PHYSICAL REVIEW C™

For editorial and subscription correspondence, please see inside front cover
(ISSN: 2469-9985)

PERIODICALS
Postmaster send address changes to:

PHYSICAL REVIEW C
APS Subscription Services
P.O. Box 41
Annapolis Junction, MD 20701

THIRD SERIES, VOLUME 100, NUMBER 3 *CONTENTS* **SEPTEMBER 2019**

RAPID COMMUNICATIONS

Nuclear Structure

Macroscopic manifestations of rotating triaxial superfluid nuclei *(4 pages)* . . . . . 031301(R)
P. Schuck and M. Urban

Strong one-neutron emission from two-neutron unbound states in β decays of the r-process nuclei ^{86,87}Ga *(6 pages)* . . . . . 031302(R)
R. Yokoyama *et al.*

Union of rotational and vibrational modes in generator-coordinate-type calculations, with application to neutrinoless double-β decay *(6 pages)* . . . . . 031303(R)
Changfeng Jiao and Calvin W. Johnson

Relativistic Nuclear Collisions

Shape of the quark gluon plasma droplet reflected in the high-$p_\perp$ data *(5 pages)* . . . . . 031901(R)
Magdalena Djordjevic, Stefan Stojku, Marko Djordjevic, and Pasi Huovinen

Nuclear Astrophysics

Experimental constraint on stellar electron-capture rates from the ^{88}Sr$(t,\ ^3\mathrm{He}+\gamma)\,^{88}$Rb reaction at 115 MeV/u *(6 pages)* . . . . . 032801(R)
J. C. Zamora, R. G. T. Zegers, Sam M. Austin, D. Bazin, B. A. Brown, P. C. Bender, H. L. Crawford, J. Engel, A. Falduto, A. Gade, P. Gastis, B. Gao, T. Ginter, C. J. Guess, S. Lipschutz, B. Longfellow, A. O. Macchiavelli, K. Miki, E. Ney, S. Noji, J. Pereira, J. Schmitt, C. Sullivan, R. Titus, and D. Weisshaar

ARTICLES

Nucleon-Nucleon Interaction, Few-Body Systems

Deuteron breakup induced by 14-MeV neutrons from inertial confinement fusion *(7 pages)* 034001
C. J. Forrest, A. Deltuva, W. U. Schröder, A. V. Voinov, J. P. Knauer, E. M. Campbell, G. W. Collins, V. Yu. Glebov, O. M. Mannion, Z. L. Mohamed, P. B. Radha, S. P. Regan, T. C. Sangster, and C. Stoeckl

Three-body hypernuclei in pionless effective field theory *(15 pages)* 034002
F. Hildenbrand and H.-W. Hammer

Three-body calculation of incoherent π^0 photoproduction on a deuteron *(8 pages)* 034003
A. Fix and H. Arenhövel

Copyright 2019 by American Physical Society

2469-9985(201909)100:3;1-#

(Continued)

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 100, NUMBER 3** **SEPTEMBER 2019**

Embedding nuclear physics inside the unitary-limit window *(11 pages)* 034004
M. Gattobigio, A. Kievsky, and M. Viviani

Direct observation of neutron spin rotation in Bragg scattering due to the spin-orbit interaction in silicon *(13 pages)* 034005
T. R. Gentile, M. G. Huber, D. D. Koetke, M. Peshkin, M. Arif, T. Dombeck, D. S. Hussey, D. L. Jacobson, P. Nord, D. A. Pushin, and R. Smither

Nuclear Structure

Global microscopic calculations of odd-odd nuclei *(12 pages)* 034301
D. E. Ward, B. G. Carlsson, P. Möller, and S. Åberg

$B(E2)$ anomalies in the yrast band of ^{170}Os *(8 pages)* 034302
A. Goasduff, J. Ljungvall, T. R. Rodríguez, F. L. Bello Garrote, A. Etile, G. Georgiev, F. Giacoppo, L. Grente, M. Klintefjord, A. Kuşoğlu, I. Matea, S. Roccia, M.-D. Salsac, and C. Sotty

