

Physics Division Published Journal Articles, January-June 2017

PHY-14438-HI-2017

Direct Evidence for Octupole Deformation in ^{146}Ba and the Origin of Large $E1$ Moment Variations in Reflection-Asymmetric Nuclei

B. Bucher, S. Zhu, C. Y. Wu, R. V. F. Janssens, R. N. Bernard, L. M. Robledo, T. R. Rodriguez, D. Cline, A. B. Hayes, A. D. Ayangeakaa, M. Q. Buckner, C. M. Campbell, M. P. Carpenter, J. A. Clark, H. L. Crawford, H. M. David, C. Dickerson, J. Harker, C. R. Hoffman, B. P. Kay, F. G. Kondev, T. Lauritsen, A. O. Macchiavelli, R. C. Pardo, G. Savard, D. Seweryniak, and R. Vondrasek

Phys. Rev. Lett. **118**, 152504/1-6 (2017)

PHY-14525-ME-2017

Rosenbluth Separation of the π^0 Electroproduction Cross Section Off the Neutron

M. Mazouz *et al.* (Jefferson Lab Hall A Collaboration)

Phys. Rev. Lett. **118**, 222002/1-6 (2017)

PHY-14357-HI-2016

Triaxiality Near the ^{110}Ru Ground State from Coulomb Excitation

D. T. Doherty, J. M. Allmond, R. V. F. Janssens, W. Korten, S. Zhu, M. Zielińska, D. C. Radford, A. D. Ayangeakaa, B. Bucher, J. C. Batchelder, C. W. Beausang, C. Campbell, M. P. Carpenter, D. Cline, H. L. Crawford, H. M. David, J. P. Delaroche, C. Dickerson, P. Fallon, A. Galindo-Uribarri, F. G. Kondev, J. L. Harker, A. B. Hayes, M. Hendricks, P. Humby, M. Girod, C. J. Gross, M. Klintefjord, K. Kolos, G. J. Lane, T. Lauritsen, J. Libert, A. O. Macchiavelli, P. J. Napiorkowski, E. Padilla-Rodal, R. Pardo, W. Reviol, D. G. Sarantites, G. Savard, D. Seweryniak, J. Srebrny, R. Varner, R. Vondrasek, A. Wiens, E. Wilson, J. L. Wood, and C. Y. Wu

Phys. Lett. **B766**, 334-338 (2017)

PHY-14372-ME-2016

Unveiling the Nucleon Tensor Charge at Jefferson Lab: A Study of the SoLID Case

Zhihong Ye, Nobuo Sato, Kalyan Allada, Tianbo Liu, Jian-Ping Chen, Zhong-Bo Kang, Alexei Prokudin, Peng Sun, and Feng Yuan

Phys. Lett. **B767**, 91-98 (2017)

PHY-14231-ME-2015

Target and Double Spin Asymmetries of Deeply Virtual π^0 Production with a Longitudinally Polarized Proton Target and CLAS

A. Kim *et al.* (CLAS Collaboration)

Phys. Lett. **B768**, 168-173 (2017)

PHY-14468-HI-2017

Measurement of Key Resonance States for the $^{30}\text{P}(p,\gamma)^{31}\text{S}$ Reaction Rate, and the Production of Intermediate-Mass Elements in Nova Explosions

A. Kankainen, P. J. Woods, H. Schatz, T. Poxon-Pearson, D. T. Doherty, V. Bader, T. Baugher, D. Bazin, B. A. Brown, J. Browne, A. Estrade, A. Gade, J. José, A. Kontos, C. Langer, G. Lotay, Z. Meisel, F. Montes, S. Noji, F. Nunes, G. Perdikakis, J. Pereira, F. Recchia, T. Redpath, R. Stroberg, M. Scott, D. Seweryniak, J. Stevens, D. Weisshaar, K. Wimmer, and R. Zegers
Phys. Lett. **B769**, 549-553 (2017)

PHY-14437-HI-2017

Identification of the One-Quadrupole Phonon $2_{1,ms}^+$ State of ^{204}Hg

R. Stegmann, C. Stahl, G. Rainovski, N. Pietralla, C. Stoyanov, M. P. Carpenter, R. V. F. Janssens, M. Lettmann, T. Möller, O. Möller, V. Werner, and S. Zhu
Phys. Lett. **B770**, 77-82 (2017)

PHY-14351-HI-2016

Investigation of Negative-Parity States in ^{156}Dy : Search for Evidence of Tetrahedral Symmetry

