Peer-Reviewed Papers

(1) Magnonic Casimir effect in ferrimagnets
K. Nakata and K. Suzuki
Phys. Rev. Lett. **130**, 096702 (2023).

(2) The investigations of the *P*-wave B_s states combining quark model and lattice QCD in the coupled channel framework
Z. Yang, G.J. Wang, J.J. Wu, M. Oka, S.L. Zhu
High Energy Phys. **2023**, 058 (2023).

(3) Understanding the nature of Ω(2012) in a coupled-channel approach
Q.-F. Lu, H. Nagahiro, A. Hosaka
Phys. Rev. D **107**, 014025 (2023).

(4) Phase diagram of the QCD Kondo effect and inactivation of the magnetic catalysis
K. Hattori, D. Suenaga, K. Suzuki, and S. Yasui
EPJ Web of Conferences **276**, 01015 (2023).

(5) Real-time observation of charge-spin cooperative dynamics driven by a nonequilibrium phonon environment
K. Kuroyama, S. Matsuo, J. Muramoto, S. Yabunaka, S. R. Valentin, A. Ludwig, A. D. Wieck, Y. Tokura, and S. Tarucha
Phys. Rev. Lett. **129**, 095901 (2022).

(6) Extended $p_{3/2}$ Neutron Orbital and the N= 32 Shell Closure in ^{52}Ca
M. Enciu, H. N. Liu, A. Obertelli, P. Doornenbal, F. Nowacki, K. Ogata, A. Poves, K. Yoshida, N. L. Achouri, H. Baba, F. Browne, D. Calvet, F. Château, S. Chen, N. Chiga, A. Corsi, M. L. Cortés, A. Delbart, J-M. Gheller, A. Giganon, A. Gillibert, C. Hilaire, T. Isobe, T. Kobayashi, Y. Kubota, V. Lapoux, T. Motobayashi, I. Murray, H. Otsu, V. Panin, N. Paul, W. Rodriguez, H. Sakurai, M. Sasano, D. Steppenbeck, L. Stuhl, Y. L. Sun, Y. Togano, T. Uesaka, K. Wimmer, K. Yoneda, O. Aktas, T. Aumann, L. X. Chung, F. Flavigny, S. Franchoo, I. Gasparic, R.-B. Gerst, J. Gibelin, K. I. Hahn, D. Kim, Y. Kondo, P. Koseoglou, J. Lee, C. Lehr, P. J. Li, B. D. Linh, T. Lokotko, M. MacCormick, K. Moschner, T. Nakamura, S. Y. Park, D. Rossi, E. Sahin, P.-A. Söderström, D. Sohler, S. Takeuchi, H. Toernqvist, V. Vaquero, V. Wagner, S. Wang, V. Werner, X. Xu, H. Yamada, D. Yan, Z. Yang, M. Yasuda, L. Zanetti
Phys. Rev. Lett. **129**, 262501 (2022).

(7) Electric Monopole Transition from the Superdeformed Band in ^{40}Ca
E. Ideguchi, T. Kibedi, J. T. H. Dowie, T. H. Hoang, M. Kumar Raju, N. Aoi, A. J. Mitchell, A. E. Stuchbery, N. Shimizu, Y. Utsuno, A. Akber, L. J. Bignell, B. J. Coombes, T. K. Eriksen, T. J. Gray, G. J. Lane, B. P. McCormick
Phys. Rev. Lett. **128**, 252501 (2022).

(8) α-Clustering in atomic nuclei from first principles with statistical learning and the Hoyle state character

T. Otsuka, T. Abe, T. Yoshida, Y. Tsunoda, N. Shimizu, N. Itagaki, Y. Utsuno, J. Vary, P. Maris, and H. Ueno
Nat. Commun. **13**, 2234 (2022).

(9) Contribution of the Weinberg-type operator to atomic and nuclear electric dipole moments
N. Osamura, P. Gubler and N. Yamanaka
J. High Energy Phys. **2022**, 072 (2022).