Coexistence and 2n transfer in even Zr nuclei *(3 pages)* 034303
H. T. Fortune

Precision measurements of the charge radii of potassium isotopes *(11 pages)* 034304
Á. Koszorús, X. F. Yang, J. Billowes, C. L. Binnersley, M. L. Bissell, T. E. Cocolios, G. J. Farooq-Smith, R. P. de Groote, K. T. Flanagan, S. Franchoo, R. F. Garcia Ruiz, S. Geldhof, W. Gins, A. Kanellakopoulos, K. M. Lynch, G. Neyens, H. H. Stroke, A. R. Vernon, K. D. A. Wendt, and S. G. Wilkins

Experimental $M1$ response of ^{40}Ar as a benchmark for neutrino-nucleus scattering calculations *(17 pages)* 034305
U. Gayer, T. Beck, M. Bhike, J. Isaak, N. Pietralla, P. C. Ries, D. Savran, M. Schilling, W. Tornow, and V. Werner

Normal and intruder configurations in ^{34}Si populated in the β^- decay of ^{34}Mg and ^{34}Al *(11 pages)* 034306
R. Lică *et al.* (IDS Collaboration)

New data on 0^+ states in ^{158}Gd *(11 pages)* 034307
A. I. Levon, D. Bucurescu, C. Costache, T. Faestermann, R. Hertenberger, A. Ionescu, R. Lica, A. G. Magner, C. Mihai, R. Mihai, C. R. Nita, S. Pascu, K. P. Shevchenko, A. A. Shevchuk, A. Turturica, and H.-F. Wirth

Structure of ^{38}Cl and the quest for a comprehensive shell model interaction *(12 pages)* 034308
R. S. Lubna, K. Kravvaris, S. L. Tabor, Vandana Tripathi, A. Volya, E. Rubino, J. M. Allmond, B. Abromeit, L. T. Baby, and T. C. Hensley

Decay spectroscopy of two-quasiparticle K isomers in ^{246,248}Cm via inelastic and transfer reactions *(6 pages)* 034309
U. Shirwadkar, S. K. Tandel, P. Chowdhury, T. L. Khoo, I. Ahmad, M. P. Carpenter, J. P. Greene, R. V. F. Janssens, F. G. Kondev, T. Lauritsen, C. J. Lister, D. Peterson, D. Seweryniak, X. Wang, and S. Zhu

Ground-state properties of doubly magic nuclei from the unitary-model-operator approach with chiral two- and three-nucleon forces *(10 pages)* 034310
T. Miyagi, T. Abe, M. Kohno, P. Navrátil, R. Okamoto, T. Otsuka, N. Shimizu, and S. R. Stroberg

Coupled self-consistent random-phase approximation equations for even and odd particle numbers: Tests with solvable models *(12 pages)* 034311
M. Jemaï and P. Schuck

Effects of pairing, continuum, and deformation on particles in the classically forbidden regions for Mg isotopes *(7 pages)* 034312
K. Y. Zhang (张开元), D. Y. Wang (王东阳), and S. Q. Zhang (张双全)

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 100, NUMBER 3** **SEPTEMBER 2019**

High-resolution conversion electron spectroscopy of the ^{125}I electron-capture decay *(10 pages)* 034313
B. P. E. Tee, A. E. Stuchbery, M. Vos, J. T. H. Dowie, B. Q. Lee, M. Alotiby, I. Greguric, and T. Kibédi

In-beam spectroscopic study of ^{63}Zn *(10 pages)* 034314
U. S. Ghosh, S. Rai, B. Mukherjee, A. Biswas, A. K. Mondal, K. Mandal, A. Chakraborty, S. Chakraborty, G. Mukherjee, A. Sharma, I. Bala, S. Muralithar, and R. P. Singh

