WANG, Y. SEO, H. J. AN, N. C. REICHARDT, J. E. RUIZ, S. ARCHER-HARTMANN, P. AZADI, L. BELL, Z. LAKOS, Y. AN, J. F. CIPOLLO, M. PUČIĆ-BAKOVIĆ, J. ŠTAMBUK, G. LAUC, X. LI, P. G. WANG, A. BOCK, R. HENNIG, E. RAPP, M. CRESKEY, T. CYR, M. NAKANO, T. SUGIYAMA, P. A. LEUNG, P. LINK-LENCZOWSKI, J. JAWOREK, S. J. YANG, H. ZHANG, T. KELLY, S. KLAPOETKE, R. CAO, J. Y. KIM, H. K. LEE, J. LEE, J. S. YOO, S. R. KIM, S. K. SUH, N. DE HAAN, D. FALCK, G. S. M. LAGEVEEN-KAMMELJER, M. WUHRER, R. J. EMERY, R. P. KOZAK, L. P. LIEW, L. ROYLE, P. A. URBANOWICZ, N. PACKER, X. SONG, A. EVEREST-DASS, E. LATTOVÁ, S. CAJIC, K. ALAGESAN, D. KOLARICH, T. KASALI, V. LINDO, Y. CHEN, K. GOSWAMI, B. GAU, R. AMUNUGAMA, R. JONES, C. J. M. STROOP, K. KATO, H. YAGI, S. KONDO, C. T. YUEN, A. HARAZONO, X. SHI, P. MAGNELLI, B. T. KASPER, L. K. MAHAL, D. J. HARVEY, R. M. O'FLAHERTY, P. RUDD, R. SALDOVA, E. S. HECHT, D. C. MUDDIMAN, J. KANG, P. BHOSKAR, D. MENARD, A. SAATI, C. MERLE, S. MAST, S. TEP, J. TRUONG, T. NISHIKAZE, S. SEKIYA, A. SHAFER, S. FUNAOKA, M. TOYODA, P. DE VREUGD, C. CARON, P. PRADHAN, N. C. TAN, Y. MECHREF, S. PATIL, J. S. ROHRER, R. CHAKRABARTI, D. DADKE, M. LAHORI, C. ZOU, C. W. CAIRO, B. REIZ, R. M. WHITTAL, C. LEBRILLA, L. D. WU, A. GUTTMAN, M. SZIGETI, B. G. KREMKOW, K. LEE, C. SIHLBOM, B. ADAMCZYK, C. JIN, N. G. KARLSSON, J. ÖRNROS, G. LARSON, J. NILSSON, B. MEYER, A. WIEGANDT, E. KOMATSU, H. PERREAULT, E. D. BODNAR, N. SAID, Y. N. FRANCOIS, E. LEIZE-WAGNER, S. MAIER, A. ZECK, A. J. R. HECK, Y. YANG, R. HASELBERG, Y. Q. YU, W. ALLEY, J. W. LEONE, H. YUAN and S. E. STEIN, “NIST Interlaboratory Study on Glycosylation Analysis of Monoclonal Antibodies: Comparison of Results from Diverse Analytical Methods,” *Mol. Cell. Proteomics* **19**, 11–30 (2020).

S. YANAKA, R. YOGO, H. WATANABE, Y. TANIGUCHI, T. SATOH, N. KOMURA, H. ANDO, H. YAGI, N. YUKI, T. UCHIHASHI and K. KATO, “On-Membrane Dynamic Interplay between Anti-GM1 IgG Antibodies and Complement Component C1q,” *Int. J. Mol. Sci.* **21**, 147 (12 pages) (2020).

M. YAGI-UTSUMI, A. SIKDAR, C. SONG, J. PARK, R. INOUE, H. WATANABE, R. N. BURTON-SMITH, T. KOZAL, T. SUZUKI, A. KODAMA, K. ISHII, H. YAGI, T. SATOH, S. UCHIYAMA, T. UCHIHASHI, K. JOO, J. LEE, M. SUGIYAMA, K. MURATA and K. KATO, “Supramolecular Tholos-Like Architecture Constituted by Archaeal Proteins without Functional Annotation,” *Sci. Rep.* **10**, 1540 (10 pages) (2020).

