

客員研究部門及び退職・転出後等の成果論文
(所属に分子科学研究所を含む)

- S. A. SHAH, H. VALI, DAIJIRO OKAUE, K.-I. FUKUI, D.-S. YANG and S. BALDELLI**, “Surface Structure Characterization of Rubrene(001) Single Crystal with Sum Frequency Generation Spectroscopy and Reflection High-Energy Electron Diffraction,” *J. Chem. Phys.* **162**(1), 014701 (2025). DOI: 10.1063/5.0236513
- T. TSUCHIMOCHI**, “Double Configuration Interaction Singles: Scalable and Size-Intensive Approach for Orbital Relaxation in Excited States and Bond-Dissociation,” *J. Chem. Phys.* **161**(24), 241102 (2024). DOI: 10.1063/5.0243710
- M. KIRA, Y. SHIGA, K. NAKAGAWA, A. MATSUMOTO, K. TOKITA, Y. TERASAWA, K. ZHANG, K. TSUTAO, T. NAKANISHI, S. YOSHIDA, S. SATO, N. SHIBATA and T. ASAHI**, “Chiral Inversion of Thalidomide During Crystal Growth by Sublimation,” *Cryst. Growth Des.* **24**(8), 3133–3139 (2024). DOI: 10.1021/acs.cgd.3c01030
- N. KOGA, Y. SAITO, K. MIYAKE, S. AMUTI, S. FUKUYOSHI, S. YOSHIDA, S. SATO, Y. YAMADA, A. IKEDA, N. ADACHI, M. KAWASAKI, A. TAKASU, S. ARAMAKI, T. SENDA, A. RAHIM, A. NAJIB, G. ALAM, N. TANAKA and K. NAKAGAWA-GOTO**, “Cyclic Sesquiterpene–Flavanone [4+2] Hybrids, Syzygioblanes A–C, Found in an Indonesian Traditional Medicine, ‘Jampu Salo’ (*Syzygium ob lanceolatum*)”, *Org. Lett.* **26**(20), 4302–4307 (2024). DOI: 10.1021/acs.orglett.4c01248
- X. ZHANG, H. HE, C. GE, Q. XIANG, S. SATO, M. LV, X. CHEN and Z. SUN**, “Crystallization-Induced Dimerization and Solution-Phase Bond Dissociation of Stable Dibenzoolympicenyl Radicals,” *Angew. Chem., Int. Ed.* **64**(6), e202418261 (2025). DOI: 10.1002/anie.202418261
- K. LI, S. YOSHIDA, R. YAKUSHIJI, X. LIU, C. GE, Z. XU, Y. NI, X. MA, J. WU, S. SATO and Z. SUN**, “Molecular Cylinders with Donor–Acceptor Structure and Swinging Motion,” *Chem. Sci.* **15**, 18832–18839 (2024). DOI: 10.1039/d4sc05849f
- Z. ZHOU, Y. YANG, J. LIANG, S. SATO, Z. ZHANG and Z. WEI**, “Stepwise Chemical Reduction of [4]Cyclo[4]helicenylene: Stereo Transformation and Site-Selective Metal Complexation,” *Precis. Chem.* **3**(1), 27–34 (2025). DOI: 10.1021/prechem.4c00064
- A. KANNO, R. TANIFUJI, S. YOSHIDA, S. SATO, S. MAKI-YONEKURA, K. TAKABA, J. KANG, K. TONO, K. YONEKURA and H. OGURI**, “Streamlined Modular Synthesis of Saframycin Substructure via Copper-Catalyzed Three-Component Assembly and Gold-Promoted 6-*endo* Cyclization,” *Beilstein J. Org. Chem.* **21**, 226–233 (2025). DOI: 10.3762/bjoc.21.14
- G. TAKEKAWA, Y. NAKASON, Y. KAMIYA, H. ASANUMA and M. TERAZIMA**, “Reaction and Interaction Dynamics of Azobenzene-Tethered DNA with T7 RNA Polymerase,” *Phys. Chem. Chem. Phys.* **27**(6), 3302–3312 (2025). DOI: 10.1039/d4cp04080e
