

Physics Division Published Journal Articles, January-June 2010

PHY-12432-HI-2009

SU(3) Quasidynamical Symmetry Underlying the Alhassid-Whelan Arc of Regularity

Dennis Bonatsos, E. A. McCutchan, and R. F. Casten

Phys. Rev. Lett. **104**, 022502/1-4 (2010)

PHY-12426-TH-2009

Disentangling the Dynamical Origin of P₁₁ Nucleon Resonances

N. Suzuki, B. Juliá-Díaz, H. Kamano, T.-S. H. Lee, A. Matsuyama, and T. Sato

Phys. Rev. Lett. **104**, 042302/1-4 (2010)

PHY-12631-HI-2010

High Transverse Momentum Triggered Correlations Over a Large Pseudorapidity Acceptance in Au + Au Collisions at $\sqrt{s_{NN}} = 200$ GeV

B. Alver *et al.*

Phys. Rev. Lett. **104**, 062301/1-4 (2010)

PHY-12606-HI-2010

First Experiment with HELIOS: The Structure of ¹³B

B. B. Back, S. I. Baker, B. A. Brown, C. M. Deibel, S. J. Freeman, B. J. DiGiovine, C. R.

Hoffman, B. P. Kay, H. Y. Lee, J. C. Lighthall, S. T. Marley, R. C. Pardo, K. E. Rehm, J. P.

Schiffer, D. V. Shetty, A. W. Vann, J. Winkelbauer, and A. H. Wuosmaa

Phys. Rev. Lett. **104**, 132501/1-4 (2010)

PHY-12152-HI-2008

Event-by-Event Fluctuations of Azimuthal Particle Anisotropy in Au + Au Collisions at $\sqrt{s_{NN}} = 200$ GeV

B. Alver, B. B. Back, M. D. Baker, M. Ballintijn, D. S. Barton, R. R. Betts, A. A. Bickley, R. Bindel, W. Busza, A. Carroll, Z. Chai, M. P. Decowski, E. García, T. Gbhurek, N. George, K. Gulbrandsen, C. Halliwell, J. Hamblen, M. Hauer, C. Henderson, D. J. Hofman, R. S. Hollis, R. Holyński, B. Holzman, A. Iordanova, E. Johnson, J. L. Kane, N. Khan, P. Kulinich, C. M. Kuo, W. Li, W. T. Lin, C. Loizides, S. Manly, A. C. Mignerey, R. Nouicer, A. Olszewski, R. Pak, C. Reed, C. Roland, G. Roland, J. Sagerer, H. Seals, I. Sedykh, C. E. Smith, M. A. Stankiewicz, P. Steinberg, G. S. F. Stephans, A. Sukhanov, M. B. Tonjes, A. Trzupek, C. Vale, G. J. van Nieuwenhuizen, S. S. Vaurynovich, R. Verdier, G. I. Veres, P. Walters, E. Wenger, F. L. H. Wolfs, B. Wosiek, K. Woźniak, and B. Wyslouch

Phys. Rev. Lett. **104**, 142301/1-5 (2010)

PHY-12546-TH-2009

Comment on “Time Modulation of the K-Shell Electron Capture Decay Rates of H-Like Heavy Ions at GSI Experiments”

Harry J. Lipkin

Phys. Rev. Lett. **104**, 159203/1 (2010)

PHY-12563-HI-2009

Two-Particle Separation Energy Trends in the Superdeformed Well

A. N. Wilson, A. Korichi, S. Siem, A. Astier, D. Bazzacco, P. Bednarczyk, M. H. Bergström, S. Chmel, D. M. Cullen, P. M. Davidson, A. Görge, F. Hannachi, H. Hübel, N. Kintz, T. Lauritsen, A. Lopez-Martens, S. Lunardi, S. Naguleswaran, B. M. Nyakó, M. Rejmund, G. Schönwasser, C. Schück, J. F. Sharpey-Schafer, J. Timar, R. Wadsworth, and J. Libert
Phys. Rev. Lett. **104**, 162501/1-4 (2010)

PHY-12707-TH-2010

Symmetry Energy of Dilute Warm Nuclear Matter

J. B. Natowitz, G. Röpke, S. Typel, D. Blaschke, A. Bonasera, K. Hagel, T. Klähn, S. Kowalski, L. Qin, S. Shlomo, R. Wada, and H. H. Wolter
Phys. Rev. Lett. **104**, 202501/1-4 (2010)

PHY-12676-ME-2010

Recoil Polarization Measurements of the Proton Electromagnetic Form Factor Ratio to $Q^2 = 8.5$ GeV²