Search for α decay of ^{104}Te with a novel recoil-decay scintillation detector *(8 pages)* 034315
Y. Xiao, S. Go, R. Grzywacz, R. Orlandi, A. N. Andreyev, M. Asai, M. A. Bentley, G. de Angelis, C. J. Gross, P. Hausladen, K. Hirose, S. Hofmann, H. Ikezoe, D. G. Jenkins, B. Kindler, R. Léguillon, B. Lommel, H. Makii, C. Mazzocchi, K. Nishio, P. Parkhurst, S. V. Paulauskas, C. M. Petrache, K. P. Rykaczewski, T. K. Sato, J. Smallcombe, A. Toyoshima, K. Tsukada, K. Vaigneur, and R. Wadsworth

First β-decay scheme of ^{107}Nb: New insight into the low-energy levels of ^{107}Mo *(7 pages)* 034316
J. Kurpeta, A. Płochocki, W. Urban, A. Abramuk, L. Canete, T. Eronen, A. Fijałkowska, S. Geldhof, K. Gotowicka, A. Jokinen, A. Kankainen, I. D. Moore, D. Nesterenko, H. Penttilä, I. Pohjalainen, M. Pomorski, M. Reponen, S. Rinta-Antila, A. de Roubin, T. Rząca-Urban, M. Vilén, and J. Wiśniewski

Probing the role of proton cross-shell excitations in ^{70}Ni using nucleon knockout reactions *(11 pages)* 034317
B. Elman, A. Gade, R. V. F. Janssens, A. D. Ayangeakaa, D. Bazin, J. Belarge, P. C. Bender, B. A. Brown, C. M. Campbell, M. P. Carpenter, H. L. Crawford, B. P. Crider, P. Fallon, A. M. Forney, J. Harker, S. N. Liddick, B. Longfellow, E. Lunderberg, C. J. Prokop, J. Sethi, R. Taniuchi, W. B. Walters, D. Weisshaar, and S. Zhu

Dependence of atomic parity-violation effects on neutron skins and new physics *(10 pages)* 034318
A. V. Viatkina, D. Antypas, M. G. Kozlov, D. Budker, and V. V. Flambaum

Better insight into the Strutinsky method *(13 pages)* 034319
B. Mohammed-Azizi

Experimental investigation of α condensation in light nuclei *(20 pages)* 034320
J. Bishop, Tz. Kokalova, M. Freer, L. Acosta, M. Assié, S. Bailey, G. Cardella, N. Curtis, E. De Filippo, D. Dell'Aquila, S. De Luca, L. Francalanza, B. Gnoffo, G. Lanzalone, I. Lombardo, N. S. Martorana, S. Norella, A. Pagano, E. V. Pagano, M. Papa, S. Pirrone, G. Politi, F. Rizzo, P. Russotto, L. Quattrocchi, R. Smith, I. Stefan, A. Trifirò, M. Trimarchì, G. Verde, M. Vigilante, and C. Wheldon

Clustering in structure and reactions using configuration interaction techniques *(20 pages)* 034321
Konstantinos Kravvaris and Alexander Volya

Spectroscopy of low-spin states in ^{157}Dy: Search for evidence of enhanced octupole correlations *(13 pages)* 034322
S. N. T. Majola *et al.*

Observation of three-neutron sequential emission from ^{25}O* *(6 pages)* 034323
C. Sword, J. Brett, T. Baumann, B. A. Brown, N. Frank, J. Herman, M. D. Jones, H. Karrick, A. N. Kuchera, M. Thoennessen, J. A. Tostevin, M. Tuttle-Timm, and P. A. DeYoung

Contribution of chiral three-body forces to the monopole component of the effective shell-model Hamiltonian *(12 pages)* 034324
Y. Z. Ma, L. Coraggio, L. De Angelis, T. Fukui, A. Gargano, N. Itaco, and F. R. Xu

Isoscalar pairing interaction for the quasiparticle random-phase approximation approach to double-β and β decays *(11 pages)* 034325
J. Terasaki and Y. Iwata

(Continued)

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 100, NUMBER 3** **SEPTEMBER 2019**

Disentangling the pair and quartet condensates *(6 pages)* 034326
V. V. Baran, D. S. Delion, and S. Dolteanu