G. GEORGE, S. NINAGAWA, H. YAGI, T. SAITO, T. ISHIKAWA, T. SAKUMA, T. YAMAMOTO, K. IMAMI, Y. ISHIHAMA, K. KATO, T. OKADA and K. MORI, “EDEM2 Stably Disulfide-Bonded to TXNDC11 Catalyzes the First Mannose Trimming Step in Mammalian Glycoprotein ERAD,” *eLife* **9**, e53455 (19 pages) (2020).

H. YAGI, M. YAGI-UTSUMI, R. HONDA, Y. OHTA, T. SAITO, M. NISHIO, S. NINAGAWA, K. SUZUKI, T. ANZAI, Y. KAMIYA, K. AOKI, M. NAKANISHI, T. SATOH and K. KATO, “Improved Secretion of Glycoproteins Using an N-Glycan-Restricted Passport Sequence Tag Recognized by Cargo Receptor,” *Nat. Commun.* **11**, 1368 (9 pages) (2020).

K. YAMADA, Y. YAMAGUCHI, Y. UEKUSA, K. AOKI, I. SHIMADA, T. YAMAGUCHI and K. KATO, “Solid-State ¹⁷O NMR Analysis of Synthetically ¹⁷O-Enriched D-Glucosamine,” *Chem. Phys. Lett.* **749**, 137455 (5 pages) (2020).

T. SATOH, M. NISHIO, K. SUZUKI, M. YAGI-UTSUMI, Y. KAMIYA, T. MIZUSHIMA and K. KATO, “Crystallographic Snapshots of the EF-Hand Protein MCFD2 Complexed with the Intracellular Lectin ERGIC-53 Involved in Glycoprotein Transport,” *Acta Crystallogr., Sect. F: Struct. Biol. Commun.* **76**, 216–221 (2020).

LIST OF PUBLICATIONS

K. MORISHIMA, A. OKUDA, R. INOUE, N. SATO, Y. MIYAMOTO, R. URADE, M. YAGI-UTSUMI, K. KATO, R. HIRANO, T. KUJIRAI, H. KURUMIZAKA and M. SUGIYAMA, “Integral Approach to Biomacromolecular Structure by Analytical-Ultracentrifugation and Small-Angle Scattering,” *Commun. Biol.* **3**, 294 (7 pages) (2020).

M. YAGI-UTSUMI, S. YANAKA, C. SONG, T. SATOH, C. YAMAZAKI, H. KASAHARA, T. SHIMAZU, K. MURATA and K. KATO, “Characterization of Amyloid β Fibril Formation under Microgravity Conditions,” *NPJ Microgravity* **6**, 17 (6 pages) (2020).

M. HIRANYAKORN, S. YANAKA, T. SATOH, T. WILASRI, B. JITYUTI, M. YAGI-UTSUMI and K. KATO, “NMR Characterization of Conformational Interconversions of Lys48-Linked Ubiquitin Chains,” *Int. J. Mol. Sci.* **21**, 5351 (12 pages) (2020).

K. OKAZAKI, A. NAKAMURA and R. IINO, “Chemical-State-Dependent Free Energy Profile from Single-Molecule Trajectories of Biomolecular Motor: Application to Processive Chitinase,” *J. Phys. Chem. B* **124**, 6475–6487 (2020). DOI: 10.1021/acs.jpcc.0c02698

J. ANDO, T. SHIMA, R. KANAZAWA, R. SHIMO-KON, A. NAKAMURA, M. YAMAMOTO, T. KON and R. IINO, “Small Stepping Motion of Processive Dynein Revealed by Load-Free High-Speed Single-Particle Tracking,” *Sci. Rep.* **10**, 1080 (11 pages) (2020). DOI: 10.1038/s41598-020-58070-y

A. VISOOTSAT, A. NAKAMURA, P. VIGNON, H. WATANABE, T. UCHIHASHI and R. IINO, “Single-Molecule Imaging Analysis Reveals the Mechanism of a High-Catalytic-Activity Mutant of Chitinase A from *Serratia marcescens*,” *J. Biol. Chem.* **295**, 1915–1925 (2020). DOI: 10.1074/jbc.RA119.012078

