Theoretical and Computational Molecular Science

I. OHMINE and S. SAITO, "Dynamical Behavior of Water; Fluctuation, Reactions and Phase Transitions," *Bull. Chem. Soc. Jpn.* **94(11)**, 2575–2601 (2021). DOI: 10.1246/bcsj.20210269

M. EHARA, "Spectroscopic Properties (17.4.2)," in *Handbook of Chemistry (KAGAKUBINRAN), Fundamentals*, Chapter 17, Theoretical Chemistry, Computational Science, Information Science (2021). (in Japanese)

H. OKUMURA and S. G. ITOH, "Molecular Dynamics Simulation Studies on the Aggregation of Amyloid-β Peptides and Their Disaggregation by Ultrasonic Wave and Infrared Laser Irradiation," *Molecules* **27(8)**, 2483 (2022). DOI: 10.3390/molecules27082483
Y. TACHI, S. G. ITOH and H. OKUMURA, "Molecular Dynamics Simulations of Amyloid-β Peptides in Heterogeneous Environments," *Biophys. Physicobiol.* **19**, e190010 (2022). DOI: 10.2142/biophysico.bppb-v19.0010
S. TANIMOTO, S. G. ITOH and H. OKUMURA, "Molecular Dynamics Simulations of the Ligand Recognition by SARS-CoV-2 RNA-Dependent RNA Polymerase," *Journal of The Japan Society for Simulation Technology*, **41**, 83–94 (2022). (in Japanese)
S. TANIMOTO, S. G. ITOH and H. OKUMURA, "State-of-the-Art Molecular Dynamics Simulation Studies of RNA-Dependent RNA Polymerase of SARS-CoV-2," *Int. J. Mol. Sci.* **23(18)**, 10358 (2022). DOI: 10.3390/ijms231810358
S. G. ITOH and H. OKUMURA, "All-Atom Molecular Dynamics Simulation Methods for the Aggregation of Protein and Peptides: Replica Exchange/Permutation and Nonequilibrium Simulations," *Methods in Molecular Biology*, **2340**, 197–220 (2022). DOI: 10.1007/978-1-0716-1546-1_10

Y. YANASE, A. DAIDO, K. TAKASAN and T. YOSHIDA, "Topological d-Wave Superconductivity in Two Dimensions," *Phys. E (Amsterdam, Neth.)* **140**, 115143 (2022). DOI: 10.1016/j.physe.2022.115143

Materials Molecular Science

Y. TAKAGI and T. YOKOYAMA, "Catalytic Reaction Analysis of Polymer Electrolyte Fuel Cell Electrodes by Atmospheric Pressure Hard X-Ray Photoelectron Spectroscopy," *Housha-kou (Journal of the Japanese Society for Synchrotron Radiation Research)*, **35(3)**, 191–199 (2022). (in Japanese)
S. YAMAMOTO, Y. TAKAGI, T. KOITAYA, R. TOYOSHIMA, M. HORIO, I. MATSUDA, H. KONDOH, T. YOKOYAMA and J. YOSHINOBU, "Materials Science Research by Ambient Pressure X-Ray Photoelectron Spectroscopy Systems at Synchrotron Radiation Facilities in Japan: Applications in Energy, Catalysis, and Sensors," *Synchrotron Radiation News*, **35(3)**, 19–25 (2022). DOI: 10.1080/08940886.2022.2082168

T. SUGIMOTO, "New Development of Active Species Observation by Operand Spectroscopy," *LPM Lett.*, **25**, 16–19 (2021).
M. YAMAUCHI, H. SAITO, T. SUGIMOTO, S. MORI and S. SAITO, "Sustainable Organic Synthesis Promoted on Titanium Dioxide Using Coordinated Water and Renewable Energies/Resources," *Coord. Chem. Rev.* **472**, 214773 (2022). DOI: 10.1016/j.ccr.2022.214773

M. HIRAMOTO, "Research Life of One Scientist," *Molecular Electronics and Bioelectronics*, **32**, 180–187 (2021). [Commemorative publication of Achievement Award, Molecular Electronics & Bioelectronics division, Japan Society of Applied Physics] (in Japanese)