Measurement of the 2_1^+ level lifetime in ^{120}Sn by the Doppler shift attenuation method: Evidence of enhanced collectivity *(9 pages)* 034327
A. Kundu, S. Santra, A. Pal, D. Chattopadhyay, R. Raut, R. Palit, Md. S. R. Laskar, F. S. Babra, C. S. Palshetkar, B. K. Nayak, and S. Kailas

Systematic investigations of positive-parity doublet bands with three-quasiparticle configurations in ^{125,127,129,131}Cs *(7 pages)* 034328
Rui Guo (郭瑞), Wu-Ji Sun (孙无忌), Jian Li (李剑), Dong Yang (杨东), Yonghao Liu (刘永好), Chengkun Ru (汝承坤), and Jihuai Chi (迟济怀)

Nuclear Reactions

Measurement of the ^{10}B(α, n_0) ^{13}N cross section for $2.2 < E_\alpha < 4.9$ MeV and its application as a diagnostic at the National Ignition Facility *(10 pages)* 034601
Q. Liu, M. Febbraro, R. J. deBoer, A. Boeltzig, Y. Chen, C. Cerjan, M. Couder, B. Frentz, J. Görres, E. A. Henry, E. Lamere, K. T. Macon, K. V. Manukyan, L. Morales, P. D. O'Malley, S. D. Pain, W. A. Peters, D. Schneider, C. Seymour, G. Seymour, E. Temanson, R. Toomey, B. Vande Kolk, J. Weaver, and M. Wiescher

Microscopic analysis of quasielastic scattering and breakup reactions of the neutron-rich nuclei ^{12,14}Be *(12 pages)* 034602
V. K. Lukyanov, D. N. Kadrev, E. V. Zemlyanaya, K. V. Lukyanov, A. N. Antonov, and M. K. Gaidarov

Strong coupling effect in the elastic scattering of the ^{10}C + ^{58}Ni system near barrier *(11 pages)* 034603
V. Guimarães, E. N. Cardozo, V. B. Scarduelli, J. Lubian, J. J. Kolata, P. D. O'Malley, D. W. Bardayan, E. F. Aguilera, E. Martinez-Quiroz, D. Lizcano, A. Garcia-Flores, M. Febbraro, C. C. Lawrence, J. Riggins, R. O. Torres-Isea, P. N. de Faria, D. S. Monteiro, E. S. Rossi, Jr., and N. N. Deshmukh

Role of axial mass and strange axial form factor from various target nuclei in neutrino-nucleus scattering *(8 pages)* 034604
K. S. Kim, Ki-Seok Choi, Myung-Ki Cheoun, W. Y. So, and Heejang Moon

γ-ray strength function for barium isotopes *(7 pages)* 034605
H. Utsunomiya, T. Renstrøm, G. M. Tveten, S. Goriely, T. Ari-izumi, V. W. Ingeberg, B. V. Kheswa, Y.-W. Lui, S. Miyamoto, S. Hilaire, S. Péru, and A. J. Koning

Describing heavy-ion fusion with quantum coupled-channels wave-packet dynamics *(6 pages)* 034606
Terence Vockerodt and Alexis Diaz-Torres

Role of channel temperature and mass window in the binary breakup of ^{236}U* *(10 pages)* 034607
C. Kokila and M. Balasubramaniam

α-decay half-lives of some superheavy nuclei within a modified generalized liquid drop model *(6 pages)* 034608
Dashty T. Akrawy, K. P. Santhosh, and H. Hassanabadi

Deuteron-α scattering: Separable versus nonseparable Faddeev approach *(12 pages)* 034609
L. Hlophe, Jin Lei, Ch. Elster, A. Nogga, F. M. Nunes, D. Jurčiukonis, and A. Deltuva

Dynamic linear response quantum algorithm *(6 pages)* 034610
Alessandro Roggero and Joseph Carlson

Transfer reactions with the Lagrange-mesh method *(11 pages)* 034611
Shubhchintak and P. Descouvemont

(Continued)

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 100, NUMBER 3** **SEPTEMBER 2019**

