

Peer-Reviewed Papers

(1) Local Structure in Functional Solids,

S. Shamoto, J. Phys. Soc. Jpn. 88, 081008 (2019) [Review Paper].

(2) Probing the quantum phase transition in Mott insulator BaCoS₂ tuned by pressure and Ni-substitution, Z. Guguchia, B.A. Frandsen, D. Santos-Cottin, S.C. Cheung, Z. Gong, Q. Sheng, K. Yamakawa, A.M. Hallas, M.N. Wilson, Y. Cai, J. Beare, R. Khasanov, R. De Renzi, R. De Renzi, G. Luke, S. Shamoto, A. Gauzzi, K. Yannick, and Y.J. Uemura, Phys. Rev. Materials 3, 045001 (2019).

(3) Q-dependence of magnetic resonance mode on FeTe_{0.5}Se_{0.5} studied by inelastic neutron scattering, Motoyuki Ishikado, Katsuaki Kodama, Ryoichi Kajimoto, Mitsutaka Nakamura, Yasuhiro Inamura, Kazuhiro Ikeuchi, Sungdae Ji, Masatoshi Arai, and Shin-ichi Shamoto, Condens. Matter 2019, 4(3), 69. (Special Issue "Selected Papers from Quantum Complex Matter 2018") (Corresponding author)

(4) Spectroscopic determination of interconversion rates among three nuclear spin isomers of methane in crystalline II,

Takeru Sugimoto, Hirokazu Nasu, Ichiro Arakawa, and Koichiro Yamakawa, J. Chem. Phys. 150 (2019) 184302.

(5) Excitation of infrared-inactive vibrational modes in a polyatomic molecule through hot band transitions, Koichiro Yamakawa, Eur. Phys. J. D 73 (2019) 49.

(6) Negative muon capture ratios for nitrogen oxide molecules,

K. Ninomiya, T. U. Ito, W. Higemoto, N. Kawamura, P. Strasser, T. Nagatomo, K. Shimomura, Y. Miyake, M. Kita, A. Shinohara, K. M. Kubo, and T. Miura, J. Radioanal. Nucl. Chem. 319 (2019) 767-773.

(7) System for coincidence measurements of the ions desorbed and projectiles scattered from noble gas solid surfaces by slow multiply charged ion impacts,

Hiroyoshi Sawa, Shuntaro Uchida, Hirokazu Ueta and Takato Hirayama, X-Ray Spectrometry, (2019) 1-5.

(8) New ion desorption mechanism from rare gas solids by multiply charged ion impacts,

Keisuke Ban, Masaki Akiwa, Hirokazu Ueta, Takayuki Tachibana and Takato Hirayama, Low Temperature Physics, 45 (2019) 727.

(9) Visualization of subnanometric local phonon modes in a plasmonic nanocavity via tip-enhanced Raman spectroscopy in ambient

M. V. Balois, N. Hayazawa, S. Yasuda, K. Ikeda, B. Yang, E. Kazuma, Y. Yokota, Y. Kim, T. Tanaka, NPJ 2D Materials and Applications. Accepted [Review Paper].

(10) Asymmetrically optimized structure in a high- T_c single unit-cell FeSe superconductor,

Y. Fukaya, G. Zhou, F. Zheng, P. Zhang, L. Wang, Q.-K. Xue, and S. Shamoto, J. Phys.: Condens. Matter 31 (2019) 055701.

(11) Total-reflection high-energy positron diffraction (TRHEPD) for structure determination of the topmost and immediate sub-surface atomic layer,

Y. Fukaya, A. Kawasuso, A. Ichimiya, and T. Hyodo, J. Phys. D: Appl. Phys. 52 (2019) 013002 [Review Paper].

(12) Effect of hydrogen on chemical vapor deposition growth of graphene on Au substrates,

Tomo-o Terasawa, Takanobu Taira, Satoshi Yasuda, Seiji Obata, Koichiro Saiki, and Hidehito Asaoka, Jpn. J. Appl. Phys. 58 (2019) SIIB17.

(13) Longitudinal strain of epitaxial graphene monolayers on SiC substrates evaluated by z-polarization Raman microscopy, Yuika Saito, Kenshiro Tokiwa, Takahiro Kondo, Jianfeng Bao, Tomo-o Terasawa, Wataru Norimatsu, and Michiko Kusunoki, AIP Advances 9 (2019) 065314.

