

## Physics Division Published Journal Articles, July-December 2015

PHY-14058-TH-2015

Rod-Shaped Nuclei at Extreme Spin and Isospin

P. W. Zhao, N. Itagaki, and J. Meng

Phys. Rev. Lett. **115**, 022501/1-6 (2015)

PHY-14090-HI-2015

Decay and Fission Hindrance of Two- and Four-Quasiparticle  $K$  Isomers in  $^{254}\text{Rf}$

H. M. David, J. Chen, D. Seweryniak, F. G. Kondev, J. M. Gates, K. E. Gregorich, I. Ahmad,

M. Albers, M. Alcorta, B. B. Back, B. Baartman, P. F. Bertone, L. A. Bernstein,

C. M. Campbell, M. P. Carpenter, C. J. Chiara, R. M. Clark, M. Cromaz, D. T. Doherty,

G. D. Dracoulis, N. Esker, P. Fallon, O. Gothe, J. P. Greene, P. T. Greenlees, D. J. Hartley,

K. Hauschild, C. R. Hoffman, S. S. Hota, R. V. F. Janssens, T. L. Khoo, J. Konki,

J. Karwsik, T. Lauritsen, A. O. Macchiavelli, P. Mudder, C. Nair, Y. Qiu, J. Rissanen,

A. M. Rogers, P. Ruotsalainen, G. Savard, S. Stolze, A. Wiens, and S. Zhu

Phys. Rev. Lett. **115**, 132502/1-5 (2015)

PHY-14141-ME-2015

Cross Sections for the Exclusive Photon Electroproduction on the Proton and Generalized Parton Distributions

H. S. Jo *et al.* (CLAS Collaboration)

Phys. Rev. Lett. **115**, 212003/1-7 (2015)

PHY-14146-ME-2015

First Measurement of the Polarization Observable  $E$  in the  $\vec{p}(\vec{\gamma}, \pi^+)n$  Reaction up to 2.25 GeV

S. Strauch *et al.* (CLAS Collaboration)

Phys. Lett. **B750**, 53-58 (2015)

PHY-14109-TH-2015

Understanding the Nucleon as a Borromean Bound-State

Jorge Segovia, Craig D. Roberts, and Sebastian M. Schmidt

Phys. Lett. **B750**, 100-106 (2015)

PHY-14038-HI-2015

Isomers and Oblate Rotation in Pt Isotopes: Delineating the Limit for Collectivity at High Spins

S. K. Tandel, S. G. Wahid, P. Chowdhury, R. V. F. Janssens, M. P. Carpenter, T. L. Khoo,

F. G. Kondev, T. Lauritsen, C. J. Lister, D. Seweryniak, and S. Zhu

Phys. Lett. **B750**, 225-229 (2015)

PHY-14113-HI-2015

Impact of Triaxiality on the Rotational Structure of Neutron-Rich Rhenium Isotopes

M. W. Reed, G. J. Lane, G. D. Dracoulis, F. G. Kondev, M. P. Carpenter, P. Chowdhury, S. S. Hota, R. O. Hughes, R. V. F. Janssens, T. Lauritsen, C. J. Lister, N. Palalani, D. Seweryniak, H. Watanabe, S. Zhu, W. G. Jiang, and F. R. Xu  
Phys. Lett. **B752**, 311-316 (2015)

PHY-14089-HI-2015

New Low-Energy  $0^+$  State and Shape Coexistence in  $^{70}\text{Ni}$

C. J. Prokop, B. P. Crider, S. N. Liddick, A. D. Ayangeakaa, M. P. Carpenter, J. J. Carroll, J. Chen, C. J. Chiara, H. M. David, A. C. Dombos, S. Go, J. Harker, R. V. F. Janssens, N. Larson, T. Lauritsen, R. Lewis, S. J. Quinn, F. Recchia, D. Seweryniak, A. Spyrou, S. Suchyta, W. B. Walters, and S. Zhu  
Phys. Rev. C **92**, 061302(R)/1-6 (2015)

PHY-14057-ME-2015

Measurement of the EMC Effect in the Deuteron

K. A. Griffioen, J. Arrington, M. E. Christy, R. Ent, N. Kalantarians, C. E. Keppel, S. E. Kuhn, W. Melnitchouk, G. Niculescu, I. Niculescu, S. Tkachenko, and J. Zhang  
Phys. Rev. C **92**, 015211/1-5 (2015)

PHY-13945-HI-2014

Analogous Intruder Behavior Near Ni, Sn, and Pb Isotopes

S. N. Liddick, W. B. Walters, C. J. Chiara, R. V. F. Janssens, B. Abromeit, A. Ayres, A. Bey, C. R. Bingham, M. P. Carpenter, L. Cartegni, J. Chen, H. L. Crawford, I. G. Darby, R. Grzywacz, J. Harker, C. R. Hoffman, S. Ilyushkin, F. G. Kondev, N. Larson, M. Madurga, D. Miller, S. Padgett, S. V. Paulauskas, M. M. Rajabali, K. Rykaczewski, D. Seweryniak, S. Suchyta, and S. Zhu  
Phys. Rev. C **92**, 024319/1-7 (2015)