J. ANDO, A. NAKAMURA, M. YAMAMOTO, C. SONG, K. MURATA and R. IINO, “Multicolor High-Speed Tracking of Single Biomolecules with Silver, Gold, Silver-Gold Alloy Nanoparticles,” *ACS Photonics* **6**, 2870–2883 (2019). DOI: 10.1021/acsphotonics.9b00953

T. IIDA, Y. MINAGAWA, H. UENO, F. KAWAI, T. MURATA and R. IINO, “Single-Molecule Analysis Reveals Rotational Substeps and Chemo-Mechanical Coupling Scheme of *Enterococcus hirae* V₁-ATPase,” *J. Biol. Chem.* **294**, 17017–17030 (2019). DOI: 10.1074/jbc.ra119.008947.

M. MATSUO, Y. HIRATA, K. KURIHARA, T. TOYOTA, T. MIURA, K. SUZUKI and T. SUGAWARA, “Environment-Sensitive Intelligent Self-Reproducing Artificial Cell with a Modification-Active Lipo-Deoxyribozyme,” *Micromachines* **11**, 606 (18 pages) (2020).

A. OHTAKA, M. KAWASE, A. USAMI, S. FUKUI, M. YAMASHITA, K. YAMAGUCHI, A. SAKON, T. SHIRAKI, T. ISHIDA, S. NAGATA, Y. KIMURA, G. HAMASAKA, Y. UOZUMI, T. SHINAGAWA, O. SHIMOMURA and R. NOMURA, “Mechanistic Study on Allylic Arylation in Water with Linear Polystyrene-Stabilized Pd and PdO Nanoparticles,” *ACS Omega* **4**, 15764–15770 (2019).

G. HAMASAKA, D. ROY, A. TAZAWA and Y. UOZUMI, “Arylation of Terminal Alkynes by Aryl Iodides Catalyzed by a Parts-per-Million Loading of Palladium Acetate,” *ACS Catal.* **9**, 11640–11646 (2019).

H. OHTA, K. TOBAYASHI, A. KUROO, M. NAKATSUKA, H. KOBAYASHI, A. FUKUOKA, G. HAMASAKA, Y. UOZUMI, H. MURAYAMA, M. TOKUNAGA and M. HAYASHI, “Surface Modification of a Supported Pt Catalyst Using Ionic Liquids for Selective Hydrodeoxygenation of Phenols into Arenes under Mild Conditions,” *Chem. –Eur. J.* **25**, 14762–14766 (2019).

S. ICHII, G. HAMASAKA and Y. UOZUMI, “The Hiyama Cross-Coupling Reaction at Parts Per Million Levels of Pd: In Situ Formation of Highly Active Spirosilicates in Glycol Solvents,” *Chem. –Asian J.* **14**, 3850–3854 (2019).

H. HU, H. OTA, H. BAEK, K. SHINOHARA, T. MASE, Y. UOZUMI and Y. M. A. YAMADA, “Second-Generation meta-Phenolsulfonic Acid-Formaldehyde Resin as a Catalyst for Continuous-Flow Esterification,” *Org. Lett.* **22**, 160–163 (2020).

T. OSAKO, J. SRISA, K. TORII, G. HAMASAKA and Y. UOZUMI, “Iterative Preparation of Platinum Nanoparticles in an Amphiphilic Polymer Matrix: Regulation of Catalytic Activity in Hydrogenation,” *Synlett* **31**, 147–152 (2020).

H. BAEK, K. KASHIMURA, T. FUJII, S. TSUBAKI, Y. WADA, S. FUJIKAWA, T. SATO, Y. UOZUMI and Y. M. A. YAMADA, “Production of Bio Hydrofined Diesel, Jet Fuel, and Carbon Monoxide from Fatty Acids Using a Silicon Nanowire Array-Supported Rhodium Nanoparticle Catalyst under Microwave Conditions,” *ACS Catal.* **10**, 2148–2156 (2020).

