

Publication list 2022

Peer-Reviewed Papers

- (1) Fission of $^{180,182,183}\text{Hg}^*$ and $^{178}\text{Pt}^*$ nuclei at intermediate excitation energies

E.M. Kozulin, G.N. Knyazheva, I.M. Itkis, M.G. Itkis, Y.S. Mukhamejanov, A.A. Bogachev, K.V. Novikov, V.V. Kirakosyan, D. Kumar, T. Banerjee, M. Cheralu, M. Maiti, R. Prajapat, R. Kumar, G. Sarkar, W.H. Trzaska, [A.N. Andreyev](#), I.M. Harca, A. Mitu, E. Vardaci

Physical Review C 105, 014607 (2022). ○

<https://doi.org/10.1103/PhysRevC.105.014607>

- (2) γ -ray spectroscopy of low-lying yrast and non-yrast states in neutron-rich $^{94,95,96}\text{Kr}$

R.-B.Gerst, A.Blazhev, K.Moschner, P.Doornenbal, A.Obertelli, K.Nomura, J.-P.Ebran, S.Hilaire, J.Libert, G.Authélet, H.Baba, D.Calvet, F.Chateau, S.Chen, A.Corsi, A.Delbart, J.-M.Gheller, A.Giganon, A.Gillibert, V.Lapoux, T.Motobayashi, M.Niikura, N.Paul, J.-Y.Rousse, H.Sakurai, C.Santamaria, D.Steppenbeck, R.Taniuchi, T.Uesaka, T.Ando, T.Arici, F.Browne, A.M.Bruce, R.Caroll, L.X.Chung, M.L.Cortes, M.Dewald, B.Ding, F.Flavigny, S.Franchoo, M.Gorska, A.Gottardo, J.Jolie, A.Jungclaus, J.Lee, M.Lettmann, B.D.Linh, J.Liu, Z.Liu, C.Lizarazo, S.Momiyama, S.Nagamine, N.Nakatsuka, C.R.Nita, C.Nobs, L.Olivier, [R.Orlandi](#), Z.Patel, Zs.Podolyak, M.Rudigier, T.Saito, C.Shand, P.-A.Soderstrom, I.Stefan, V.Vaquero, V.Werner, K.Wimmer, Z.Xu

Physical Review C 105, 024302 (2022). ○

<https://doi.org/10.1103/PhysRevC.105.024302>

- (3) Producing gold at ISOLDE-CERN

A.E. Barzakh, [A.N. Andreyev](#), D. Atanasov, J.G. Cubiss, R.D. Harding, M. Al Monthery, N.A. Althubiti, B. Andel, S. Antalic, J. Ballof, K. Blaum, T.E. Cocolios, P. Van Duppen, T. Day Goodacre, A. de Roubin, C. Duchemin, G.J. Farooq-Smith, D.V. Fedorov, V.N. Fedosseev, D.A. Fink, L.P. Gaffney, L. Ghys, M. Huyse, N. Imai, J. Johnson, S. Kreim, D. Lunney, K.M. Lynch, V. Manea, B.A. Marsh, Y. Martinez Palenzuela, P.L. Molkanov, D. Neidherr, V.N. Panteleev, M. Rosenbusch, R.E. Rossel, S. Rothe, L. Schweikhard, M.D. Seliverstov, S. Sels, C. Van Beveren, E. Verstraelen, A. Welker, F. Wienholtz, R.N. Wolf, K. Zuber

Nuclear Instruments and Methods in Physics Research B 513 (2022) 26-32. ○

<https://doi.org/10.1016/j.nimb.2021.12.011>

- (4) Fission mechanism inferred from nuclear shape fluctuation by the Langevin equation

Y. Aritomo, A. Iwamoto, K. Nishio, and M. Ohta

Physical Review C 105, 034604 (2022). ○

<https://doi.org/10.1103/PhysRevC.105.034604>

- (5) Decay modes of the $9/2^-$ isomeric state in ^{183}Tl

M.Venhardt, [A.N. Andreyev](#), J.G.Cubiss, J.L.Wood, A.E.Barzakh, C.Van Beveren, T.E.Cocolios, R.P.de Groote, D.V.Fedorov, V.N.Fedosseev, R.Ferrer, D.A.Fink, L.Ghys, M.Huyse, U.Koster, J.Lane, V.Liberati, K.M.Lynch, B.A.Marsh, P.L.Molkanov, T.J.Procter, E.Rapisarda, K.Sandhu, M.D.Seliverstov,

A.M.Sjodin, P.Van Duppen, M.Veselsky

Physical Review C 105, 034338 (2022). ○

<https://doi.org/10.1103/PhysRevC.105.034338>

- (6) First Application of Mass Measurements with the Rare-RI Ring Reveals the Solar r-Process Abundance Trend at $A=122$ and $A=123$