Projection of good quantum numbers for reaction fragments *(7 pages)* 034612
Aurel Bulgac

Neutron capture cross sections of ^{93}Nb *(5 pages)* 034613
K. S. Krane

Proton-induced reactions on molybdenum *(13 pages)* 034614
E. Lamere, M. Couder, M. Beard, A. Simon, A. Simonetti, M. Skulski, G. Seymour, P. Huestis, K. Manukyan, Z. Meisel, L. Morales, M. Moran, S. Moylan, C. Seymour, and E. Stech

Fission dynamics of ^{240}Pu from saddle to scission and beyond *(27 pages)* 034615
Aurel Bulgac, Shi Jin, Kenneth J. Roche, Nicolas Schunck, and Ionel Stetcu

Influence of projectile structure and target deformation on incomplete fusion in the $^{16}O + ^{51}V$ system *(10 pages)* 034616
Munish Kumar, Avinash Agarwal, S. Prajapati, Kamal Kumar, Sunil Dutt, I. A. Rizvi, R. Kumar, and A. K. Chaubey

Barrier transmission for proton emission during the intranuclear cascade process *(6 pages)* 034617
Yuji Yamaguchi, Yusuke Uozumi, and Masahiro Nakano

Experimental study of Gamow-Teller transitions via the high-energy-resolution $^{18}O(^3He, t)^{18}F$ reaction: Identification of the low-energy "super" -Gamow-Teller state *(13 pages)* 034618
H. Fujita, Y. Fujita, Y. Utsuno, K. Yoshida, T. Adachi, A. Algora, M. Csatlós, J. M. Deaven, E. Estevez-Aguado, C. J. Guess, J. Gulyás, K. Hatanaka, K. Hirota, R. Hutton, D. Ishikawa, A. Krasznahorkay, H. Matsubara, F. Molina, H. Okamura, H. J. Ong, G. Perdikakis, B. Rubio, C. Scholl, Y. Shimbara, G. Süsoy, T. Suzuki, A. Tamii, J. H. Thies, R. G. T. Zegers, and J. Zenihiro

Extension of the intranuclear cascade model to neutron-induced nonelastic cross sections in the low-energy region *(6 pages)* 034619
Masahiro Nakano and Yusuke Uozumi

$^{20}Ne + ^{76}Ge$ elastic and inelastic scattering at 306 MeV *(8 pages)* 034620
A. Spatafora *et al.* (for the NUMEN Collaboration)

Relativistic Nuclear Collisions

Exact solutions and attractors of higher-order viscous fluid dynamics for Bjorken flow *(15 pages)* 034901
Sunil Jaiswal, Chandrodoy Chattopadhyay, Amaresh Jaiswal, Subrata Pal, and Ulrich Heinz

Local suppression and enhancement of the pairing condensate under rotation *(6 pages)* 034902
Lingxiao Wang, Yin Jiang, Lianyi He, and Pengfei Zhuang

Dijet azimuthal correlations and conditional yields in pp and $p +$ Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the ATLAS detector *(24 pages)* 034903
M. Aaboud *et al.* (ATLAS Collaboration)

FRIGA: A new approach to identify isotopes and hypernuclei in n-body transport models *(13 pages)* 034904
A. Le Fèvre, J. Aichelin, C. Hartnack, and Y. Leifels

Role of baryon number conservation in measurements of fluctuations *(9 pages)* 034905
Claude A. Pruneau

Saturation momentum scale extracted from semi-inclusive transverse spectra in high-energy pp collisions *(8 pages)* 034906
Takeshi Osada and Takuya Kumaoka

Gluon emission from heavy quarks in dense nuclear matter *(18 pages)* 034907
Le Zhang, De-Fu Hou, and Guang-You Qin

(Continued)