R. N. DHITAL, A. SEN, T. SATO, H. HU, R. ISHII, D. HASHIZUME, H. TAKAYA, Y. UOZUMI and Y. M. A. YAMADA, “Activator-Promoted Aryl Halide-Dependent Chemoselective Buchwald–Hartwig and Suzuki–Miyaura Type Cross-Coupling Reactions,” *Org. Lett.* **22**, 4797–4801 (2020).

S. MIZUNO, H. TSUJI, Y. UOZUMI and M. KAWATSURA, “Synthesis of α -Tertiary Amines by the Ruthenium-catalyzed Regioselective Allylic Amination of Tertiary Allylic Esters,” *Chem. Lett.* **49**, 645–647 (2020).

C. OHDE, T. KUSAMOTO and H. NISHIHARA, “Effects of Halogen Atom Replacement on the Structure and Magnetic Properties of a Molecular Crystal with Supramolecular Two-Dimensional Network Mediated via Sulfur’s σ -Holes,” *J. Magn. Magn. Mater.* **497**, 165986 (6 pages) (2020).

H. MAEDA, A. BAJPAYEE, T. KUSAMOTO and H. NISHIHARA, “Construction of Bis(2,6-bis(1-methylbenzimidazol-2-yl)pyridine) iron(II) Coordination Polymer for Incorporation of Magnetic Function,” *J. Inorg. Organomet. Polym. Mater.* **30**, 147–152 (2020).

Y. LI, Y. SEGAWA, A. YAGI and K. ITAMI, “A Nonalternant Aromatic Belt: Methylene-Bridged [6]Cycloparaphenylene Synthesized from Pillar[6]arene,” *J. Am. Chem. Soc.* **142**, 12850–12856 (2020).

H. SHUDO, M. KUWAYAMA, Y. SEGAWA and K. ITAMI, “Synthesis of Cycloptycenes from Carbon Nanobelt,” *Chem. Sci.* **11**, 6775–6779 (2020).

A. NAKA (FUKAZAWA), S. S. W. OEY (Kyoto University), “Diaryldithienophosphorines and Near-Infrared Absorbing Dyes Using These Compounds,” JP2020/036443, 2020.

Research Center of Integrative Molecular Systems

K. ITO-MIWA, Y. FURUIKE, S. AKIYAMA and T. KONDO, “Tuning the Circadian Period of Cyanobacteria up to 6.6 Days by the Single Amino Acid Substitutions in KaiC,” *Proc. Natl. Acad. Sci. U. S. A.* **117**, 20926–20931 (2020). doi.org/10.1073/pnas.2005496117

I. ANZAI, E. TOKUDA, S. HANDA, H. MISAWA, S. AKIYAMA and Y. FURUKAWA, “Oxidative Misfolding of Cu/Zn-Superoxide Dismutase Triggered by Non-Canonical Intramolecular Disulfide Formation,” *Free Radical Biol. Med.* **147**, 187–199 (2020). doi.org/10.1016/j.freeradbiomed.2019.12.017

Y. KAWAKAMI, T. AMANO, H. OHASHI, H. ITOH, Y. NAKAMURA, H. KISHIDA, T. SASAKI, G. KAWAGUCHI, H. M. YAMAMOTO, K. YAMAMOTO, S. ISHIHARA, K. YONEMITSU and S. IWAI, “Petahertz Non-Linear Current in a Centrosymmetric Organic Superconductor,” *Nat. Commun.* **11**, 4138 (6 pages) (2020).

Y. NABEI, D. HIROBE, Y. SHIMAMOTO, K. SHIOTA, A. INUI, Y. KOUSAKA, Y. TOGAWA and H. M. YAMAMOTO, “Current-Induced Bulk Magnetization of a Chiral Crystal CrNb₃S₆,” *Appl. Phys. Lett.* **117**, 052408 (5 pages) (2020).

A. INUI, R. AOKI, Y. NISHIUE, K. SHIOTA, Y. KOUSAKA, H. SHISHIDO, D. HIROBE, M. SUDA, J. OHE, J. KISHINE, H. M. YAMAMOTO and Y. TOGAWA, “Chirality-Induced Spin-Polarized State of a Chiral Crystal CrNb₃S₆,” *Phys. Rev. Lett.* **124**, 166602 (6 pages) (2020).