H.F.Li, S.Naimi, T.M.Sprouse, M.R.Mumpower, Y.Abe, Y.Yamaguchi, D.Nagae, F. Suzaki, M.Wakasugi, H.Arakawa, W.B.Dou, D.Hamakawa, S.Hosoi, Y.Inada, D.Kajiki, T.Kobayashi, M.Sakaue, Y.Yokoda, T.Yamaguchi, R.Kagesawa, D.Kamioka, T.Moriguchi, M.Mukai, A.Ozawa, S.Ota, N.Kitamura, S.Masuoka, S.Michimasa, H.Baba, N.Fukuda, Y.Shimizu, H.Suzuki, H.Takeda, D.S.Ahn, M.Wang, C.Y.Fu, Q.Wang, S.Suzuki, Z.Ge, Y.A.Litvinov, G.Lorusso, P.M.Walker, Z.Podolyak, T.Uesaka

Physical Review Letters 128, 152701 (2022) ○

<https://doi.org/10.1103/PhysRevLett.128.152701>

- (7) First observation of a shape isomer and a low-lying strongly coupled prolate band in neutron-deficient semi-magic ^{187}Pb

W.Q.Zhang, A.N. Andreyev, Z.Liu, D.Seweryniak, H.Huang, Z.H.Li, J.G.Li, C.Y.Guo, D.T.Doherty, A.E.Barzakh, P.Van Duppen, J.G.Cubiss, B.Andel, S.Antalic, M.Block, A.Bronis, M.P.Carpenter, P.Copp, B.Ding, Z.Favier, F.Giacoppo, T.H.Huang, X.H.Yu, B.Kindler, F.G.Kondev, T.Lauritsen, G.S.Li, B.Lommel, H.Y.Lu, M.Al Monthery, P.Mosat, Y.F.Niu, C.Raison, W.Reviol, G.Savard, S.Stolze, G.L.Wilson, H.Y.Wu, Z.H.Wang, F.R.Xu, Q.B.Zeng, X.H.Zhou

Physics Letters B 829, 137129 (2022). ○

<https://doi.org/10.1016/j.physletb.2022.137129>

- (8) Decay studies of new isomeric states in ^{255}No

A. Bronis, F. P. Heßberger, S. Antalic, B. Andel, D. Ackermann, S. Heinz, S. Hofmann, J. Khuyagbaatar, B. Kindler, I. Kojouharov, P. Kuusiniemi, M. Leino, B. Lommel, R. Mann, K. Nishio, A. G. Popeko, B. Streicher, B. Sulignano, J. Uusitalo, M. Venhart, and A. V. Yeremin

Physical Review C 106, 014602 (2022). ○

<https://doi.org/10.1103/PhysRevC.106.014602>

- (9) Improved measurement of the $0_2^+ \rightarrow 0_1^+$ E0 transition strength for ^{72}Se using the SPICE spectrometer

J. Smallcombe, A. B. Garnsworthy, W. Korten, P. Singh, F. A. Ali, C. Andreoiu, S. Ansari, G. C. Ball, C. J. Barton, S. S. Bhattacharjee, M. Bowry, R. Caballero-Folch, A. Chester, S. A. Gillespie, G. F. Grinyer, G. Hackman, C. Jones, B. Melon, M. Moukaddam, A. Nannini, P. Ruotsalainen, K. Starosta, C. E. Svensson, R. Wadsworth, and J. Williams

Physical Review C 106, 014312 (2022) ○

<https://doi.org/10.1103/PhysRevC.106.014312>

- (10) Fine structure in the α decay of the 8^+ isomer in $^{216,218}\text{U}$

M.M.Zhang, Y.L.Tian, Y.S.Wang, Z.Y.Zhang, Z.G.Gan, H.B.Yang, M.H.Huang, L.Ma, C.L.Yang, J.G.Wang, C.X.Yuan, C.Qi, A.N. Andreyev, X.Y.Huang, S.Y.Xu, Z.Zhao, L.X.Chen, J.Y.Wang, M.L.Liu, Y.H.Qiang, G.S.Li, W.Q.Yang, R.F.Chen, H.B.Zhang, Z.W.Lu, X.X.Xu, L.M.Duan, H.R.Yang,

W.X.Huang, Z.Liu, X.H.Zhou, Y.H.Zhang, H.S.Xu, N.Wang, H.B.Zhou, X.J.Wen, S.Huang, W.Hua, L.Zhu, X.Wang, Y.C.Mao, X.T.He, S.Y.Wang, W.Z.Xu, H.W.Li, Y.F.Niu, L.Guo, Z.Z.Ren, S.G.Zhou
Physical Review C 106, 024305 (2022). ○