(10) Chiral gravitational waves from thermalized neutrinos in the early Universe
P. Gubler, N. Yamamoto and D.-L. Yang
J. Cosmol. Astropart. Phys. **2022**, 025 (2022).

(11) Isothermal transport of a near-critical binary fluid mixture through a capillary tube with the preferential adsorption
S. Yabunaka and Y. Fujitani
Phys. Fluid **34**, 052012 (2022).

(12) Comparative study for two-terminal transport through a lossy one-dimensional quantum wire
S. Uchino
Phys. Rev. A **106**, 053320 (2022).

(13) Asymmetry and nonlinearity of current-bias characteristics in superfluid-normal state junctions of weakly-interacting Bose gases
S. Uchino
Phys. Rev. A **106**, L011303 (2022).

(14) ”Southwestern" boundary of the N=40 island of inversion: First study of low-lying bound excited states in ^{59}V and ^{61}V
Z. Elekes, M. M. Juhász, D. Sohler, K. Sieja, K. Yoshida, K. Ogata, P. Doornenbal, A. Obertelli, N. L. Achouri, H. Baba, F. Browne, D. Calvet, F. Château, S. Chen, N. Chiga, A. Corsi, M. L. Cortés, A. Delbart, J.-M. Gheller, A. Giganon, A. Gillibert, C. Hilaire, T. Isobe, T. Kobayashi, Y. Kubota, V. Lapoux, H. N. Liu, T. Motobayashi, I. Murray, H. Otsu, V. Panin, N. Paul, W. Rodriguez, H. Sakurai, M. Sasano, D. Steppenbeck, L. Stuhl, Y. L. Sun, Y. Togano, T. Uesaka, K. Wimmer, K. Yoneda, O. Aktas, T. Aumann, L. X. Chung, Zs. Dombrádi, F. Flavigny, S. Franchoo, I. Gašparić, R.-B. Gerst, J. Gibelin, K. I. Hahn, D. Kim, T. Koiwai, Y. Kondo, P. Koseoglou, J. Lee, C. Lehr, B. D. Linh, T. Lokotko, M. MacCormick, K. Moschner, T. Nakamura, S. Y. Park, D. Rossi, E. Sahin, P.-A. Söderström, S. Takeuchi, H. Törnqvist, V. Vaquero, V. Wagner, S. Wang, V. Werner, X. Xu, H. Yamada, D. Yan, Z. Yang, M. Yasuda, L. Zanetti (Sunflower Collaboration)
Phys. Rev. C **106**, 064321 (2022).

(15) Importance of the deuteron breakup in the deuteron knockout reaction
Y. Chazono, K. Yoshida, K. Ogata
Phys. Rev. C **106**, 064613 (2022).

(16) β- decay of exotic P and S isotopes with neutron number near 28
V. Tripathi, S. Bhattacharya, E. Rubino, C. Benetti, J. F. Perello, S. L. Tabor, S. N. Liddick, P. C.

Bender, M. P. Carpenter, J. J. Carroll, A. Chester, C. J. Chiara, K. Childers, B. R. Clark, B. P. Crider, J. T. Harke, B. Longfellow, R. S. Lubna, S. Luitel, T. H. Ogunbeku, A. L. Richard, S. Saha, N. Shimizu, O. A. Shehu, Y. Utsuno, R. Unz, Y. Xiao, S. Yoshida, and Yiyi Zhu
Phys. Rev. C **106**, 064314 (2022).

(17) α knockout reaction as a new probe for α formation in α-decay nuclei
K. Yoshida and J. Tanaka
Phys. Rev. C **106**, 014621 (2022).

(18) Unified nuclear matter equations of state constrained by the in-medium balance in density-dependent covariant density functionals
C.-J. Xia, B.-Y. Sun, T. Maruyama, W.-H. Lon, A. Li
Phys. Rev. C **105**, 045803 (2022).

