

## Peer-Reviewed Papers

- (1) Transverse momentum dependent forward neutron single spin asymmetries in transversely polarized p+p collisions at  $\sqrt{s}=200$  GeV  
U. A. Acharya, S. Hasegawa, H. Sako, S. Sato, K. Tanida, et al. (PHENIX Collaboration)  
Phys. Rev. D **103** (2021) 3, 032007
- (2) Observation of Coulomb-Assisted Nuclear Bound State of  $\Xi^- - ^{14}\text{N}$  System  
S. H. Hayakawa, S. Hasegawa, Y. Ichikawa, K. Imai, T. Nanamura, H. Sako, S. Sato, H. Tamura, T. O. Yamamoto, et al.  
Phys. Rev. Lett. **126** (2021) 6, 062501
- (3) Measurement of branching fractions and CP asymmetries for  $D_s^+ \rightarrow K^+(\eta, \pi^0)$  and  $D_s^+ \rightarrow \pi^+(\eta, \pi^0)$  decays at Belle  
Y. Guan, K. Tanida, et al. (Belle Collaboration)  
Phys. Rev. D **103** (2021) 12005.
- (4) Test of lepton flavor universality in  $B \rightarrow K^* \ell^+ \ell^-$  decays at Belle  
A. Abdesselam, K. Tanida, et al. (Belle Collaboration):  
Phys. Rev. Lett. **126** (2021), 161801.
- (5) Measurements of the branching fractions of  $\Lambda_c^+ \rightarrow p\eta$  and  $\Lambda_c^+ \rightarrow p\pi^0$  decays at Belle  
S. X. Li, K. Tanida, et al. (Belle Collaboration)  
Phys. Rev. D **103** 072004 (2021).
- (6) Search for the dark photon in  $B^0 \rightarrow A' A'$ ,  $A' \rightarrow e^+ e^-$ ,  $\mu^+ \mu^-$ , and  $\pi^+ \pi^-$  decays at Belle  
S.-H. Park, K. Tanida, et al. (Belle Collaboration):  
J. High Energ. Phys. **2021**, 191 (2021).
- (7) Measurement of Branching Fraction and Search for CP Violation in  $B \rightarrow \phi\phi K$   
S. Mohanty, K. Tanida, et al. (Belle Collaboration)  
Phys. Rev. D **103** 052013 (2021).
- (9) Evidence for  $X(3872) \rightarrow J/\Psi \pi^+ \pi^-$  produced in single-tag two-photon interactions  
Y. Teramoto, K. Tanida, et al. (Belle Collaboration)  
Phys. Rev. Lett. **126** 122001 (2021).
- (10) Transverse single-spin asymmetries of midrapidity  $\pi^0$  and  $\eta$  mesons in polarized p+p collisions at  $\sqrt{s} = 200$  GeV  
U. A. Acharya, S. Hasegawa, H. Sako, S. Sato, K. Tanida, et al. (PHENIX Collaboration)  
Phys. Rev. D **103** 052009 (2021).
- (11) Measurement of time-dependent CP violation parameters in  $B^0 \rightarrow K_S^0 K_S^0 K_S^0$  decays at Belle,  
K.H. Kang, K. Tanida, et al. (Belle Collaboration)  
Phys. Rev. D **103** 032003 (2021).
- (12) Data acquisition system in the first commissioning run of the J-PARC E16 experiment  
T. N. Takahashi, M. Naruki, H. Sako, S. Sato, et al.  
IEEE Trans. Nucl. Sci. (2021), doi: 10.1109/TNS.2021.3087635.