Y. KAWASUGI, K. SEKI, J. PU, T. TAKENOBU, S. YUNOKI, H. M. YAMAMOTO and R. KATO, “Non-Fermi-Liquid Behavior and Doping Asymmetry in an Organic Mott Insulator Interface,” *Phys. Rev. B* **100**, 115141 (7 pages) (2019).

G. KAWAGUCHI and H. M. YAMAMOTO, “Control of Organic Superconducting Field-Effect Transistor by Cooling Rate,” *Crystals* **9**, 605 (8 pages) (2019).

S. OGIKUBO, G. HASHIMOTO, T. UBE, M. SUDA, H. M. YAMAMOTO and T. IKEDA, “Photoinduced Deformation and Isomerization of Azobenzene Liquid-Crystalline Polymer Films at Cryogenic Temperature,” *Mol. Cryst. Liq. Cryst.* **676**, 30–35 (2019).

T. CHOOPAWA, S. NAMUANGRUK, H. M. YAMAMOTO, V. PROMARAK and P. RASHATASAKHON, “Synthesis, Characterization, and Hole-Transporting Properties of Benzotriazatruxene Derivatives,” *J. Mater. Chem. C* **7**, 15035–15041 (2019).

Y. SHIOMI, J. LUSTIKOVA, S. WATANABE, D. HIROBE, S. TAKAHASHI and E. SAITOH, “Spin Pumping from Nuclear Spin Waves,” *Nat. Phys.* **15**, 22–26 (2019).

M. KAMEDA, D. HIROBE, S. DAIMON, Y. SHIOMI, S. TAKAHASHI and E. SAITOH, “Microscopic Formulation of Nonlinear Spin Current Induced by Spin Pumping,” *J. Magn. Magn. Mater.* **476**, 459–463 (2019).

N. ITO, T. KIKKAWA, J. BARKER, D. HIROBE, Y. SHIOMI and E. SAITOH, “Spin Seebeck Effect in Layered Ferromagnetic Insulators CrSiTe₃ and CrGeTe₃,” *Phys. Rev. B* **100**, 060402(R) (6 pages) (2019).

Division of Advanced Molecular Science

Y. TAMURA, H. TAKEZAWA and M. FUJITA, “A Robust Double-Walled Knotted Cage Revealed Guest Binding through Adaptive Portal Expansion,” *Chem. Lett.* **49**, 912–914 (2020). DOI: 10.1246/cl.200282

H. TAKEZAWA, K. SHITAZAWA and M. FUJITA, “Enhanced Reactivity of Twisted Amides Inside a Molecular Cage,” *Nat. Chem.* **12**, 574–578 (2020). DOI: 10.1038/s41557-020-0455-y

Y. MORISHITA, T. SONOHARA, T. TANIGUCHI, K. ADACHI, M. FUJITA and T. ASAI, “Synthetic-Biology-Based Discovery of a Fungal Macrolide from *Macrophomina phaseolina*,” *Org. Biomol. Chem.* **18**, 2813–2816 (2020). DOI: 10.1039/D0OB00519C

Y. TAMURA, H. TAKEZAWA and M. FUJITA, “A Double-Walled Knotted Cage for Guest-Adaptive Molecular Recognition,” *J. Am. Chem. Soc.* **142**, 5504–5508 (2020). DOI: 10.1021/jacs.0c00459

I. MORITA, T. MORI, T. MITSUHASHI, S. HOSHINO, Y. TANIGUCHI, T. KIKUCHI, K. NAGAE, N. NASU, M. FUJITA, T. OHWADA and I. ABE, “Exploiting a C–N Bond Forming Cytochrome P450 Monooxygenase for C–S Bond Formation,” *Angew. Chem., Int. Ed.* **59**, 3988–3993 (2020). DOI: 10.1002/anie.201916269

Y. INOMATA, T. SAWADA and M. FUJITA, “Metal-Peptide Torus Knots from Flexible Short Peptides,” *Chem* **6**, 294–303 (2020). DOI: 10.1016/j.chempr.2019.12.009

Y. DOMOTO, M. ABE, T. KIKUCHI and M. FUJITA, “Self-Assembly of Coordination Polyhedra with Highly Entangled Faces Induced by Metal–Acetylene Interactions,” *Angew. Chem., Int. Ed.* **59**, 3450–3454 (2020). DOI: 10.1002/anie.201913142

Y. KANAZAWA, T. MITSUDOME, H. TAKAYA and M. HIRANO, “Pd/Cu-Catalyzed Dehydrogenative Coupling of Dimethyl Phthalate: Synchrotron Radiation Sheds Light on the Cu Cycle Mechanism,” *ACS Catal.* **10**, 5909–5919 (2020).