<http://dx.doi.org/10.1103/PhysRevC.106.024305>

(11) Identification of excited states in ^{188}Bi and ^{188}Po

W.Q.Zhang, A.N. Andreyev, Z.Liu, D.Seweryniak, H.Huang, Z.H.Li, J.G.Li, C.Y.Guo, A.E.Barzakh, P.Van Duppen, M.Al Monthery, B.Andel, S.Antalic, M.Block, A.Bronis, M.P.Carpenter, P.Copp, J.G.Cubiss, B.Ding, D.T.Doherty, Z.Favier, F.Giacoppo, T.H.Huang, B.Kindler, F.G.Kondev, T.Lauritsen, G.S.Li, B.Lommel, H.Y.Lu, P.Mosat, Y.F.Niu, C.Raison, W.Reviol, G.Savard, S.Stolze, G.L.Wilson, H.Y.Wu, Z.H.Wang, F.R.Xu, X.H.Yu, Q.B.Zeng, X.H.Zhou
Physical Review C 106, 024317 (2022).

<http://doi.org/10.1103/PhysRevC.106.024317> ○

(12) On the adsorption and reactivity of element 114, flerovium

A. Yakushev, L. Lens, Ch. E. Düllmann, J. Khuyagbaatar, E. Jäger, J. Krier, J. Runke, H. M. Albers, M. Asai, M. Block, J. Despotopulos, A. Di Nitto, K. Eberhardt, U. Forsberg, P. Golubev, M. Götz, S. Götz, H. Haba, L. Harkness-Brennan, R.-D. Herzberg, F. P. Heßberger, D. Hinde, A. Hübner, D. Judson, B. Kindler, Y. Komori, J. Konki, J. V. Kratz, N. Kurz, M. Laatiaoui, S. Lahiri, B. Lommel, M. Maiti, A. K. Mistry, Ch. Mokry, K. J. Moody, Y. Nagame, J. P. Omtvedt, P. Papadakis, V. Pershina, D. Rudolph, L.G. Samiento, T. K. Sato, M. Schädel, P. Scharrer, B. Schausten, D. A. Shaughnessy, J. Steiner, P. Thörle-Pospiech, A. Toyoshima, N. Trautmann, K. Tsukada, J. Uusitalo, K.-O. Voss, A. Ward, M. Wegrzecki, N. Wiehl, E. Williams, V. Yakusheva

Frontiers in Chemistry 10, 976635 (2022). ○

<https://doi.org/10.3389/fchem.2022.976635>

(13) Measurement of 107-MeV proton-induced double-differential thick target neutron yields for Fe, Pb, and Bi using a fixed-field alternating gradient accelerator at Kyoto University

Hiroki Iwamoto, Keita Nakano, Shin-Ichiro Meigo, Daiki Satoh, Yosuke Iwamoto, Kenta Sugihara, Katsuhisa Nishio, Yoshihiro Ishi, Tomonori Uesugi, Yasutoshi Kuriyama, Hiroshi Yashima, Kota Okabe, Hiroyuki Makii, Kentaro Hirose, Riccardo Orlandi, Fumi Suzaki, Akito Oizumi, Kazuaki Tsukada, Fujio Maekawa & Yoshiharu Mori

Journal of Nuclear Science and Technology, (2022) ○

<https://doi.org/10.1080/00223131.2022.2115423>

(14) First observation of the decay of the $13/2^+$ isomer in ^{183}Hg and B(M2) systematics of neutron transitions across the nuclear chart

H.Huang, W.Q.Zhang, A.N. Andreyev, Z.Liu, D.Seweryniak, Z.H.Li, C.Y.Guo, A.E.Barzakh, P.Van Duppen, B.Andel, S.Antalic, M.Block, A.Bronis, M.P.Carpenter, P.Copp, J.G.Cubiss, B.Ding, D.T.Doherty, Z.Favier, F.Giacoppo, T.H.Huang, B.Kindler, F.G.Kondev, T.Lauritsen, J.G.Li, G.S.Li, B.Lommel, H.Y.Lu, M.Al Monthery, P.Mosat, Y.F.Niu, C.Raison, W.Reviol, G.Savard, S.Stolze, G.L.Wilson, H.Y.Wu, Z.H.Wang, F.R.Xu, Q.B.Zeng, X.H.Yu, F.F.Zeng, X.H.Zhou

Physics Letters B 833, 137345 (2022).

