

Physics Division Published Journal Articles, January-June 2015

PHY-13971-ME-2014

Towards a Resolution of the Proton Form Factor Problem: New Electron and Positron Scattering Data

D. Adikaram *et al.* (CLAS Collaboration)
Phys. Rev. Lett. **114**, 062003/1-6 (2015)

PHY-13973-ME-2014

Measurement of the Two-Photon Exchange Contribution to the Elastic $e^\pm p$ Scattering Cross Sections at the VEPP-3 Storage Ring

I. A. Rachek, J. Arrington, V. F. Dmitriev, V. V. Gauzshtein, R. E. Gerasimov, 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. Rev. Lett. **114**, 062005/1-5 (2015)

PHY-13744-HI-2014

Transverse Wobbling in ^{135}Pr

J. T. Matta, U. Garg, W. Li, A. D. Ayangeakaa, S. Frauendorf, D. Patel, K. W. Schlax, R. Palit, S. Saha, J. Sethi, J. Trivedi, S. S. Ghugre, R. Raut, A. K. Sinha, R. V. F. Janssens, S. Zhu, M. P. Carpenter, T. Lauritsen, D. Seweryniak, C. J. Chiara, F. G. Kondev, D. J. Hartley, C. M. Petrache, S. Mukhopadhyay, D. Vijaya Lakshmi, M. Kumar Raju, P. V. Madhusudhana Rao, S. K. Tandel, S. Ray, and F. Dönau
Phys. Rev. Lett. **114**, 082501/1-6 (2015)

PHY-14016-ME-2015

First Measurement of the Atomic Electric Dipole Moment of Radium-225

R. H. Parker, M. R. Dietrich, M. R. Kalita, N. D. Lemke, K. G. Bailey, M. N. Bishof, J. P. Greene, R. J. Holt, W. Korsch, Z.-T. Lu, P. Mueller, T. P. O'Connor, and J. T. Singh
Phys. Rev. Lett. **114**, 233002/1-5 (2015)

PHY-13968-ME-2014

Precision Measurements of A_1^n in the Deep Inelastic Regime

D. S. Parno *et al.* (Jefferson Lab Hall A Collaboration)
Phys. Lett. **B744**, 309-314 (2015)

PHY-13995-HI:TH-2015

Oscillations Above the Barrier in the Fusion of $^{28}\text{Si} + ^{28}\text{Si}$

G. Montagnoli, A. M. Stefanini, H. Esbensen, L. Corradi, S. Courtin, E. Fioretto, J. Grebosz, F. Haas, H. M. Jia, C. L. Jiang, M. Mazzocco, C. Michelagnoli, T. Mijatovic, D. Montanari, C. Parascandolo, F. Scarlassara, E. Strano, S. Szilner, and D. Torres
Phys. Lett. **B746**, 300-304 (2015)

PHY-14007-HI-2015

Core Excitations Across the Neutron Shell Gap in ^{207}Tl

E. Wilson, Zs. Podolyák, H. Grawe, B. A. Brown, C. J. Chiara, S. Zhu, B. Fornal, R. V. F. Janssens, C. M. Shand, M. Bowry, M. Bunce, M. P. Carpenter, N. Cieplicka-Oryńczak, A. Y. Deo, G. D. Dracoulis, C. R. Hoffman, R. S. Kempley, F. G. Kondev, G. J. Lane, T. Lauritsen, G. Lotay, M. W. Reed, P. H. Regan, C. Rodríguez Triguero, D. Seweryniak, B. Szpak, and P. M. Walker
Phys. Lett. **B747**, 88-92 (2015)

PHY-14037-HI-2015

Reduced Quasifission Competition in Fusion Reactions Forming Neutron-Rich Heavy Elements

K. Hammerton, Z. Kohley, D. J. Hinde, M. Dasgupta, A. Wakhle, E. Williams, V. E. Oberacker, A. S. Umar, J. P. Carter, K. J. Cook, J. Greene, D. Y. Jeung, D. H. Luong, S. D. McNeil, C. S. Palshetkar, D. C. Rafferty, C. Simenel, and K. Stiefel
Phys. Rev. C **91**, 041602(R)/1-5 (2015)

PHY-13914-ME-2014

Separated Response Functions in Exclusive, Forward π^\pm Electroproduction of Deuterium

G. M. Huber *et al.* (Jefferson Lab F_π Collaboration)
Phys. Rev. C **91**, 015202/1-23 (2015)

PHY-14101-HI-2015

Electron Capture Decay of 58-min $^{229}_{92}\text{U}$ and Levels in $^{229}_{91}\text{Pa}$

I. Ahmad, R. R. Chasman, J. P. Greene, F. G. Kondev, and S. Zhu
Phys. Rev. C **92**, 024313/1-10 (2015)

PHY-14099-HI-2015

Investigation of the $i_{13/2}$ Neutron Orbital in the ^{132}Sn Region: New Excited Levels in ^{135}Sb