- A. MIZUNO, R. MATSUOKA, S. KIMURA, K. OCHIAI and T. KUSAMOTO**, “Spin-Correlated Luminescence of a Carbazole-Containing Diradical Emitter: Single-Molecule Magnetoluminescence and Thermally Activated Emission,” *J. Am. Chem. Soc.* **146**(27), 18470–18483 (2024). DOI: 10.1021/jacs.4c03972
- K. SONODA, S. SHIMOKAWA, S. SUZUKI, T. KUSAMOTO and A. UEDA**, “Boron-Bridged Bis(tetrathiafulvalene) Zwitterionic Neutral Radical Conductors: Substituent Effects on Intramolecular and Intermolecular Electronic Interactions and Physical Properties,” *Bull. Chem. Soc. Jpn.* **97**(10), uoaе107 (2024). DOI: 10.1093/bulcsj/uoaе107
- H. IZU, M. KONDO, M. OKAMURA, M. TOMODA, S. K. LEE, T. AKAI, V. K. K. PRANEETH, M. KANAIKE, S. KAWATA and S. MASAOKA**, “Precise Manipulation of Electron Transfers in Clustered Five Redox Sites,” *Angew. Chem., Int. Ed.* **63**(47), e202408514 (2024). DOI: 10.1002/anie.202408514
- R. M. STROUD, J. BAROSCH, L. BONAL, K. BURGESS, G. D. CODY, B. T. DE GREGORIO, L. DALY, E. DARCOIS, E. DOBRICĂ, J. DUPRAT, C. ENGRAND, D. HARRIES, M. HASHIGUCHI, H. ISHII, Y. KEBUKAWA, A. D. KILCOYNE,**

F. LANGENHORST, M. R. LEE, L. R. NITTLER, E. QUIRICO, T. OKUMURA, L. REMUSAT, S. SANDFORD, H. YABUTA, M. ABE, N. M. ABREU, P. A. J. BAGOT, P. BECK, L. BEJACH, P. A. BLAND, J. C. BRIDGES, B. A. CYMES, A. DAZZI, F. DE LA PEÑA, A. DENISSET-BESSEAU, S. ENJU, Y. ENOKIDO, D. R. FRANK, J. GRAY, M. HARUTA, S. HATA, L. HICKS, Y. IGAMI, D. JACOB, K. KAMIDE, M. KOMATSU, S. LAFORET, H. LEROUX, C. LE GUILLOU, Z. MARTINS, M. MARINOVA, J. MARTINEZ, J. MATHURIN, M. MATSUMOTO, T. MATSUMOTO, J. MATSUNO, S. MCFADZEAN, T. MICHIKAMI, I. MITSUKAWA, A. MIYAKE, M. MIYAHARA, A. MIYAZAKI, G. MONTAGNAC, S. MOSTEFAOUI, T. NAKAMURA, A. NAKATO, H. NARAOKA, Y. NAKAUCHI, S. NAKAZAWA, M. NISHIMURA, T. NOGUCHI, K. OHTAKI, T. OHIGASHI, T. OKADA, S. OKUMURA, R. OKAZAKI, T. H. V. PHAN, R. REBOIS, K. SAKAMOTO, T. SAIKI, H. SAITO, Y. SETO, M. SHIGENAKA, W. SMITH, H. SUGA, M. SUN, S. TACHIBANA, Y. TAKAHASHI, Y. TAKEICHI, A. TAKEUCHI, A. TAKIGAWA, Y. TAMENORI, S. TANAKA, F. TERUI, M. S. THOMPSON, N. TOMIOKA, A. TSUCHIYAMA, Y. TSUDA, K. UESUGI, M. UESUGI, T. USUI, M. VERDIER-PAOLETTI, D. WAKABAYASHI, S. WATANABE, T. YADA, S. YAMASHITA, M. YASUTAKE, K. YOGATA, M. YOSHIKAWA, H. YURIMOTO, P.-M. ZANETTA, T. ZEGA and M. E. ZOLENSKY, “Electron Microscopy Observations of the Diversity of Ryugu Organic Matter and Its Relationship to Minerals at the Micro- to Nano-Scale,” *Meteorit. Planet. Sci.* **59**(8), 2023–2043 (2024). DOI: 10.1111/maps.14128