- (13) Search for  $B_s^0 \rightarrow \eta' X s s^-$  at Belle using a semi-inclusive method  
 S. Dubey and K. Tanida et al. (Belle Collaboration)  
 Phys. Rev. D **104** (2021) 1, 012007
- (14) Measurements of partial branching fractions of inclusive  $B \rightarrow Xu_l^+ \nu_l$  decays with hadronic tagging  
 L. Cao, and K. Tanida et al. (Belle Collaboration)  
 Phys. Rev. D **104** (2021) 1, 012008
- (15) Measurement of the resonant and nonresonant branching ratios of  $\Xi_c^0 \rightarrow \Xi_0 K^+ K^-$   
 J. T. McNeil, K. Tanida et al. (Belle Collaboration)  
 Phys. Rev. D **103** (2021) 11, 112002
- (16) Measurements of the branching fractions of  $\Lambda_c^+ \rightarrow \eta \Lambda \pi^+$ ,  $\eta \Lambda \pi^0$ ,  $\Lambda(1670) \pi^+$  and  $\eta \Sigma(1385)^+$   
 J. Y. Lee, K. Tanida, et al. (Belle Collaboration)  
 Phys. Rev. D **103** (2021) 5, 052005.
- (17) First determination of the spin and parity of the charmed-strange baryon  $\Xi_c(2970)^+$   
 T. J. Moon, K. Tanida, et al. (Belle Collaboration)  
 Phys. Rev. D **103** (2021) 11, L111101.
- (18) Measurement of the branching fraction of the decay  $B^+ \rightarrow \pi^+ \pi^+ l^+ \nu_l$  in fully reconstructed events at Belle  
 C. Beleno, K. Tanida, et al. (Belle Collaboration)  
 Phys. Rev. D **103** (2021) 11, 112001
- (19) Deexcitation dynamics of muonic atoms revealed by high-precision spectroscopy of electronic K X rays  
 T. Okumura, T. Hashimoto, et al.  
 Phys. Rev. Lett. **127** (2021) 5, 053001.
- (20) Test of lepton-flavor-universality and search for lepton-flavor-violation in  $B \rightarrow K \ell^+ \ell^-$  decays  
 S. Choudhury, K. Tanida, et al. (Belle Collaboration):  
 J. High Energ. Phys. **2021**, 105 (2021).
- (21) Exploring dense baryonic matter and multi-strangeness at J-PARC  
H. Sako for the J-PARC Collaboration  
 Nucl. Phys. A **1005** (2021) 121916.
- (22) First observation of a nuclear s-state of  $^{\Xi}$  hypernucleus,  $^{15}_{\Xi}C$ ,  
M. Yoshimoto, M. Fujita, T. Hashimoto, Y. Ichikawa, T. Nanamura, M. Naruki, H. Sako, S. Sato, H. Tamura, T. O. Yamamoto, K. Tanida, et al.  
 Prog. Theor. Exp. Phys. **2021** (2021) 7.
- (23) Measurement of the masses and widths of the  $\Sigma_c(2455)^+$  and  $\Sigma_c(2420)^+$  baryons  
 J. Yelton, K. Tanida, et al. (Belle Collaboration)  
 Phys. Rev. D **104** (2021) 5, 052003
- (24) Search for the decay  $B_s^0 \rightarrow \eta' \eta$   
 N. K. Nisar and K. Tanida et al. (Belle Collaboration)

Phys. Rev. D **104** (2021) 3, L031101

(25) Measurements of branching fractions and search for CP violation in  $D^0 \rightarrow \pi^+ \pi^- \eta$ ,  $D^0 \rightarrow K^+ K^- \eta$ , and  $D^0 \rightarrow \phi \eta$  at Belle

L. K. Li, [K. Tanida](#), et al. (Belle Collaboration)

J. High. Energ. Phys. **2021** (2021) 075

(26) Evidence for the decay  $\Omega_c^0 \rightarrow \pi^+ \Omega(2012)^- \rightarrow \pi^+ (K^- \Xi)^-$

Y. Li, [K. Tanida](#), et al. (Belle Collaboration)

Phys. Rev. D **104** (2021) 5, 052005

(27) Measurement of branching fractions of the semileptonic decays for  $\Xi_c^0 \rightarrow \Xi l^+ \nu_l$  and the asymmetric parameter of  $\Xi_c^0 \rightarrow \Xi \pi^+$

Y. B. Li, [K. Tanida](#), et al. (Belle Collaboration)

Phys. Rev. Lett. **127**, 121803 (2021)

(28) Search for the  $\eta_{c2}(1D)$  in  $e^+e^- \rightarrow \gamma \eta_{c2}(1D)$  at  $\sqrt{s}$  near 10.6 GeV at Belle

S. Jia, and [K. Tanida](#), et al. (Belle Collaboration)

Phys. Rev. D **104** 012012 (2021).

(29) Measurements of branching fractions and asymmetry parameters of  $\Xi_c^0 \rightarrow \Lambda \bar{K}^*$ ,  $\Xi_c^0 \rightarrow \Sigma^0 \bar{K}^*$ , and  $\Xi_c^0 \rightarrow \Sigma^+ K^{*-}$  decays at Belle,

S. Jia, [K. Tanida](#), et al. (Belle Collaboration):

J. High Energ. Phys. **2021**, 160 (2021).

(30) Test of lepton-flavor universality in  $B \rightarrow K^* \ell^+ \ell^-$  decays at Belle

S. Wehle, [K. Tanida](#), et al. (Belle Collaboration)

Phys. Rev. Lett. **126** 161801 (2021).