(14) “Characterization and optimization of ultra slow muon beam at J-PARC/MUSE: A simulation study” A.D. Pant, T. Adachi, P. Strasser, Y. Ikeda, Y. Oishi, J. Nakamura, W. Higemoto, K. Shimomura, R. Kadono, Y. Miyake, E. Torikai, Nucl. Inst. Meth. In Phys, Res. A 929, 129(2019).

(15) “Initial quantum levels of captured muons in CO, CO₂, and COS” Go Yoshida, Kazuhiko Ninomiya, Makoto Inagaki, Wataru Higemoto, Patrick Strasser, Naritoshi Kawamura, Koichiro Shimomura, Yasuhiro Miyake, Taichi Miura, Kenya M. Kubo, Atsushi Shinohara J Radioanal Nucl Chem 320(2), 283 (2019)

(16) “Fabrication of nm-thick palladium hydride and observation of its relaxation”, T. Ozawa, R. Shimizu, S. Ogura, T. Hitosugi, K. Fukutani, J. Vac. Surf. Sci. 62, 492 (2019).

(17) “Changes of RHEED intensity with hydrogen position on metal surface”, T. Kawamura, K. Fukutani, Surf. Sci. 688 (2019) 7.

(18) “Hydrogen distribution and electronic structure of TiO₂(110) hydrogenated with low-energy hydrogen ion”,

Y. Ohashi, N. Nagatsuka, S. Ogura, K. Fukutani, J. Phys. Chem. C 123 (2019) 10319.

(19) “Electronic and spin states modulation on Fe₃O₄(111) surfaces”

K. Asakawa, Y. Miura, N. Nagatsuka, K. Takeyasu, M. Matsumoto, K. Fukutani, Phys. Rev. B 99, 085442 (2019).

(20) Controllably boron-doped epitaxial graphene grown by thermal decomposition of a B₄C thin film, Wataru Norimatsu, Keita Matsuda, Tomo-o Terasawa, Nao Takata, Atsushi Masumori, Keita Ito, Koji Oda, Takahiro Ito, Akira Endo, Ryoji Funahashi, Michiko Kusunoki, Nanotechnology, accepted.

(21) Polaronic nature of a muonium-related paramagnetic center in SrTiO₃

T. U. Ito, W. Higemoto, A. Koda, and K. Shimomura, Appl. Phys. Lett. 115 (2019) 192103.

(22) Visualization of subnanometric local phonon modes in a plasmonic nanocavity via tip-enhanced Raman spectroscopy in ambient

M. V. Balois, N. Hayazawa, S. Yasuda, K. Ikeda, B. Yang, E. Kazuma, Y. Yokota, Y. Kim, T. Tanaka, NPJ 2D Materials and Applications. 3, 38 (2019) [Review Paper]

(23) Nuclear spin conversion of H₂, H₂O, and CH₄ interacting with diamagnetic insulators,

Koichiro Yamakawa and Katsuyuki Fukutani, J. Phys. Soc. Jpn. (accepted). [Review Paper]

(24) Structural of superconducting Ca-intercalated bilayer Graphene/SiC studied using total-reflection high-energy positron diffraction,

Y. Endo, Y. Fukaya, I. Mochizuki, A. Takayama, T. Hyodo, and S. Hasegawa, Carbon 157 (2019) 857.

(25) Negatively charged muonium and related centers in solids, Takashi U. Ito, Wataru Higemoto, Koichiro Shimomura, J. Phys. Soc. Jpn., accepted. [invited review]