J. MATHURIN, L. BEJACH, E. DARDOIS, C. ENGRAND, A. DAZZI, A. DENISSET-BESSEAU, J. DUPRAT, Y. KEBUKAWA, H. YABUTA, L. BONAL, E. QUIRICO, C. SANDT, F. BORONDICS, J. BAROSCH, P. BECK, G. D. CODY, B. T. DE GREGORIO, M. HASHIGUCHI, D. A. L. KILCOYNE, M. KOMATSU, Z. MARTINS, M. MATSUMOTO, G. MONTAGNAC, S. MOSTEFAOUI, L. R. NITTLER, T. OHIGASHI, T. OKUMURA, V. T. H. PHAN, L. REMUSAT, S. SANDFORD, M. SHIGENAKA, R. STROUD, H. SUGA, Y. TAKAHASHI, Y. TAKEICHI, Y. TAMENORI, M. VERDIER-PAOLETTI, S. YAMASHITA, T. NAKAMURA, T. MORITA, M. KIKUIRI, K. AMANO, E. KAGAWA, T. NOGUCHI, H. NARAOKA, R. OKAZAKI, K. SAKAMOTO, H. YURIMOTO, M. ABE, K. KAMIDE, A. MIYAZAKI, A. NAKATO, S. NAKAZAWA, M. NISHIMURA, T. OKADA, T. SAIKI, S. TACHIBANA, S. TANAKA, F. TERUI, Y. TSUDA, T. USUI, S. WATANABE, T. YADA, K. YOGATA and M. YOSHIKAWA, “AFM-IR Nanospectroscopy of Nanoglobule-Like Particles in Ryugu Samples Returned by the Hayabusa2 Mission,” *Astron. Astrophys.* **684**, A198 (2024). DOI: 10.1051/0004-6361/202347435

N. IMAE, N. TOMIOKA, M. UESUGI, M. KIMURA, A. YAMAGUCHI, M. ITO, R. C. GREENWOOD, T. KAWAI, N. SHIRAI, T. OHIGASHI, C. PILORGET, J.-P. BIBRING, M.-C. LIU, K. UESUGI, A. NAKATO, K. YOGATA, H. YUZAWA, Y. KODAMA, M. YASUTAKE, K. HIRAHARA, A. TAKEUCHI, I. SAKURAI, I. OKADA, Y. KAROUJI, T. YADA, M. ABE and T. USUI, “Mineralogical Approach on Laboratory Weathering of Uncontaminated Ryugu Particles: Comparison with Orgueil and Perspective for Storage and Analysis,” *Meteorit. Planet. Sci.* **59**(7), 1705–1722 (2024). DOI: 10.1111/maps.14178

M. KOMATSU, H. YABUTA, Y. KEBUKAWA, L. BONAL, E. QUIRICO, T. J. FAGAN, G. D. CODY, J. BAROSCH, L. BEJACH, E. DARDOIS, A. DAZZI, B. DE GREGORIO, A. DENISSET-BESSEAU, J. DUPRAT, C. ENGRAND, M. HASHIGUCHI, Z. MARTINS, J. MATHURIN, G. MONTAGNAC, S. MOSTEFAOUI, L. R. NITTLER, T. OHIGASHI, T. OKUMURA, L. RÉMUSAT, S. SANDFORD, R. STROUD, H. SUGA, Y. TAKAHASHI, Y. TAKEICHI, Y. TAMENORI, M. VERDIER-PAOLETTI, S. YAMASHITA, H. YURIMOTO, T. NAKAMURA, T. NOGUCHI, R. OKAZAKI, H. NARAOKA, K. SAKAMOTO, M. YOSHIKAWA, T. SAIKI, S. TANAKA, F. TERUI, S. NAKAZAWA, T. USUI, M. ABE, T. OKADA, T. YADA, M. NISHIMURA, A. NAKATO, A. MIYAZAKI, K. YOGATA, S. TACHIBANA, S. WATANABE and Y. TSUDA, “Raman Spectroscopy of Ryugu Particles and Their Extracted Residues: Fluorescence Background Characteristics and Similarities to CI Chondrites,” *Meteorit. Planet. Sci.* **59**(8), 2166–2185 (2024). DOI: 10.1111/maps.14234

- A. B. VERCHOVSKY, F. A. J. ABERNETHY, M. ANAND, I. A. FRANCHI, M. M. GRADY, R. C. GREENWOOD, S. J. BARBER, M. SUTTLE, M. ITO, N. TOMIOKA, M. UESUGI, A. YAMAGUCHI, M. KIMURA, N. IMAE, N. SHIRAI, T. OHIGASHI, M.-C. LIU, K. UESUGI, A. NAKATO, K. YOGATA, H. YUZAWA, Y. KAROUJI, S. NAKAZAWA, T. OKADA, T. SAIKI, S. TANAKA, F. TERUI, M. YOSHIKAWA, A. MIYAZAKI, M. NISHIMURA, T. YADA, M. ABE, T. USUI, S. WATANABE, Y. TSUDA, N. MATSUDA, K. MCCAIN, T. LE PIVERT-JOLIVET, L. RIU, J. CARTER, D. LOIZEAU, J.-P. BEBRING, C. PILORGET, X. ZHAO, J. A. MALLEY, R. FINDLAY, I. OKADO, I. SAKURAI, K. HIRAHARA and N. SHIRAI**, “A Primordial Noble Gas Component Discovered in the Ryugu Asteroid and Its Implications,” *Nat. Commun.* **15**(1), 8075 (2024). DOI: 10.1038/s41467-024-52165-0