(19) In-beam γ-ray spectroscopy of ^{32}Mg via direct reactions
N. Kitamura, K. Wimmer, T. Miyagi, A. Poves, N.S himizu, J. A. Tostevin, V. M. Bader, C. ancroft, D. Barofsky, T. Baugher, D. Bazin, J. S. Berryman, V. Bildstein, A. Gade, N. Imai, T. Kroll, C. Langer, J. Lloyd, E. Lunderberg, F. Nowacki, G. Perdikakis, F. Recchia, T. Redpath, S. Saenz, D. Smalley, S. R. Stroberg, Y. Utsuno, D. Weisshaar, A. Westerberg
Phys. Rev. C **105**, 034318 (2022).

(20) The *S*-wave fully-charmed tetraquark resonant states
G.J. Wang, Q. Meng, M. Oka
Phys. Rev. D **106**, 096005 (2022).

(21) Open charm and bottom meson-nucleon potentials à la the nuclear force
Y. Yamaguchi, S. Yasui, and A. Hosaka
Phys. Rev. D **106**, 094001 (2022).

(22) Weinberg operator contribution to the CP-odd nuclear force in the quark model
N. Yamanaka, M. Oka
Phys. Rev. D **106**, 075021 (2022).

(23) Nuclear pasta structures at high temperatures
C.-J. Xia, T. Maruyama, N. Yasutake, T. Tatsumi
Phys. Rev. D **106**, 063020 (2022).

(24) Electromagnetic transition amplitude for Roper resonance from holographic QCD
D. Fujii, A. Iwanaka, and A. Hosaka
Phys. Rev. D **106**, 014010 (2022).

(25) Decay properties of $N(1535)$ in the holographic QCD
A. Iwanaka, D. Fujii, and A. Hosaka
Phys. Rev. D **105**, 114057 (2022).

(26) ϕ meson properties in nuclear matter from QCD sum rules with chirally separated four-quark condensates
J. Kim, P. Gubler and S.H. Lee

Phys. Rev. D **105**, 114053 (2022).

(27) Heavy-quark spin polarization induced by the Kondo effect in a magnetic field
D. Suenaga, Y. Araki, K. Suzuki, and S. Yasui
Phys. Rev. D **105**, 074028 (2022).

(28) Doubly heavy tetraquarks in a chiral-diquark picture
Y. Kim, M. Oka, and K. Suzuki
Phys. Rev. D **105**, 074021 (2022).

(29) Incompleteness of the large-N analysis of the models: Nonperturbative cuspy fixed points and their nontrivial homotopy at finite
S. Yabunaka, C. Fleming, and B. Delamotte
Phys. Rev. E **106**, 054105 (2022).

(30) Optical spin transport in ultracold quantum gases
Y. Sekino, H. Tajima, S. Uchino
Phys. Rev. Research **4**, 043014 (2022).

(31) Optomechanical response of a strongly interacting Fermi gas
V. Helson, T. Zwettler, K. Roux, H. Konishi, S. Uchino, J.-P. Brantut
Phys. Rev. Research **4**, 133199 (2022).

(32) Kaon–baryon coupling schemes and kaon condensation in hyperon-mixed matter
T. Muto, T. Maruyama, T. Tatsumi
Prog. Theor. Expt. Phys. **2022**, 093D03 (2022).

(33) A bag model of matter condensed by the strong interaction
Z.-Q. Miao, C.-J. Xia, X.-Y. Lai, T. Maruyama, R.-X. Xu, E.-P. Zhou
Int. J. Mod. Phys. E **31**, 2250037 (2022).

(34) ϕ meson properties in nuclear matter from dilepton spectra in a transport approach
P. Gubler, E. Bratkovskaya and T. Song
EPJ Web of Conferences **274**, 07015 (2022).

(35) Studying ϕ meson properties in nuclear matter from dilepton and K^+K^- decays
P. Gubler and E. Bratkovskaya
EPJ Web of Conferences **271**, 09004 (2022).