A. Korgul, P. Baczyk, W. Urban, T. Rzaca-Urban, A. G. Smith, and I. Ahmad
Phys. Rev. C **91**, 027303/1-4 (2015)

PHY-14011-HI-2015

Observation of γ Vibrations and Alignments Built on Non-Ground-State Configurations in ^{156}Dy

S. N. T. Majola, D. J. Hartley, L. L. Riedinger, J. F. Sharpey-Schafer, J. M. Allmond, C. Beausang, M. P. Carpenter, C. J. Chiara, N. Cooper, D. Curien, B. J. P. Gall, P. E. Garrett, R. V. F. Janssens, F. G. Kondev, W. D. Kulp, T. Lauritsen, E. A. McCutchan, D. Miller, J. Piot, N. Redon, M. A. Riley, J. Simpson, I. Stefanescu, V. Werner, X. Wang, J. L. Wood, C.-H. Yu, and S. Zhu
Phys. Rev. C **91**, 034330/1-9 (2015)

PHY-13976-TH-2015

Incoherent Pion Production in Neutrino-Deuteron Reactions

Jia-Jun Wu, T. Sato, and T.-S. H. Lee
Phys. Rev. C **91**, 035203/1-11 (2015)

PHY-13990-HI-2015

Identification of Deformed Intruder States in Semi-Magic ^{70}Ni

C. J. Chiara, D. Weisshaar, R. V. F. Janssens, Y. Tsunoda, T. Otsuka, J. L. Harker, W. B. Walters, F. Recchia, M. Albers, M. Alcorta, V. M. Bader, T. Baugher, D. Bazin, J. S. Berryman, P. F. Bertone, C. M. Campbell, M. P. Carpenter, J. Chen, H. L. Crawford, H. M. David, D. T. Doherty, A. Gade, C. R. Hoffman, M. Honma, F. G. Kondev, A. Korichi, C. Langer, N. Larson, T. Lauritsen, S. N. Liddick, E. Lunderberg, A. O. Macchiavelli, S. Noji, C. Prokop, A. M. Rogers, D. Seweryniak, N. Shimizu, S. R. Stroberg, S. Suchyta, Y. Utsuno, S. J. Williams, K. Wimmer, and S. Zhu
Phys. Rev. C **91**, 044309/1-10 (2015)

PHY-13947-HI-2014

High-Resolution α and Electron Spectroscopy of ^{249}Cf

I. Ahmad, J. P. Greene, F. G. Kondev, and S. Zhu
Phys. Rev. C **91**, 044310/1-8 (2015)

PHY-14012-HI-2015

The Role of the $vg_{9/2}$ Orbital in the Development of Collectivity in the $A \approx 60$ Region: The Case of ^{61}Co

A. D. Ayangeakaa, S. Zhu, R. V. F. Janssens, M. P. Carpenter, M. Albers, M. Alcorta, T. Baugher, P. F. Bertone, C. J. Chiara, P. Chowdhury, H. M. David, A. N. Deacon, B. DiGiovine, A. Gade, C. R. Hoffman, F. G. Kondev, T. Lauritsen, C. J. Lister, E. A. McCutchan, D. S. Moerland, C. Nair, A. M. Rodgers, and D. Seweryniak
Phys. Rev. C **91**, 044327/1-15 (2015)

PHY-14005-HI-2015

Fusion Reactions of $^{58,64}\text{Ni} + ^{124}\text{Sn}$

C. L. Jiang, A. M. Stefanini, H. Esbensen, K. E. Rehm, S. Almaraz-Calderon, M. L. Avila, B. B. Back, D. Bourgin, L. Corradi, S. Courtin, E. Fioretto, F. Galtarossa, A. Goasduff, F. Haas, M. M. Mazzocco, D. Montanari, G. Montagnoli, T. Mijatovic, R. Sagaidak, D. Santiago-Gonzalez, F. Scarlassara, E. E. Strano, and S. Szilner
Phys. Rev. C **91**, 044602/1-7 (2015)

PHY-14026-ME-2015

Measurement of Parity-Violating Asymmetry in Electron-Deuteron Inelastic Scattering

D. Wang *et al.* (The PVDIS Collaboration)
Phys. Rev. C **91**, 045506/1-39 (2015)

PHY-14022-HI-2015

High-Spin Terminating States in the $N = 88$ ^{155}Ho and ^{156}Er Isotones

J. M. Rees, E. S. Paul, J. Simpson, M. A. Riley, A. D. Ayangeakaa, M. P. Carpenter, C. J. Chiara, U. Garg, P. Hampson, D. J. Hartley, C. R. Hoffman, R. V. F. Janssens, F. G. Kondev, T. Lauritsen, P. J. R. Mason, J. Matta, S. L. Miller, P. J. Nolan, J. Ollier, M. Petri, D. C. Radford, J. P. Reville, X. Wang, S. Zhu, J. Gellanki, and I. Ragnarsson
Phys. Rev. C **91**, 054301/1-17 (2015)

PHY-13982-ME-2015

Direct Observation of Quark-Hadron Duality in the Free Neutron F_2 Structure Function