- C. PILORGET, D. BAKLOUTI, J.-P. BIBRING, R. BRUNETTO, M. ITO, I. FRANCHI, N. TOMIOKA, M. UESUGI, A. YAMAGUCHI, R. GREENWOOD, T. OKADA, T. USUI, T. YADA, K. HATAKEDA, K. YOGATA, D. LOIZEAU, T. LE PIVERT-JOLIVET, T. JIANG, J. CARTER, V. HAMM, M. ABE, A. ALÉON-TOPPANI, F. BORONDICS, Y. ENOKIDO, Y. HITOMI, N. IMAE, Y. KAROUJI, K. KUMAGAI, M. KIMURA, Y. LANGEVIN, C. LANTZ, M.-C. LIU, M. MAHLKE, A. MIYAZAKI, Z. MUGHAL, K. NAGASHIMA, A. NAKANO, A. NAKATA, A. NAKATO, M. NISHIMURA, T. OHIGASHI, T. OJIMA, F. POULET, L. RIU, N. SHIRAI, Y. SUGIYAMA, R. TAHARA, K. UESUGI, M. YASUTAKE, H. YUZAWA, A. MOUSSI-SOFFYS, S. NAKAZAWA, T. SAIKI, F. TERUI, M. YOSHIKAWA, S. TANAKA, S. WATANABE and Y. TSUDA**, “Phosphorus-Rich Grains in Ryugu Samples with Major Biochemical Potential,” *Nat. Astron.* **8**, 1529–1535 (2024). DOI: 10.1038/s41550-024-02366-w
- T. OHKOCHI, R. TAKAHASHI, H. FUJIWARA, H. TAKAHASHI, R. ADAM, U. PARLAK, K. YAMAMOTO, H. OSAWA, M. KOTSUGI, A. TSUKAMOTO, H. WADATI, A. SEKIYAMA, C. M. SCHNEIDER, M. TSUNODA, S. SUGA and T. KINOSHITA**, “Investigation of Deterministic and Cumulative Nature in Helicity-Dependent Optical Switching of Ferrimagnetic Gd-Fe-Co Films,” *J. Magn. Magn. Mater.* **593**, 171854 (2024). DOI: 10.1016/j.jmmm.2024.171854
- K. YAMAGAMI, H. UEDA, U. STAUB, Y. ZHANG, K. YAMAMOTO, S. H. PARK, S. KWON, A. MITSUDA, H. WADA, T. UOZUMI, K. MIMURA and H. WADATI**, “4/Electron Temperature Driven Ultrafast Electron Localization,” *Phys. Rev. Res.* **6**(2), 023099 (2024). DOI: 10.1103/PhysRevResearch.6.023099
- P. MENCZEL, K. FUNO, M. CIRIO, N. LAMBERT and F. NORI**, “Non-Hermitian Pseudomodes for Strongly Coupled Open Quantum Systems: Unravelings, Correlations, and Thermodynamics,” *Phys. Rev. Res.* **6**(3), 033237 (2024). DOI: 10.1103/PhysRevResearch.6.033237
- Y. C. HATASAKI, R. KOBAYASHI, R. R. WATANABE, M. HARA, H. UENO and H. NOJI**, “Engineering of IF₁-Susceptive Bacterial F₁-ATPase,” *Protein Sci.* **33**(4), e4942 (2024). DOI: 10.1002/pro.4942
- G. BORNET, G. EMPERAUGER, C. CHEN, F. MACHADO, S. CHERN, L. LECLERC, B. GÉLY, Y. T. CHEW, D. BARREDO, T. LAHAYE, N. Y. YAO and A. BROWAEYS**, “Enhancing a Many-Body Dipolar Rydberg Tweezer Array with Arbitrary Local Controls,” *Phys. Rev. Lett.* **132**(26), 263601 (2024). DOI: 10.1103/PhysRevLett.132.263601
- H. AKUTSU, M. URUICHI, S. IMAJO, K. KINDO, T. MASUTA, H. MANABE, Y. NAKAZAWA and S. S. TURNER**, “Suppression of a Structural Phase Transition by an Orientational Disorder of Counteranions in an Organic Conductor, $\beta''-\beta''-(BEDT-TTF)_2ClC_2H_4SO_3$,” *Inorg. Chem.* **63**(36), 16872–16877 (2024). DOI: 10.1021/acs.inorgchem.4c02735