PHY-14088-HI-2015

Cluster-Transfer Reactions with Radioactive Beams: A Spectroscopic Tool for Neutron-Rich Nuclei

S. Bottoni, S. Leoni, B. Fornal, R. Raabe, K. Rusek, G. Benzoni, A. Bracco, F. C. L. Crespi, A. I. Morales, P. Bednarczyk, N. Cieplicka-Oryńczak, W. Królas, A. Maj, B. Szpak, M. Callens, J. Bouma, J. Elseviers, H. De Witte, F. Flavigny, R. Orlandi, P. Reiter, M. Seidlitz, N. Warr, B. Siebeck, S. Hellgartner, D. Mücher, J. Pakarinen, M. Vermeulen, C. Bauer, G. Georgiev, R. V. F. Janssens, D. Balabanski, M. Sferrazza, M. Kowalska, E. Rapisarda, D. Vonlot, M. Lozano Benito, and F. Wienander  
Phys. Rev. C **92**, 024322/1-8 (2015)

PHY-14183-TH-2015

Contribution of Two Particle-Two Hole Final States to the Nuclear Response

Omar Benhar, Alessandro Lovato, and Noemi Rocco  
Phys. Rev. C **92**, 024602/1-8 (2015)

PHY-14130-TH-2015

Dynamical Coupled-Channels Model of  $K^-p$  Reactions. II. Extraction of  $\Delta^*$  and  $\Sigma^*$  Hyperon Resonances

H. Kamano, S. X. Nakamura, T.-S. H. Lee, and T. Sato  
Phys. Rev. C **92**, 025205/1-16 (2015)

PHY-14122-HI-2015

Nucleon-Gold Collisions at 200A GeV Using Tagged  $d + Au$  Interactions in the PHOBOS Detector

B. B. Back, M. D. Baker, M. Ballintijn, D. S. Barton, B. Becker, R. R. Betts, A. A. Bickley, R. Bindel, W. Busza, A. Carroll, M. P. Decowski, E. Garcia, T. Gburek, N. George, K. Gulbrandsen, S. Gushue, C. Halliwell, J. Hamblen, A. S. Harrington, C. Henderson, D. J. Hofman, R. S. Hollis, R. Holynski, B. Holzman, A. Iordanova, E. Johnson, J. L. Kane, N. Khan, P. Kulinich, C. M. Kuo, J. W. Lee, W. T. Lin, S. Manly, A. C. Mignerey, R. Nouicer, A. Olszewski, R. Pak, I. C. Park, H. Pernegger, C. Reed, C. Roland, G. Roland, J. Sagerer, P. Sarin, I. Sedykh, W. Skulski, C. E. Smith, P. Steinberg, G. S. F. Stephans, A. Sukhanov, M. B. Tonjes, A. Trzupek, C. Vale, G. J. van Nieuwenhuizen, R. Verrier, G. I. Veres, F. L. H. Wolfs, B. Wosiek, K. Wozniak, B. Wyslouch, and J. Zhang  
Phys. Rev. C **92**, 034915/1-14 (2015)

PHY-14106-HI-2015

Structure of Resonances in the Gamow Burning Window for the  $^{25}\text{Al}(p,\gamma)^{26}\text{Si}$  Reaction in Novae

D. T. Doherty, P. J. Woods, D. Seweryniak, M. Albers, A. D. Ayangeakaa, M. P. Carpenter, C. J. Chiara, H. M. David, J. L. Harker, R. V. F. Janssens, A. Kankainen, C. Lederer, and S. Zhu  
Phys. Rev. C **92**, 035808/1-6 (2015)

PHY-14121-HI-2015

High-Spin Yrast Structure of  $^{204}\text{Hg}$  from the Decay of a Four-Hole,  $22^+$  Isomer

J. Wrzesinski, G. J. Lane, K. H. Maier, R. V. F. Janssens, G. D. Dracoulis, R. Broda, A. P. Byrne, M. P. Carpenter, R. M. Clark, M. Cromaz, B. Fornal, T. Lauritsen, A. O. Macchiavelli, M. Rejmund, B. Szpak, K. Vetter, and S. Zhu  
Phys. Rev. C **92**, 044327/1-11 (2015)

PHY-14175-HI-2015

Precise Absolute  $\gamma$ -Ray and  $\beta^-$ -Decay Branching Intensities in the Decay of  $^{67}_{29}\text{Cu}$

J. Chen, F. G. Kondev, I. Ahmad, M. P. Carpenter, J. P. Greene, R. V. F. Janssens, S. Zhu, D. Ehst, V. Makarashvili, D. Rotsch, and N. A. Smith  
Phys. Rev. C **92**, 044330/1-5 (2015)

PHY-14081-HI-2015

Rotation-Aligned Isomer and Oblate Collectivity in  $^{196}\text{Pt}$

S. G. Wahid, S. K. Tandel, P. Chowdhury, R. V. F. Janssens, M. P. Carpenter, T. L. Khoo, F. G. Kondev, T. Lauritsen, C. J. Lister, D. Seweryniak, and S. Zhu  
Phys. Rev. C **92**, 054323/1-9 (2015)