K. NISHIMURA and M. TANIO, "Functional and Structural Characterization of Membrane Binding Proteins," *Annual Reports in NMR Spectroscopy*, G. A. Webb, Ed., **105**, 47–131 (2021). DOI: 10.1016./bs.arnmr.2021.06.001

Life and Coordination-Complex Molecular Science

S. AONO, "CO Sensor Proteins," in *The Science of Heme Proteins—Towards Comprehension and Development of Their Physiological Functions*, Y. Shiro, A. Aono and M. Saito, Eds., NTS (2022). (in Japanese)
N. MURAKI and S. AONO, "Aldoxime Dehydratase," in *The Science of Heme Proteins—Towards Comprehension and Development of Their Physiological Functions*, Y. Shiro, A. Aono and M. Saito, Eds., NTS (2022). (in Japanese)
S. AONO, "O_2 Sensor Proteins," in *The Science of Heme Proteins—Towards Comprehension and Development of Their Physiological Functions*, Y. Shiro, A. Aono and M. Saito, Eds., NTS (2022). (in Japanese)

H. YAGI and K. KATO, "Discovery and Application of a Peptide Sequence that Enhances the Efficiency of Glycoprotein Transport from the Endoplasmic Reticulum to the Golgi Apparatus," *Bioscience & industry*, **79**, 472–476 (2021). (in Japanese)
K. KATO, T. YAMAGUCHI and M. YAGI-UTSUMI, "Experimental and Computational Characterization of Dynamic Biomolecular Interaction Systems Involving Glycolipid Glycans," *Glycoconjugate J.* **39(2)**, 219–228 (2022). DOI: 10.1007/s10719-022-10056-w
K. KUWAJIMA, M. YAGI-UTSUMI, S. YANAKA and K. KATO, "DMSO-Quenched H/D-Exchange 2D NMR Spectroscopy and Its Applications in Protein Science," *Molecules* **27(12)**, 3748 (2022). DOI: 10.3390/molecules27123748
M. YAGI-UTSUMI and K. KATO, "Conformational Variability of Amyloid-β and the Morphological Diversity of Its Aggregates," *Molecules* **27(15)**, 4787 (2022). DOI: 10.3390/molecules27154787
K. KATO, H. YAGI and S. YANAKA, "Four-Dimensional Structures and Molecular Designs of Glycans," *Trends Glycosci. Glycotech.* **34**, E85–E90 (2022). DOI: 10.4052/tigg.2042.1E

R. D. CUMMINGS, M. E. ETZLER, T. N. C. RAMYA, K. KATO, G. A. RABINOVICH and A. SUROLIA, *Essentials of Glycobiology—Chapter 32 L-Type Lectins*, Cold Spring Harbor Laboratory Press (2022).

K. KINBARA, R. IINO, M. TAKEUCHI and Y. MEDA, "Working Molecular Machines: Toward Energy Conversion in the Nano World," *Gendai Kagaku (CHEMISTRY TODAY),* **No. 612(3)**, pp. 46–50 (2022). (in Japanese)
K. FUJIMOTO, R. IINO and R. YOKOKAWA, "Linear-Zero Mode Waveguides for Single-Molecule Fluorescence Observation of Nucleotides in Kinesin-Microtubule Motility Assay," *Methods in Molecular Biology*, **2430**, 121–131 (2022). DOI: 10.1007/978-1-0716-1983-4_8

R. MATSUOKA, A. MIZUNO, T. MIBU and T. KUSAMOTO, "Luminescence of Doublet Molecular Systems," *Coord. Chem. Rev.* **467**, 214616 (2022). DOI: 10.1016/j.ccr.2022.214616

Research Center of Integrative Molecular Systems

R. KOGA, T. KOSUGI and N. KOGA, "The Era of Designing Proteins Completely from Scratch," *Experimental Medicine*, **40(12)**, 228–236 (2022). (in Japanese)