(36) Axial U(1) symmetry at high temperatures in N_f=2+1 lattice QCD with chiral fermions
S. Aoki, Y. Aoki, H. Fukaya, S. Hashimoto, I. Kanamori, T. Kaneko, Y. Nakamura, C. Rohrhofer, and K. Suzuki (JLQCD Collaboration)
PoS LATTICE2021, 332 (2022).

(37) What is chiral susceptibility probing?
S. Aoki, Y. Aoki, H. Fukaya, S. Hashimoto, C. Rohrhofer, and K. Suzuki (JLQCD Collaboration)
PoS LATTICE2021, 050 (2022).

Invited Talks at International Conferences

(1) The nuclear shell model

Y. Utsuno

INTPART School 2023, Okinawa, Japan, February 20-March 3, 2023.

(2) Heavy tetra- and penta-quarks

A. Hosaka

Colloquium at University of Philippines Diliman, Quezon, Philippine,February 21, 2023.

(3) Theoretical studies of cluster knockout reactions, referring also to relevant experimental activities in Japan

K. Yoshida

JSPS/NRF/NSFC A3 Foresight Program "Nuclear Physics in the 21st Century", Osaka International Convention Center, Osaka, Japan, February 13-15, 2023.

(4) Incompleteness of the Large N Analysis of the O(N) Models: Nonperturbative Cuspy Fixed Points and their Nontrivial Homotopy at finite N

S. Yabunaka

Functional Renormalization Group at RIKEN 2023－From condensed matter and particle physics to gravity－, Wako, Japan, January 21-22, 2023.

(5) Large-scale shell-model approach to nuclear collective motion

Y. Utsuno, N. Shimizu, and Y. Tsunoda

66th DAE Symposium on Nuclear Physics, Guwahati, India (December 1-5, 2022).

(6) Theoretical Studies on P_c, P_{cs} Pentaquarks with recent theory activities in Japan

A. Hosaka

ANPhA Symposium, on-line, November 17, 2022.

(7) Knockout reaction with exotic beams

K. Yoshida

The JPS-KPS Joint Symposium on Nuclear Physics with RI Beams, KPS 70th Anniversary and 2022 Fall Meeting, Bexco Busan, Korea, October 19-21, 2022.

(8) Tetraquark bound and resonant states

A. Hosaka

APCTP Workshop on “Exotics and exotic phenomena in heavy ion collisions”, on-line, September 29 - October 1, 2022.

(9) Recent progress and perspectives of the alpha clustering studied by the knockout reaction

K. Yoshida

The 15th Asia Pacific Physics Conference (APPC15), online, August 21-26, 2022.

(10) Large-scale shell-model calculations: from low-lying spectra to compound states

Y. Utsuno

The 21th CNS International Summer School (A3F-CNSSS22), Saitama, Japan, August 20-24, 2022.

(11) Tetraquark bound and resonant states

A. Hosaka

APCTP workshop on “Nuclear Physics 2020: Exotic Hadrons in the Present and Future Facilities”, Jeju Irand, Korea, July 11-16, 2022.

(12) Recent findings about shell evolution in the neutron-rich Ca region

Y. Utsuno

RIKEN Workshop “Physics of RI: Recent progress and perspectives”, Wako, Japan, May 30-June 1, 2022.

Books and Scientific Articles

None

Patents

None

Awards

(1) 第 17 回(2023 年)日本物理学会若手奨励賞 理論核物理領域(第 24 回核理論新人論文賞)
アルファ粒子ノックアウト反応による核内アルファ粒子析出確率の研究
K. Yoshida

Press Release

(1) 磁気デバイスの小型化に重要な「磁気の波の真空に潜むエネルギー」を解明―ナノスケールにまで薄くした磁石の基礎原理が理論計算から明らかに― (2023 年 2 月).

(2) ー宇宙での元素合成過程の謎に迫る成果ー超変形した原子核 ^{40}Ca の崩壊メカニズムを解明 (2022 年 6 月).

(3) スーパーコンピュータ「富岳」で炭素の起源を探る―第一原理計算で導かれたアルファクラスターの構造― (2022 年 4 月).