PHY-14142-ME-2015

Precise Determination of the Deuteron Spin Structure at Low to Moderate  $Q^2$  with CLAS and Extraction of the Neutron Contribution

N. Guler *et al.* (CLAS Collaboration)

Phys. Rev. C **92**, 055201/1-21 (2015)

PHY-14054-ME-2015

Extraction of the Proton Radius from Electron-Proton Scattering Data

Gabriel Lee, John R. Arrington, and Richard J. Hill

Phys. Rev. D **92**, 013013/1-25 (2015)

PHY-14031-TH-2015

Kaon and Pion Parton Distribution Amplitudes to Twist-Three

Chao Shi, Chen Chen, Lei Chang, Craig D. Roberts, Sebastian M. Schmidt, and Hong-Shi Zong

Phys. Rev. D **92**, 014035/1-15 (2015)

PHY-14143-ME-2015

Search for Baryon-Number and Lepton-Number Violating Decays of  $\Delta$  Hyperons Using the CLAS Detector at Jefferson Laboratory

M. E. McCracken *et al.* (CLAS Collaboration)

Phys. Rev. D **92**, 072002/1-12 (2015)

PHY-14221-ME-2015

Reply to "Comment on 'Reevaluation of the Parton Distribution of Strange Quarks in the Nucleon' "

E. C. Aschenauer, H. E. Jackson, S. Joosten, K. Rith, G. Schnell, and C. Van Hulse (HERMES Collaboration)

Phys. Rev. D **92**, 098102/1-7 (2015)

PHY-14228-HI-2015

In-Beam Spectroscopy of Heavy Elements

Ch. Theisen, P. T. Greenlees, T. L. Khoo, P. Chowdhury, and T. Ishii

Nucl. Phys. **A944**, 333-375 (2015)

PHY-14145-ME-2015

Bose-Einstein Correlations in Hadron-Pairs from Lepto-Production on Nuclei Ranging from Hydrogen to Xenon

A. Airapetian *et al.* (HERMES Collaboration)

Eur. Phys. J. C **75**, 361/1-9 (2015)

PHY-14247-ME-2016

Transverse-Target-Spin Asymmetry in Exclusive  $\omega$ -Meson Electroproduction

A. Airapetian *et al.* (HERMES Collaboration)

Eur. Phys. J. C **75**, 600/1-8 (2015)

PHY-14043-ME-2015

An Examination of Proton Charge Radius Extractions from e-p Scattering Data

John Arrington

J. Phys. and Chem. Ref. Data **44**, 031203/1-7 (2015)

PHY-14052-HI-2015

Multi-Sampling Ionization Chamber (MUSIC) for Measurements of Fusion Reactions with Radioactive Beams

P. F. F. Carnelli, S. Almaraz-Calderon, K. E. Rehm, M. Albers, M. Alcorta, P. F. Bertone, B. DiGiovine, H. Esbensen, J. Fernández Niello, D. Henderson, C. L. Jiang, J. Lai, S. T. Marley, O. Nusair, T. Palchan-Hazan, R. C. Pardo, M. Paul, and C. Ugalde  
Nucl. Instrum. Methods **A799**, 197-202 (2015)

PHY-14186-HI-2015

Towards a Measurement of the Half-Life of  $^{60}\text{Fe}$  for Stellar and Early Solar System Models

K. Ostdiek, T. Anderson, W. Bauder, M. Bowers, P. Collon, R. Dressler, J. Greene, W. Kutschera, W. Lu, M. Paul, D. Robertson, D. Schumann, M. Skulski, and A. Wallner  
Nucl. Instrum. Methods **B361**, 638-642 (2015)

PHY-14015-ME-2015

Two-Photon Exchange Contribution to Elastic Electron-Proton Scattering: Measurement at the VEPP-3 Storage Ring

I. A. Rachek, J. Arrington, V. F. Dmitriev, V. V. Gauzshtein, R. A. Golovin, A. V. Gramolin, R. J. Holt, V. V. Kaminskiy, B. A. Lazarenko, S. I. Mishnev, N. Yu Muchnoi, V. V. Neufeld, D. M. Nikolenko, R. Sh Sadykov, Yu V. Shestakov, V. N. Stibunov, D. K. Toporkov, H. de Vries, S. A. Zevakov, and V. N. Zhilich  
Phys. Scr. **T166**, 014017/1-5 (2015)

PHY-13987-TH-2015

Quantum Monte Carlo Methods for Nuclear Physics

J. Carlson, S. Gandolfi, F. Pederiva, Steven C. Pieper, R. Schiavilla, K. E. Schmidt, and R. B. Wiringa  
Rev. Mod. Phys. **87**, 1067-1118 (2015)

PHY-14034-RI-2015

Fast and Efficient Charge Breeding of the CARIBU EBIS

P. N. Ostroumov, A. Barcikowski, C. A. Dickerson, A. Perry, A. I. Pikin, S. I. Sharamentov, R. C. Vondrasek, and G. P. Zinkann  
Rev. Sci. Instr. **86**, 083311 (2015)