<http://doi.org/10.1016/j.physletb.2022.137345> ○

(15) Prediction of charge-changing cross sections of low-charged ^{88}Sr , ^{138}Ba and ^{142}Nd ions in a He-gas target at collision energies 50 eV/u–10 GeV/u

Inga Yu. Tolstikhina, Y. Ito, V.P. Shevelko

Nuclear Instruments and Methods in Physics Research B 532, 27–37 (2022). ○

<https://doi.org/10.1016/j.nimb.2022.10.002>

(16) New *K* isomers in ^{248}Cf

R. Orlandi, H. Makii, K. Nishio, K. Hirose, M. Asai, K. Tsukada, T. K. Sato, Y. Ito, F. Suzaki, Y. Nagame, A. N. Andreyev, E. Ideguchi, N. Aoi, T. T. Pham, S. Yan, Y. Shen, B. Gao, and G. Li

Physical Review C 106, 064301 (2022). ○

<https://doi.org/10.1103/PhysRevC.106.064301>

(17) Study of the $N=32$ and $N=34$ Shell Gap for Ti and V by the First High-Precision Multireflection Time-of-Flight Mass Measurements at BigRIPS-SLOWRI

S.Imura, M.Rosenbusch, A.Takamine, Y.Tsunoda, M.Wada, S.Chen, D.S.Hou, W.Xian, H.Ishiyama, S.Yan, P.Schury, H.Crawford, P.Doornenbal, Y.Hirayama, Y.Ito, S.Kimura, T.Koiwai, T.M.Kojima, H.Koura, J.Lee, J.Liu, S.Michimasa, H.Miyatake, J.Y.Moon, S.Naimi, S.Nishimura, T.Niwase, A.Odahara, T.Otsuka, S.Paschalis, M.Petri, N.Shimizu, T.Sonoda, D.Suzuki, Y.X.Watanabe, K.Wimmer, H.Wollnik

Physical Review Letters 130, 012501 (2023). ○

<http://dx.doi.org/10.1103/PhysRevLett.130.012501>

(18) Discovery of New Isotope ^{241}U and Systematic High-Precision Atomic Mass Measurements of Neutron-Rich Pa-Pu Nuclei Produced via Multinucleon Transfer Reactions

T.Niwase, Y.X.Watanabe, Y.Hirayama, M.Mukai, P.Schury, A.N.Andreyev, T.Hashimoto, S.Imura, H.Ishiyama, Y.Ito, S.C.Jeong, D.Kaji, S.Kimura, H.Miyatake, K.Morimoto, J.-Y.Moon, M.Oyaizu, M.Rosenbusch, A.Taniguchi, M.Wada

Physical Review Letters 130, 132502 (2023). ○

<http://dx.doi.org/10.1103/PhysRevLett.130.132502>

Invited Talks at International Conferences

(1) Measurement of evaporation residues produced in the multinucleon transfer reaction using the JAEA Recoil Mass Separator

F. Suzaki

19th Workshop on Recoil Separator for Superheavy Element Chemistry & Physics TASCA2022, 10-12 May 2022. (ZOOM)

- (2) In-beam gamma-ray spectroscopy of neutron-rich actinides at the JAEA Tandem accelerator
R. Orlandi
19th Workshop on Recoil Separator for Superheavy Element Chemistry & Physics TASCA2022,
10-12 May 2022. (ZOOM)
- (3) Recent SHE studies utilizing chemical and low-energy ion beam techniques at JAEA
Y. Ito
19th Workshop on Recoil Separator for Superheavy Element Chemistry & Physics TASCA2022,
10-12 May 2022. (ZOOM)
- (4) Measurement of prompt fission gamma-ray spectrum of $^{235}\text{U}(\text{nth},\text{f})$
K. Nishio
Workshop on Fission Fragment Angular Momenta, 21-24 June 2022 (ZOOM)
<https://indico.in2p3.fr/event/26459/>
- (5) Chemistry of heavy actinides using their low-energy ion-beams
Y. Nagame
6th International Nuclear Chemistry Congress (INCC-6), Lanzhou, China, August 29 - September
2, 2022. (ZOOM)
- (6) Experiments using recoil mass separator and fission studies at JAEA tandem
K. Nishio
Physics with SPIRAL2 Heavy Ion Beams, GANIL, CAEN, France, December 12-16, 2022.
- (7) Spectroscopy and fission studies for neutron-rich heavy actinide nuclei
M. Asai
Physics with SPIRAL2 Heavy Ion Beams, GANIL, CAEN, France, December 12-16, 2022.
- (8) Nuclear structure of heavy actinides studied via in beam γ -ray spectroscopy at the JAEA Tandem
accelerator
R. Orlandi
JSPS/NSFC/NRF A3 Foresight Program “Nuclear Physics in the 21st Century”
Osaka International Convention Centre, Osaka February 13-15, 2023.

Books and Scientific Articles

"Multinucleon-Transfer-Induced Fission"

Katsuhisa Nishio

Handbook of Nuclear Physics, Springer

Editors: Isao Tanihata, Hiroshi Toki, Toshitaka Kajino

https://link.springer.com/referenceworkentry/10.1007/978-981-15-8818-1_83-1

Patents

None

Awards

None

Press Release

None