D. J. Hartley, L. L. Riedinger, R. V. F. Janssens, S. N. T. Majola, M. A. Riley, J. M. Allmond, C. W. Beausang, M. P. Carpenter, C. J. Chiara, N. Cooper, D. Curien, B. J. P. Gall, P. E. Garrett, F. G. Kondev, W. D. Kulp, T. Lauritsen, E. A. McCutchan, D. Miller, S. Miller, J. Piot, N. Redon, J. F. Sharpey-Schafer, J. Simpson, I. Stefanescu, X. Wang, V. Werner, J. L. Wood, C.-H. Yu, S. Zhu, and J. Dudek
Phys. Rev. C **95**, 014321/1-10 (2017)

PHY-14360-HI-2016

γ -Ray Spectroscopy of ^{209}Tl

B. M. S. Amro, C. J. Lister, E. A. McCutchan, W. Loveland, P. Chowdhury, S. Zhu, A. D. Ayangeakaa, J. S. Barrett, M. P. Carpenter, C. J. Chiara, J. P. Greene, J. L. Harker, R. V. F. Janssens, T. Lauritsen, A. A. Sonzogni, W. B. Walters, and R. Yanez
Phys. Rev. C **95**, 014330/1-6 (2017)

PHY-14449-ME-2017

Beam-Target Double Spin Asymmetry in Quasi-Elastic Electron Scattering Off the Deuteron with CLAS

M. Mayer *et al.* (CLAS Collaboration)
Phys. Rev. C **95**, 024005/1-18 (2017)

PHY-14399-HI-2016

First Identification of Excited States in ^{117}Ba Using the Recoil- β -Delayed Proton Tagging Technique

B. Ding, Z. Liu, D. Seweryniak, P. J. Woods, H. L. Wang, J. Yang, H. L. Liu, C. N. Davids, M. P. Carpenter, T. Davinson, R. V. F. Janssens, R. D. Page, A. P. Robinson, J. Shergur, S. Sinha, S. Zhu, X. D. Tang, J. G. Wang, T. H. Huang, W. Q. Zhang, M. D. Sun, X. Y. Liu, and H. Y. Lu

Phys. Rev. C **95**, 024301/1-8 (2017)

PHY-14447-ME-2017

Target and Beam-Target Spin Asymmetries in Exclusive Pion Electroproduction for $Q^2 > 1 \text{ GeV}^2$. I. $ep \rightarrow e\pi^+n$

P. E. Bosted *et al.* (CLAS Collaboration)

Phys. Rev. C **95**, 035206/1-12 (2017)

PHY-14448-ME-2017

Target and Beam-Target Spin Asymmetries in Exclusive Pion Electroproduction for $Q^2 > 1 \text{ GeV}^2$. II. $ep \rightarrow e\pi^0p$

P. E. Bosted *et al.* (CLAS Collaboration)

Phys. Rev. C **95**, 035207/1-12 (2017)

PHY-14397-HI-2016

Experimental Study of Isomeric Intruder $1/2^+$ States in $^{197,203}\text{At}$

K. Auranen, J. Uusitalo, S. Juutinen, H. Badran, F. Defranchi Bisso, D. Cox, T. Grahn, P. T. Greenlees, A. Herzán, U. Jakobsson, R. Julin, J. Konki, M. Leino, A. Lightfoot, M. Mallaburn, O. Neuvonen, J. Pakarinen, P. Papadakis, J. Partanen, P. Rahkila, M. Sandzelius, J. Sarén, C. Scholey, J. Sorri, and S. Stolze

Phys. Rev. C **95**, 044311/1-10 (2017)

PHY-14314-HI-2016

Activity Measurement of ^{60}Fe Through the Decay of ^{60m}Co and Confirmation of Its Half-Life

Karen M. Ostdiek, Tyler S. Anderson, William K. Bauder, Matthew R. Bowers, Adam M. Clark, Philippe Collon, Wenting Lu, Austin D. Nelson, Daniel Robertson, Michael Skulski, Rugard Dressler, Dorothea Schumann, John P. Greene, Walter Kutschera, and Michael Paul

Phys. Rev. C **95**, 055809/1-8 (2017)

PHY-14465-HI-2017

New Excitations in ^{142}Ba and ^{144}Ce : Evolution of γ Bands in the $N = 86$ Isotones

H. Naïdja, F. Nowacki, B. Bounthong, M. Czerwiński, T. Rząca-Urban, T. Rogiński, W. Urban, J. Wiśniewski, K. Sieja, A. G. Smith, J. F. Smith, G. S. Simpson, I. Ahmad, and J. P. Greene

Phys. Rev. C **95**, 064303/1-13 (2017)

PHY-14457-HI-2017

Doubly Magic ^{208}Pb : High-Spin States, Isomers, and $E3$ Collectivity in the Yrast Decay