- H. ABE, S. MARUYAMA, H. KISHIMURA, M. URUICHI, D. OKUYAMA and H. SAGAYAMA**, “Multiphase Coexistence in an Ionic Liquid: 1-Decyl-3-methylimidazolium Nitrate,” *J. Phys. Chem. Lett.* **15**(42), 10668–10676 (2024). DOI: 10.1021/acs.jpclett.4c02716

- T. YAMAMOTO, Y. NAKAMURA, T. NAITO, K. KONISHI, M. URUICHI, K. MATSUSHITA and Y. NAKAZAWA**, “Diverse Charge Distributions in the Triangular Lattice Superconductor κ -(ET)₂Cu[N(CN)₂]I: Infrared and Raman Spectroscopic Insights,” *J. Phys. Soc. Jpn.* **93**(12), 124701 (10 pages) (2024). DOI: 10.7566/JPSJ.93.124701
- T. YAMAMOTO, T. FUJIMOTO, Y. NAKAZAWA, M. TAMURA, M. URUICHI, Y. IKEMOTO, T. MORIWAKI, H. CUI and R. KATO**, “Charge and Valence Bond Orders in the Spin-12 Triangular Antiferromagnet,” *Phys. Rev. B* **110**(20), 205126 (2024). DOI: 10.1103/PhysRevB.110.205126
- F. HIRATA**, “Entropy Associated with Conformational and Solvent-Density Fluctuations in Biomolecular Solutions,” *J. Mol. Liq.* **409**, 125359 (2024). DOI: 10.1016/j.molliq.2024.125359
- S. HAYAMI, R. YAMBE and H. KUSUNOSE**, “Analysis of Photo-Induced Chirality and Magnetic Toroidal Moment Based on Floquet Formalism,” *J. Phys. Soc. Jpn.* **93**(4), 043702 (4 pages) (2024). DOI: 10.7566/JPSJ.93.043702
- H. KUSUNOSE and J. KIKUCHI**, “Configuration Determination for Chiral and Polar Crystals by Anisotropic NMR Shift,” *J. Phys. Soc. Jpn.* **93**(7), 074701 (11 pages) (2024). DOI: 10.7566/JPSJ.93.074701
- S. HAYAMI and H. KUSUNOSE**, “Unified Description of Electronic Orderings and Cross Correlations by Complete Multipole Representation,” *J. Phys. Soc. Jpn.* **93**(7), 072001 (37 pages) (2024). DOI: 10.7566/JPSJ.93.072001
- L. LIAO, F. CHEN, J. PUEBLA, J. KISHINE, K. KONDOW, W. LUO, D. ZHAO, Y. ZHANG, Y. BA and Y. OTANI**, “Nonreciprocal Magnetoacoustic Waves with Out-of-Plane Phononic Angular Momenta,” *Sci. Adv.* **10**(28), eado2504 (2024). DOI: 10.1126/sciadv.ado2504
- A. A. TERESHCHENKO, VL. E. SINITSYN, I. G. BOSTREM, P. V. PRUDNIKOV, A. S. OVCHINNIKOV and J. KISHINE**, “Emergent Elasticity and Wavelike to Particle-Like Crossover in a Magnetic Chiral Soliton Lattice,” *Phys. Rev. B* **110**(14), 144426 (2024). DOI: 10.1103/PhysRevB.110.144426
- S. SUMITA, A. TANAKA and Y. KATO**, “Anisotropy-Induced Spin Parity Effects,” *Phys. Rev. B* **110**(10), L100403 (2024). DOI: 10.1103/PhysRevB.110.L100403
- A. DUTTA, C. TZSCHASCHEL, D. PRIYADARSHI, K. MIKUNI, T. SATOH, R. MONDAL and S. PAL**, “Evidence of Relativistic Field-Derivative Torque in Nonlinear THz Response of Magnetization Dynamics,” *Adv. Funct. Mater.* **35**(7), 2414582 (2025). DOI: 10.1002/adfm.202414582
- H. DAIMON and S. MATSUSHIMA**, “Cubic Coil System Composed of Three Sets of Cubic Triple Coils to Produce Wide Area 0.66% Uniform Magnetic Field in Any Direction,” *Rev. Sci. Instrum.* **95**(7), 074704 (2024). DOI: 10.1063/5.0185643