H. KURAMOCHI, S. TAKEUCHI, M. IWAMURA and T. TAHARA "Tracking Photoinduced Bond Formation Dynamics by Femtosecond Time-Resolved Impulsive Stimulated Raman Spectroscopy," *KOGAKU (Japanese Journal of Optics)*, **51(1)**, 8–14 (2022). (in Japanese)

Y. KAWASUGI and H. M. YAMAMOTO, "Simultaneous Control of Bandfilling and Bandwidth in Electric Double-Layer Transistor Based on Organic Mott Insulator κ-(BEDT-TTF)$_2$Cu[N(CN)$_2$]Cl," *Crystals* **12(1)**, 42 (2022). DOI: 10.3390/cryst12010042

Center for Mesoscopic Sciences

Y. CHEN, W. DU, Q. ZHANG, O. ÁVALOS-OVANDO, J. WU, Q.-H. XU, N. LIU, H. OKAMOTO, A. O. GOVOROV, Q. XIONG and C.-W. QIU, "Multidimensional Nanoscopic Chiroptics," *Nat. Rev. Phys.* **4(2)**, 113–124 (2022). DOI: 10.1038/s42254-021-00391-6
H. OKAMOTO, "Optical Manipulation with Nanoscale Chiral Fields and Related Photochemical Phenomena," *J. Photochem. Photobiol., C* **52**, 100531 (2022). DOI: 10.1016/j.jphotochemrev.2022.100531
O. ÁVALOS-OVANDO, E. Y. SANTIAGO, A. MOVSESYAN, X.-T. KONG, P. YU, L. V. BESTEIRO, L. K. KHORASHAD, H. OKAMOTO, J. M. SLOCIK, M. A. CORREA-DUARTE, M. COMESAÑA-HERMO, T. LIEDL, Z. WANG, G. MARKOVICH, S. BURGER and A. O. GOVOROV, "Chiral Bioinspired Plasmonics: A Paradigm Shift for Optical Activity and Photochemistry," *ACS Photonics* **9(7)**, 2219–2236 (2022). DOI: 10.1021/acsphotonics.2c00445

Division of Advanced Molecular Science

Y. DOMOTO and M. FUJITA, "Self-Assembly of Nanostructures with High Complexity Based on Metal···Unsaturated-Bond Coordination," *Coord. Chem. Rev.* **466**, 214605 (2022). DOI: 10.1016/j.ccr.2022.214605
N. ZIGON, V. DUPLAN, N. WADA and M. FUJITA, "Crystalline Sponge Method: X-Ray Structure Analysis of Small Molecules by Post-Orientation within Porous Crystals—Principle and Proof-of-Concept Studies," *Angew. Chem., Int. Ed.* **60(48)**, 25204–25222 (2021). DOI: 10.1002/anie.202106265
H. TAKEZAWA and M. FUJITA, "Molecular Confinement Effects by Self-Assembled Coordination Cages," *Bull. Chem. Soc. Jpn.* **94(10)**, 2351–2369 (2021). DOI: 10.1246/bcsj.20210273
T. SAWADA and M. FUJITA, "Orderly Entangled Nanostructures of Metal–Peptide Strands," *Bull. Chem. Soc. Jpn.* **94(10)**, 2342–2350 (2021). DOI: 10.1246/bcsj.20210218

Division of Research Innovation and Collaboration

H. OHBA I. WAKAIADA and T. TAIRA, "Remote Laser Analysis Technique for Decommissioning of Nuclear Power Station," *J. Inst. Electr. Eng. Jpn.*, **142**, 77–80 (2022). DOI: 10.1541/ieejjournal.142.77 (in Japanese)
T. TAIRA, "Fundamental Study on Laser Induced Breakdown Plasma and Engine Ignition," *Journal of the Combustion Society of Japan*, **64(207)**, 58–64 (2022). DOI: 10.20619/jcombsj.64.207_58 (in Japanese)
T. TAIRA, "Lasers for Electron Acceleration Based on Micro Solid-State Photonic," *Rev. Laser Eng.* **50(7)**, 382–387 (2022).