R. Broda, R. V. F. Janssens, Ł. W. Iskra, J. Wrzesinski, B. Fornal, M. P. Carpenter, C. J. Chiara, N. Cieplicka-Oryńczak, C. R. Hoffman, F. G. Kondev, W. Królas, T. Lauritsen, Zs. Podolyak, D. Seweryniak, C. M. Shand, B. Szpak, W. B. Walters, S. Zhu, and B. A. Brown

Phys. Rev. C **95**, 064308/1-25 (2017)

PHY-14479-HI-2017

Unexpected Distribution of $\nu 1f_{7/2}$ Strength in ^{49}Ca

H. L. Crawford, A. O. Macchiavelli, P. Fallon, M. Albers, V. M. Bader, D. Bazin, C. M. Campbell, R. M. Clark, M. Cromaz, J. Dilling, A. Gade, A. Gallant, J. D. Holt, R. V. F. Janssens, R. Krücken, C. Langer, T. Lauritsen, I. Y. Lee, J. Menéndez, S. Noji, S. Paschalis, F. Recchia, J. Rissanen, A. Schwenk, M. Scott, J. Simonis, S. R. Stroberg, J. A. Tostevin, C. Walz, D. Weisshaar, A. Wiens, K. Wimmer, and S. Zhu

Phys. Rev. C **95**, 064317/1-5 (2017)

PHY-14270-ME-2016

Measurement of Two-Photon Exchange Effect by Comparing Elastic e^+p Cross Sections

D. Rimal *et al.* (CLAS Collaboration)

Phys. Rev. C **95**, 065201/1-20 (2017)

PHY-14393-TH-2016

Partonic Structure of Neutral Pseudoscalars via Two Photon Transition Form Factors

Khépani Raya, Minghui Ding, Adnan Bashir, Lei Chang, and Craig D. Roberts

Phys. Rev. D **95**, 074014/1-6 (2017)

PHY-14409-TH-2016

Scale-Setting, Flavor Dependence, and Chiral Symmetry Restoration

Daniele Binosi, Craig D. Roberts, and José Rodríguez-Quintero

Phys. Rev. D **95**, 114009/1-10 (2017)

PHY-14401-ME-2016

Setting a Limit on Anthropogenic Sources of Atmospheric ^{81}Kr Through Atom Trap Trace Analysis

J. C. Zappala, K. Bailey, W. Jiang, B. Micklich, P. Mueller, T. P. O'Connor, and R. Purtschert

Chem. Geo. **453**, 66-71 (2017)

PHY-14518-ME-2017

Using ^{81}Kr and Noble Gases to Characterize and Date Groundwater and Brines in the Baltic Artesian Basin on the One-Million-Year Timescale

Christoph Gerber, Rein Vaikmäe, Werner Aeschbach, Alise Babre, Wei Jiang, Markus Leuenberger, Zheng-Tian Lu, Robert Mokrik, Peter Müller, Valle Raidla, Tomas Saks, H. Niklaus Waber, Therese Weissbach, Jack C. Zappala, and Roland Purtschert

Geochimica et Cosmochimica Acta **205**, 187-210 (2017)

PHY-14356-RI-2016

SRF Acceleration for Heavy Ions: ATLAS Decadal Operation and Evolution

P. N. Ostroumov and R. C. Pardo

Jrnl. of Instr. **12**, 1-42 (2017)

PHY-14439-HI-2017

Study of the (α,p) and (α,n) Reactions with a Multi-Sampling Ionization Chamber

M. L. Avila, K. E. Rehm, S. Almaraz-Calderon, A. D. Ayangeakaa, C. Dickerson,

C. R. Hoffman, C. L. Jiang, B. P. Kay, J. Lai, O. Nusair, R. C. Pardo, D. Santiago-Gonzalez,

R. Talwar, and C. Ugalde

Nucl. Instrum. Methods **A859**, 63-68 (2017)

PHY-14406-ME-2016

Alignment of a Vector Magnetometer to an Optical Prism

M. R. Dietrich, K. G. Bailey, and T. P. O'Connor

Rev. Sci. Instrum. **88**, 055105/1-4 (2017)

PHY-14389-RI-2016

Instrumentation for Localized Superconducting Cavity Diagnostics

Z. A. Conway, M. Ge, and Y. Iwashita

Superconductor Sci. Technol. **30**, 034002/1-18 (2017)

PHY-14363-RI-2016

Surface Processing for Bulk Niobium Superconducting Radio Frequency Cavities

M. P. Kelly and T. Reid

Superconductor Sci. Technol. **30**, 043001/1-11 (2017)

PHY-14402-ME-2016

Rapid Processing of $^{85}\text{Kr}/\text{Kr}$ Ratios Using Atom Trap Trace Analysis

J. C. Zappala, K. Bailey, P. Mueller, T. P. O'Connor, and R. Purtschert

Water Resources Research **53**, 2553-2558 (2017)