

Peer-Reviewed Papers

- (1) Supercritical hydrothermal synthesis of UO_{2+x} : stoichiometry, crystal shape and size, and homogeneity observed using ^{23}Na -NMR spectroscopy of $(\text{U}, \text{Na})\text{O}_{2+x}$
C. Tabata, K. Shirasaki, A. Sunaga, H. Sakai, D. Li, M. Konaka, T. Yamamura
CrystEngComm **23**, 8660 (2021).
- (2) Frustrated magnet for adiabatic demagnetization cooling to milli-Kelvin temperatures
Y. Tokiwa, S. Bachus, K. Kavita, A. Jesche, A. A. Tsirlin, P. Gegenwart,
Communications Materials **2**, 42 (2021).
- (3) Universal scaling behavior under pressure in the heavy-fermion antiferromagnet CeRh_2Si_2 :
Si-29 NMR study
H. Sakai, Y. Matsumoto, Y. Haga, Y. Tokunaga, S. Kambe,
Phys. Rev. B **103**, 085114 (2021).
- (4) Single-crystal growth and magnetic phase diagram of the enantiopure crystal of NdPt_2B
Y. J. Sato, F. Honda, A. Maurya, Y. Shimizu, A. Nakamura, Y. Homma, D. Li, Y. Haga, D.
Aoki,
Phys. Rev. Mater. **5**, 034411 (2021).
- (5) Nonmagnetic-magnetic transition and magnetically ordered structure in SmS
S. Yoshida, T. Koyama, H. Yamada, Y. Nakai, K. Ueda, T. Mito, K. Kitagawa, Y. Haga
Phys. Rev. B **103**, 155153 (2021).
- (6) Electronic structure of URu_2Si_2 in paramagnetic phase: three-dimensional angle resolved
photoelectron spectroscopy study
S.-i. Fujimori, Y. Takeda, H. Yamagami, E. Yamamoto, Y. Haga,
Electronic Structure **3**, 024008 (2021).
- (7) Anisotropic Physical Properties of Layered Antiferromagnet $\text{U}_2\text{Pt}_6\text{Ga}_{15}$
Y. Matsumoto, Y. Haga, E. Yamamoto, T. Takeuchi, A. Miyake, M. Tokunaga
J. Phys. Soc. Jpn. **90**, 074707 (2021).
- (8) Critical slowing-down and field-dependent paramagnetic fluctuations in the skyrmion host
 EuPtSi : μSR and NMR studies
N. Higa, T. U. Ito, M. Yogi, T. Hattori, H. Sakai, S. Kambe, Z. Guguchia, W. Higemoto, M.
Nakashima, Y. Homma, A. Nakamura, F. Honda, Y. Shimizu, D. Aoki, M. Kakihana, M.
Hedo, T. Nakama, Y. Ōnuki, Y. Tokunaga,
Phys. Rev. B **104**, 045145 (2021).
- (9) Nanoscale heterogeneity induced by nonmagnetic Zn dopants in the quantum critical metal
 CeCoIn_5 : ^{115}In NQR/NMR and ^{59}Co NMR study
H. Sakai, Y. Tokunaga, S. Kambe, J.-X. Zhu, F. Ronning, J. D. Thompson, S. K.
Ramakrishna, A. P. Reyes, K. Suzuki, Y. Oshima, M. Yokoyama

- Phys. Rev. B **104**, 085106 (2021).
- (10) Multipole polaron in the devil's staircase of CeSb,
Y. Arai, K. Kuroda, T. Nomoto, Z. H. Tin, S. Sakuragi, C. Bareille, S. Akebi, K. Kurokawa,
Y. Kinoshita, W.-L. Zhang, S. Shin, M. Tokunaga, H. Kitazawa, Y. Haga, H. S. Suzuki, S.
Miyasaka, S. Tajima, K. Iwasa, R. Arita, T. Kondo
Nature Materials **21**, 410-415 (2022).
- (11) Single Crystal Growth and Magnetic Properties of α -Mn and β -Mn
Y. Ōnuki, D. Aoki, A. Nakamura, T. D. Matsuda, M. Nakashima, Y. Haga, T. Takeuchi,
Journal of the Physical Society of Japan **91**, 065001 (2022).
- (12) Split Fermi Surface Properties of Noncentrosymmetric Compounds Fe₂P, Ni₂P, and Pd₂Si,
Y. Ōnuki, A. Nakamura, D. Aoki, T. D. Matsuda, Y. Haga, H. Harima, T. Takeuchi, Y.
Kaneko,
Journal of the Physical Society of Japan **91**, 064712 (2022).
- (13) Single Crystal Growth and Magnetic Properties of Noncentrosymmetric Antiferromagnet
Mn₃IrSi,
Y. Ōnuki, Y. Kaneko, D. Aoki, A. Nakamura, T. D. Matsuda, M. Nakashima, Y. Haga, T.
Takeuchi
Journal of the Physical Society of Japan **91**, 065002 (2022).
- (14) Superconducting Order Parameter in UTe₂ Determined by Knight Shift Measurement
H. Fujibayashi, G. Nakamine, K. Kinjo, S. Kitagawa, K. Ishida, Y. Tokunaga, H. Sakai, S.
Kambe, A. Nakamura, Y. Shimizu, Y. Homma, D. Li, F. Honda, D. Aoki,
Journal of the Physical Society of Japan **91**, 043705 (2022).
- (15) Effect of uranium deficiency on normal and superconducting properties in unconventional
superconductor UTe₂,
Y. Haga, P. Opletal, Y. Tokiwa, E. Yamamoto, Y. Tokunaga, S. Kambe, H. Sakai
J. Phys. Condens. Matter **34**, 175601 (2022).
- (16) Precise magnetization measurements down to 500 mK using a miniature ³He cryostat and a
closed-cycle ³He gas handling system installed in a SQUID magnetometer without
continuous- cooling functionality,
K. Shimamura, H. Wajima, H. Makino, S. Abe, Y. Haga, Y. Sato, T. Kawae, Y. Yoshida,
Jpn. J. Appl. Phys. **61**, 056502 (2022).
- (17) Abrupt Change in Electronic States under Pressure in New Compound EuPt₃Al₅,
T. Koizumi, F. Honda, Y. J. Sato, D. Li, D. Aoki, Y. Haga, J. Gouchi, S. Nagasaki, Y.
Uwatoko, Y. Kaneko, Y. Ōnuki
J. Phys. Soc. Jpn. **91**, 1-5 (2022).
- (18) Unconventional superconductivity in UTe₂