Division of Research Innovation and Collaboration

T. KAWASAKI, V. YAHIA and T. TAIRA, “High Brightness Micro-MOPA (Master Oscillator Power Amplifier) with 100-Hz and 100-mJ Operation,” *Rev. Laser Eng.* **47**(4), 221–224 (2019). (in Japanese)

L. ZHENG, A. KAUSAS and T. TAIRA, “>30 MW Peak Power from Distributed Face Cooling Tiny Integrated Laser,” *Opt. Express* **27**, 30217–30224 (2019). DOI: 10.1364/OE.27.030217

H. H. LIM and T. TAIRA, “High Peak Power Nd:YAG/Cr:YAG Ceramic Microchip Laser with Unstable Resonator,” *Opt. Express* **27**, 31307–31315 (2019). DOI: 10.1364/OE.27.031307

LIST OF PUBLICATIONS

- T. SANO, T. EIMURA, A. HIROSE, Y. KAWAHITO, S. KATAYAMA, K. ARAKAWA, K. MASAKI, A. SHIRO, T. SHOBU and Y. SANO**, “Improving Fatigue Performance of Laser-Welded 2024-T3 Aluminum Alloy Using Dry Laser Peening,” *Metals* **9**, 1192 (13 pages) (2019). DOI: 10.3390/met9111192
- H. ISHIZUKI and T. TAIRA**, “Polarity Inversion of Crystal Quartz Using a Quasi-Phase Matching Stamp,” *Opt. Express* **28**, 6505–6510 (2020). DOI: 10.1364/OE.386991
- F. CASSOURET, A. KAUSAS, V. YAHIA, G. AKA, P. LOISEAU and T. TAIRA**, “High Peak-Power Near-MW Laser Pulses by Third Harmonic Generation at 355 nm in $\text{Ca}_5(\text{BO}_3)_3\text{F}$ Nonlinear Single Crystals,” *Opt. Express* **28**, 10524–10530 (2020). DOI: 10.1364/OE.384281
- O. SAITO, E. SEN, Y. OKABE, N. HIGUCHI, H. ISHIZUKI and T. TAIRA**, “Laser Wavelengths Suitable for Generating Ultrasonic Waves in Resin-Coated Carbon Fiber Composites,” *ASME J. Nondestructive Evaluation*, **3**, 031103 (11 pages) (2020). DOI: 10.1115/1.4046719
- K. TAMURA, H. OHBA, M. SAEKI, T. TAGUCHI, H. H. LIM, T. TAIRA and I. WAKAIDA**, “Development of a Laser-Induced Breakdown Spectroscopy System Using a Ceramic Micro-Laser for Fiber-Optic Remote Analysis,” *J. Nucl. Sci. Technol.* **57**, 1189–1198 (2020). DOI: 10.1080/00223131.2020.1776648
- Y. SANO**, “Quarter Century Development of Laser Peening without Coating,” *Metals* **10**, 152 (11 pages) (2020). DOI: 10.3390/met10010152
- Y. SANO, K. AKITA and T. SANO**, “A Mechanism for Inducing Compressive Residual Stresses on a Surface by Laser Peening without Coating,” *Metals* **10**, 816 (12 pages) (2020). DOI: 10.3390/met10060816
- S. TOKITA, H. KOKAWA, S. KODAMA, Y. S. SATO, Y. SANO, Z. LI, K. FENG and Y. WU**, “Suppression of Intergranular Corrosion by Surface Grain Boundary Engineering of 304 Austenitic Stainless Steel Using Laser Peening Plus Annealing,” *Mater. Today Commun.* **25**, 101572 (7 pages) (2020). DOI: 10.1016/j.mtcomm.2020.101572