I. Niculescu, G. Niculescu, W. Melnitchouk, J. Arrington, M. E. Christy, R. Ent, K. A. Griffioen, N. Kalantarians, C. E. Keppel, S. Kuhn, S. Tkachenko, and J. Zhang
Phys. Rev. C **91**, 055206/1-7 (2015)

PHY-14030-HI-2015

Persistence of Collective Behavior at High Spin in the $N = 88$ Nucleus ^{153}Tb

D. J. Hartley, M. A. Riley, X. Wang, S. Miller, R. V. F. Janssens, E. S. Paul, J. M. Rees, J. Simpson, L. L. Riedinger, A. D. Ayangeakaa, M. P. Carpenter, C. J. Chiara, U. Garg, P. Hampson, C. R. Hoffman, F. G. Kondev, T. Lauritsen, P. J. R. Mason, J. T. Matta, P. J. Nolan, J. Ollier, M. Petri, D. C. Radford, J. P. Revill, S. Zhu, and I. Ragnarsson
Phys. Rev. C **91**, 057301/1-4 (2015)

PHY-14053-HI-2015

The $^{136}\text{Xe} + ^{208}\text{Pb}$ Reaction: A Test of Models of Multinucleon Transfer Reactions

J. S. Barrett, W. Loveland, R. Yanez, S. Zhu, A. D. Ayangeakaa, M. P. Carpenter, J. P. Greene, R. V. F. Janssens, T. Lauritsen, E. A. McCutchan, A. A. Sonzogni, C. J. Chiara, J. L. Harker, and W. B. Walters
Phys. Rev. C **91**, 064615/1-12 (2015)

PHY-14003-ME-2015

Flavor Decomposition of the Nucleon Electromagnetic Form Factors at Low Q^2

I. A. Qattan, J. Arrington, and A. Alsaad
Phys. Rev. C **91**, 065203/1-11 (2015)

PHY-14147-ME-2015

Single and Double Spin Asymmetries for Deeply Virtual Compton Scattering Measured with CLAS and a Longitudinally Polarized Proton Target

S. Pisano *et al.* (CLAS Collaboration)
Phys. Rev. D **91**, 052014/1-27 (2015)

PHY-14073-ME-2015

Pentaquark Θ^+ Search at HERMES

N. Akopov *et al.* (HERMES Collaboration)
Phys. Rev. D **91**, 057101/1-5 (2015)

PHY-14125-RI-2015

Toward the Drip Lines and the Superheavy Island of Stability with the Super Separator Spectrometer S^3

F. Dechery, A. Drouart, H. Savajols, J. Nolen, M. Authier, A. M. Amthor, D. Boutin, O. Delferriere, B. Gall, A. Hue, B. Laune, F. Le Blanc, S. Manikonda, J. Payet, M.-H. Stodel, E. Traykov, and D. Uriot
Eur. Phys. J. A **51**, 66 (2015)

PHY-14044-ME-2015

Evaluation of the Proton Charge Radius from Electron-Proton Scattering

John Arrington and Ingo Sick

J. Phys. and Chem. Ref. Data **44**, 031203/1-5 (2015)

PHY-13964-HI-2014

Bubble Chambers for Experiments in Nuclear Astrophysics

B. DiGiovine, D. Henderson, R. J. Holt, R. Raut, K. E. Rehm, A. Robinson,

A. Sonnenschein, G. Rusev, A. P. Tonchev, and C. Ugalde

Nucl. Instrum. Methods **A781**, 96-104 (2015)

PHY-13963-AL-2014

An RF Beam Sweeper for Purifying In-Flight Produced Secondary Ion Beams at ATLAS

R. C. Pardo, J. Bogaty, S. Sharamentov, and K. E. Rehm

Nucl Instrum. Methods **A790**, 1-5 (2015)

PHY-13981-RI-2015

Advanced Low-Beta Cavity Development for Proton and Ion Accelerators

Z. A. Conway, M. P. Kelly, and P. N. Ostroumov

Nucl. Instrum. Methods **B350**, 94-98 (2015)

PHY-13979-HI-2015

In Memoriam: Lowell Bollinger (1923-2014)

Jerry Nolen, Richard Pardo, and John Schiffer

Nucl. Phys. News **25**, 39 (2015)

PHY-14072-ME-2015

Proton Form Factors and Two-Photon Exchange in Elastic Electron-Proton Scattering

D. M. Nikolenko, J. Arrington, L. M. Barkov, H. de Vries, V. V. Gauzshtein, R. A. Golovin,

A. V. Gramolin, V. F. Dmitriev, V. N. Zhilich, S. A. Zevakov, V. V. Kaminsky,

B. A. Lazarenko, S. I. Mishnev, N. Yu. Muchnoi, V. V. Neufeld, I. A. Rachek,

R. Sh. Sadykov, V. N. Stibunov, D. K. Toporkov, R. J. Holt, and Yu. V. Shestakov

Phys. of At. Nuclei **78**, 394-403 (2015)

PHY-14033-AL-2015

Lowell M. Bollinger Obituary

Richard C. Pardo, John Schiffer, and Jerry Nolen

Phys. Today **68**, 63 (2015)