(31) Measurement of the energy dependence of the  $e^+e^- \rightarrow B\bar{B}$ ,  $B\bar{B}^*$  and  $B^*\bar{B}^*$  exclusive cross sections

R. Mizuk, [K. Tanida](#), et al. (Belle Collaboration)

J. High Energ. Phys. **2021** (2021) 137

(32) Slow control and monitoring system at the JSNS<sup>2</sup>

J. S. Park, [S. Hasegawa](#), et al.

Prog. Theor. Exp. Phys. **2021** (2021) 6, 063C01

(33) Search for lepton-flavor-violating tau-lepton decays to  $\ell \gamma$  at Belle

K. Uno, [K. Tanida](#), et al.

J. High Energ. Phys. **2021**, 019 (2021).

(34) The JSNS<sup>2</sup> Detector

S. Ajimura, [S. Hasegawa](#), [Y. Hino](#), [T. Dodo](#), et al

Nucl. Inst. Meth. A **1014** (2021) 165742

## Invited Talks at International Conferences

- (1) Measurement of scattering length with high-resolution spectroscopy of threshold cusp  
K. Tanida  
Workshop on Strangeness in Neutron Stars - Physics at J-PARC HIHR/K1.1 beam lines (online, June 17-19, 2021).
- (2) A new method to measure scattering length with threshold cusp  
K. Tanida  
Workshop on Fundamental Physics at the Strangeness Frontier at DAΦNE (online, Feb. 25-26, 2021)
- (3) Charm baryons at Belle and Belle II  
K. Tanida  
Workshop on Physics of heavy-quark and exotic hadrons 2021 (online, Feb. 15-17, 2021)
- (4) Baryon studies at J-PARC-HI  
H. Sako  
Workshop on Physics of Omega Baryons at the J-PARC-K10 Beam Line (June 7-9, 2021)
- (5) Baryon spectroscopy at Belle/Belle II  
K. Tanida  
Workshop on Physics of Omega Baryons at the J-PARC-K10 Beam Line (June 7-9, 2021)
- (6) Purpose of the workshop / Overview of the HIHR/K1.1 project --Elucidation of neutron stars from nuclear physics  
H. Tamura  
Workshop Strangeness in Neutron Stars --Physics at J-PARC HIHR/K1.1 beam lines (June 17-19, 2021)
- (7) Future prospect of gamma-ray spectroscopy of  $\Lambda$  hypernuclei @ J-PARC K1.1 beamline  
T. O. Yamamoto  
Workshop Strangeness in Neutron Stars -Physics at J-PARC HIHR/K1.1 beam lines (June 17-19, 2021)
- (8) X-ray measurement of kaonic He-3,4 atoms with a high-resolution microcalorimeter  
T. Hashimoto  
Joint THEIA-STRONG2020 and JAEA/Mainz REIMEI Online Seminar, Apr. 2021
- (9) X-ray spectroscopy of  $\Xi^-$  atoms at J-PARC: E03 and future  
T. O. Yamamoto  
Joint THEIA-STRONG2020 and JAEA/Mainz REIMEI Online Seminar, May 2021
- (10) Strangeness Nuclear Physics at J-PARC,  
H. Tamura,  
Hadron 2021, 19th International conference on hadron spectroscopy and structure, Universidad Nacional Autónoma de México (online)  
July 26-Aug 1, 2021.

(11) Kaonic atom X-rays at J-PARC,

T. Hashimoto

EXA2021 - International Conference on Exotic Atoms and Related Topics

Online, September 13-17, 2021

### **Books and Scientific Articles**

None

### **Patents**

None

### **Awards**

(1) 第28回原子核談話会新人賞／第16回日本物理学会若手奨励賞 (2021)

Observation of Coulomb-assisted nuclear bound state of  $\Xi^{-14}\text{N}$  system

Shuhei Hayakawa

(2) 2021 年度先端基礎研究センター センター長賞

For innovative contributions to X-ray spectroscopy of exotic atoms with microcalorimeters

Tadashi Hashimoto

### **Press Release**

(1) 最先端超伝導検出器で探るミュオン原子形成過程の全貌—負ミュオン・電子・原子核の織り成すフェムト秒ダイナミクス—

橋本直他 (2021 年7月)

Unveiling muonic atom forming process with state-of-art superconducting detector – femtosecond dynamics of muon, electron, and nucleus –

T. Hashimoto, et al (July 2021)

Phys. Rev. Lett. 125, 053001 (2021)

(2) J-PARC ハドロン実験施設で奇妙な粒子と陽子の散乱現象を精密に測定—原子核を作る力の解明に大きな前進—

山本剛史 他 (2021 年 11 月)

Precise measurement of the scattering of strange particles and protons at J-PARC Hadron Experimental Facility – A big step towards unraveling the force to create nuclei –

T. O. Yamamoto, et al (Nov. 2021)

Phys. Rev. C 104, 045204 (2021).