PHYSICAL REVIEW C THIRD SERIES, VOLUME 100, NUMBER 3 SEPTEMBER 2019

Hadronic Physics and QCD

Nucleon resonance contributions to unpolarized inclusive electron scattering *(13 pages)* 035201
A. N. Hiller Blin, V. Mokeev, M. Albaladejo, C. Fernández-Ramírez, V. Mathieu, A. Pilloni, A. Szczepaniak, V. D. Burkert, V. V. Chesnokov, A. A. Golubenko, and M. Vanderhaeghen

Photoproduction of $K^+\Lambda$ within a Regge-plus-resonance model *(18 pages)* 035202
P. Bydžovský and D. Skoupil

Color transparency of K^+ mesons in inclusive (e, e') reactions on nuclei *(5 pages)* 035203
Swapan Das

Dynamical generation of resonances in the $P33$ partial wave *(9 pages)* 035204
B. Golli, H. Osmanović, and S. Širca

Chiral light-front perturbation theory and the flavor dependence of the light-quark nucleon sea *(8 pages)* 035205
Mary Alberg and Gerald A. Miller

Nucleon resonances with hidden charm in γp reactions *(13 pages)* 035206
Jia-Jun Wu, T.-S. H. Lee, and Bing-Song Zou

Pure spin-3/2 representation with consistent interactions *(8 pages)* 035207
T. Mart, J. Kristiano, and S. Clymton

Explicit derivation of the completeness condition in pseudoscalar meson photoproduction *(15 pages)* 035208
K. Nakayama

Electroweak Interaction, Symmetries

Polarization of τ in quasielastic (anti)neutrino scattering: The role of spectral functions *(14 pages)* 035501
J. E. Sobczyk, N. Rocco, and J. Nieves

Muon capture in nuclei: An *ab initio* approach based on Green's function Monte Carlo methods *(6 pages)* 035502
A. Lovato, N. Rocco, and R. Schiavilla

Nuclear Astrophysics

Role of the symmetry energy and the neutron-matter stiffness on the tidal deformability of a neutron star with unified equations of state *(10 pages)* 035801
L. Perot, N. Chamel, and A. Sourie

Predicting the moment of inertia of pulsar J0737-3039A from Bayesian modeling of the nuclear equation of state *(11 pages)* 035802
Yeunhwan Lim, Jeremy W. Holt, and Robert J. Stahulak

Damping of density oscillations in neutrino-transparent nuclear matter *(13 pages)* 035803
Mark G. Alford and Steven P. Harris

Self-consistent band calculation of the slab phase in the neutron-star crust *(16 pages)* 035804
Yu Kashiwaba and Takashi Nakatsukasa

Complex-energy analysis of proton-proton fusion *(13 pages)* 035805
David Gaspard, Jean-Marc Sparenberg, Quentin Wenda, and Daniel Baye

(Continued)

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 100, NUMBER 3** **SEPTEMBER 2019**

ERRATA

Publisher's Note: Statistical properties of ^{243}Pu, and ^{242}Pu(n, γ) cross section calculation
[Phys. Rev. C **93**, 014323 (2016)] *(1 page)*. . . . . 039901(E)
T. A. Laplace, F. Zeiser, M. Guttormsen, A. C. Larsen, D. L. Bleuel, L. A. Bernstein, B. L. Goldblum, S. Siem, F. L. Bello Garrote, J. A. Brown, L. Crespo Campo, T. K. Eriksen, F. Giacoppo, A. Görgen, K. Hadyńska-Klęk, R. A. Henderson, M. Klintefjord, M. Lebois, T. Renstrøm, S. J. Rose, E. Sahin, T. G. Tornyi, G. M. Tveten, A. Voinov, M. Wiedeking, J. N. Wilson, and W. Younes

Erratum: Fusion and quasi-elastic scattering in the ^{6,7}Li + ^{197}Au systems
[Phys. Rev. C **89**, 024607 (2014)] *(1 page)*. . . . . 039902(E)
C. S. Palshetkar, Shital Thakur, V. Nanal, A. Shrivastava, N. Dokania, V. Singh, V. V. Parkar, P. C. Rout, R. Palit, R. G. Pillay, S. Bhattacharyya, A. Chatterjee, S. Santra, K. Ramachandran, and N. L. Singh