- (26) High-temperature short-range order in Mn₃RhSi, Hiroki Yamauchi, Dita Puspita Sari, Isao Watanabe, Yukio Yasui, Lieh-Jeng Chang, Keietsu Kondo, Takashi U. Ito, Motoyuki Ishikado, Masato Hagihara, Matthias D. Frontzek, Songxue Chi, Jaime A. Fernandez-Baca, James S. Lord, Adam Berlie, Atsuhiko Kotani, Shigeo Mori & Shin-ichi Shamoto, Communications Materials 1, 43 (2020).
- (27) Ultralow-energy magnon anomaly in yttrium iron garnet, Shin-ichi Shamoto, Yukio Yasui, Masato Matsuura, Mitsuhiro Akatsu, Yoshiaki Kobayashi, Yuichi Nemoto, and Jun'ichi Ieda Phys. Rev. Research 2, 033235 (2020).
- (28) Electronic structure of a (3×3)-ordered silicon layer on Al(111), Y. Sato, Y. Fukaya, M. Cameau, A. K. Kundu, D. Shiga, R. Yukawa, K. Horiba, C.-H. Chen, A. Huang, H.-T. Jeng, T. Ozaki, H. Kumigashira, M. Niibe, and I. Matsuda, Phys. Rev. Mater. 4 (2020) 064005.
- (29) Confinement of Hydrogen Molecules at Graphene–Metal Interface by Electrochemical Hydrogen Evolution Reaction Satoshi Yasuda, Kazuhisa Tamura, Tomo-o Terasawa, Masahiro Yano, Hideaki Nakajima, Takahiro Morimoto, Toshiya Okazaki, Ryuushi Agari, Yasufumi Takahashi, Masaru Kato, Ichizo Yagi, and Hidehito Asaoka, J. Phys. Chem. C 124, 5300–5307 (2020).
- (30) Fast nuclear-spin conversion of H₂ trapped in CO₂ matrix, Koichiro Yamakawa, Atsuki Ishibashi, Toshinobu Namiyoshi, Yuichi Azuma, and Ichiro Arakawa, Phys. Rev. B 102 (2020) 041401(R).
- (31) Terahertz and mid-infrared spectroscopy of matrix-isolated clusters and matrix-sublimation ice of D₂O, Koichiro Yamakawa, Hirokazu Nasu, Natsumi Suzuki, Genki Shimizu, and Ichiro Arakawa, J. Chem. Phys. 152 (2020) 174310.
- (32) Electronic Effects of Nitrogen Atoms of Supports on Pt–Ni Rhombic Dodecahedral Nanoframes for Oxygen Reduction, M. Kato, R. Nakahoshihara, K. Ogura, S. Tokuda, S. Yasuda, K. Higashi, T. Uruga, Y. Uemura, I. Yagi, ACS Appl. Energy Mater. 3 (2020) 6768.
- (33) Structure of quasi-free-standing graphene on the SiC (0001) surface prepared by the rapid cooling method, Tatsuya Sumi, Kazuki Nagai, Jianfeng Bao, Tomo-o Terasawa, Wataru Norimatsu, Michiko Kusunoki, Yusuke Wakabayashi, Applied Physics Letters 117 (14), 143102 (2020).
- (34) Direct measurement of fast ortho-para conversion of molecularly chemisorbed H₂ on Pd(210) H. Ueta, Y. Sasakawa, D. Ivanov, S. Ohno, S. Ogura and K. Fukutani Phys. Rev. B, 102, 121407(R) (2020).
- (35) Emergence of nearly flat bands through a kagome lattice embedded in an epitaxial two-dimensional Ge layer with a bitriangular structure, A. Fleurence, C.-C. Lee, R. Friedlein, Y. Fukaya, S. Yoshimoto, K. Mukai, H. Yamane, N. Kosugi, J. Yoshinobu, T. Ozaki, and Y. Yamada-Takamura, Phys. Rev. B 102 (2020) 201102(R)

(36) Electronic structure of a (3×3)-ordered silicon layer on Al(111),
Y. Sato, Y. Fukaya, M. Cameau, A. K. Kundu, D. Shiga, R. Yukawa, K. Horiba, C.-H. Chen, A. Huang,
H.-T. Jeng, T. Ozaki, H. Kumigashira, M. Niibe, and I. Matsuda, Phys. Rev. Mater. 4 (2020) 064005.

Invited Talks at International Conferences

None

Books and Scientific Articles

- (1) 凝縮系での分子の振動回転および核スピン転換に関する理論・分光研究,
山川絢一郎, しょうとつ (in press) [Invited Paper].
- (2) その場テラヘルツ・赤外吸収分光装置の開発,
山川絢一郎, 那須裕一, 清水元希, 分光研究 69 (2020) 105 [Invited Paper].
- (3) “第 I 編 第 2 章 第 3 節 二次元結晶シート/基板の界面構造解析技術”, ポストグラフェン材料
の創製と用途開発最前線, 柚原淳司監修(エヌ・ティー・エス, 東京, 2020), p. 81-89.
深谷有喜(分担執筆)

Patents

None

Awards

- (1) 2020 年度熊谷記念真空科学論文賞(授与機関:日本表面真空学会)
<対象論文> 超高真空テラヘルツ分光装置の開発:真空蒸着 D2O 氷のスペクトルの温度依存性,
清水元希, 鈴木菜摘, 那須裕一, 坪井嶺, 倉橋裕之, 荒川一郎, 山川絢一郎*, 表面と真空 61
(2018) 236 [*Corresponding Author]

Press Release

- (1) 伝導電子スピンの奇妙な「短距離秩序」を世界最高温度で発見
—新物質 Mn₃RhSi で新しい金属状態が実現—
社本真一 2020 年 7 月 22 日