- D. Aoki, J.-P. Brison, J. Flouquet, K. Ishida, G. Knebel, Y. Tokunaga, Y. Yanase
Journal of Physics: Condensed Matter **34**, 243002 (2022).
- (19) Drastic change in magnetic anisotropy of UTe_2 under pressure revealed by ^{125}Te -NMR
K. Kinjo, H. Fujibayashi, G. Nakamine, S. Kitagawa, K. Ishida, Y. Tokunaga, H. Sakai, S. Kambe, A. Nakamura, Y. Shimizu, Y. Homma, D. Li, F. Honda, D. Aoki
Phys. Rev. B **105**, L140502 (2022).
- (20) Observation of Longitudinal Magnetic Fluctuations at a First-Order Ferromagnetic
Quantum Phase Transition in UGe_2
Y. Noma, H. Kotegawa, T. Kubo, H. Tou, H. Harima, Y. Haga, E. Yamamoto, Y. Ōnuki, K.
M. Itoh, A. Nakamura, Y. Homma, F. Honda, D. Aoki
Journal of the Physical Society of Japan **90**, 073707 (2021).
- (21) Inhomogeneous Superconducting State Probed by ^{125}Te NMR on UTe_2
G. Nakamine, K. Kinjo, S. Kitagawa, K. Ishida, Y. Tokunaga, H. Sakai, S. Kambe, A.
Nakamura, Y. Shimizu, Y. Homma, D. Li, F. Honda, D. Aoki
Journal of the Physical Society of Japan **90**, 064709 (2021).
- (22) Slow Electronic Dynamics in the Paramagnetic State of UTe_2
Y. Tokunaga, H. Sakai, S. Kambe, Y. Haga, Y. Tokiwa, P. Opletal, H. Fujibayashi, K.
Kinjo, S. Kitagawa, K. Ishida, A. Nakamura, Y. Shimizu, Y. Homma, D. Li, F. Honda, D.
Aoki
Journal of the Physical Society of Japan **91**, 023707 (2022).

Invited Talks at International Conferences

None

Books and Scientific Articles

None

Patents

None

Awards

- (1) Journal of the Physical Society of Japan, The Most Cited Articles in 2020 Top10
 ^{125}Te -NMR Study on a Single Crystal of Heavy Fermion Superconductor UTe_2
Y. Tokunaga, H. Sakai, S. Kambe, T. Hattori, N. Higa, G. Nakamine, S. Kitagawa, K.
Ishida, A. Nakamura, Y. Shimizu, Y. Homma, D. Li, F. Honda, D. Aoki

(2) Journal of the Physical Society of Japan, The Most Cited Articles in 2020 Top10

Superconducting Properties of Heavy Fermion UTe_2 Revealed by ^{125}Te -nuclear Magnetic Resonance

G. Nakamine, S. Kitagawa, K. Ishida, Y. Tokunaga, H. Sakai, S. Kambe, A. Nakamura, Y. Shimizu, Y. Homma, D. Li, F. Honda, and D. Aoki

(3) Journal of the Physical Society of Japan, The Most Cited Articles in 2020 Top10

Unique Helical Magnetic Order and Field-Induced Phase in Trillium Lattice Antiferromagnet $EuPtSi$

K. Kaneko, M. D. Frontzek, M. Matsuda, A. Nakao, K. Munakata, T. Ohhara, M. Kakihana, Y. Haga, M. Hedo, T. Nakama, Y. Ōnuki

Press Release

- (1) 伝導電子と局在スピン・軌道が織りなす悪魔の調律 ～多極子の衣をまとった電子「多極子ポーラロン」を発見～ (2022 年 2 月)
- (2) 磁石を使った絶対零度近くへの冷やし方 ー量子的に揺れる微小磁石が実現する極低温冷却材「イッテルビウム磁性体」ー (2021 年 4 月)