A. J. R. Puckett *et al.*
Phys. Rev. Lett. **104**, 242301/1-6 (2010)

PHY-12469-ME-2009

Single-Spin Azimuthal Asymmetry in Exclusive Electroproduction of π^+ Mesons on Transversely Polarized Protons

A. Airapetian *et al.* (HERMES Collaboration)
Phys. Lett. **B682**, 345-350 (2010)

PHY-12467-ME-2009

Search for a Two-Photon Exchange Contribution to Inclusive Deep-Inelastic Scattering

A. Airapetian *et al.* (HERMES Collaboration)
Phys. Lett. **B682**, 351-354 (2010)

PHY-12441-HI-2009

How Close to the O(6) Symmetry is the Nucleus ¹²⁴Xe?

G. Rainovski, N. Pietralla, T. Ahn, L. Coquard, C. J. Lister, R. V. F. Janssens, M. P. Carpenter, S. Zhu, L. Bettermann, J. Jolie, W. Rother, R. V. Jolos, and V. Werner
Phys. Lett. **B683**, 11-16 (2010)

PHY-12048-ME-2008

Transverse Momentum Broadening of Hadrons Produced in Semi-Inclusive Deep-Inelastic Scattering on Nuclei

A. Airapetian *et al.* (HERMES Collaboration)
Phys. Lett. B **B684**, 114-118 (2010)

PHY-12473-HI-2009

Connections Between High- K and Low- K States in the s -Process Nucleus ^{176}Lu

G. D. Dracoulis, F. G. Kondev, G. J. Lane, A. P. Byrne, M. P. Carpenter, R. V. F. Janssens, T. Lauritsen, C. J. Lister, D. Seweryniak, and P. Chowdhury
Phys. Rev. C **81**, 011301(R)/1-5 (2010)

PHY-12665-HI-2010

Possible Double-Octupole Phonon Band in ^{238}U

S. Zhu, M. P. Carpenter, R. V. F. Janssens, S. Frauendorf, I. Ahmad, T. L. Khoo, F. G. Kondev, T. Lauritsen, C. J. Lister, and D. Seweryniak
Phys. Rev. C **81**, 041306(R)/1-5 (2010)

PHY-12652-HI-2010

Collectivity at $N = 40$ in Neutron-Rich ^{64}Cr

A. Gade, R. V. F. Janssens, T. Baugher, D. Bazin, B. A. Brown, M. P. Carpenter, C. J. Chiara, A. N. Deacon, S. J. Freeman, G. F. Grinyer, C. R. Hoffman, B. P. Kay, F. G. Kondev, T. Lauritsen, S. McDaniel, K. Meierbachtol, A. Ratkiewicz, S. R. Stroberg, K. A. Walsh, D. Weisshaar, R. Winkler, and S. Zhu
Phys. Rev. C **81**, 051304(R)/1-4 (2010)

PHY-12615-HI-2010

Erratum: γ -Ray Spectroscopy Study of States in ^{27}Si Relevant for the $^{26}\text{Al}^m(p,\gamma)^{27}\text{Si}$ Reaction in Novae and Supernovae [Phys. Rev. C **80**, 055802 (2009)]

G. Lotay, P. J. Woods, D. Seweryniak, M. P. Carpenter, R. V. F. Janssens, and S. Zhu
Phys. Rev. C **81**, 029903(E)/1 (2010)

PHY-12439-HI-2009

High-Spin Structures in the Neutron-Rich Isotopes $^{57-60}\text{Mn}$

D. Steppenbeck, A. N. Deacon, S. J. Freeman, R. V. F. Janssens, S. Zhu, M. P. Carpenter, P. Chowdhury, M. Honma, T. Lauritsen, C. J. Lister, D. Seweryniak, J. F. Smith, S. L. Tabor, and B. J. Varley
Phys. Rev. C **81**, 014305/1-21 (2010)

PHY-12500-HI-2009

Rotational Alignments in ^{235}Np and the Possible Role of $j_{15/2}$ Neutrons

A. M. Hurst, C. Y. Wu, M. A. Stoyer, D. Cline, A. B. Hayes, S. Zhu, M. P. Carpenter, K. Abu Saleem, I. Ahmad, J. A. Becker, C. J. Chiara, J. P. Greene, R. V. F. Janssens, T. L. Khoo, F. G. Kondev, T. Lauritsen, C. J. Lister, G. Mukherjee, S. V. Rigby, D. Seweryniak, and I. Stefanescu
Phys. Rev. C **81**, 014312/1-12 (2010)

PHY-12477-HI-2009

Experimental Study of the $^{11,12}\text{B}(n,\gamma)$ Reactions and Their Influence on r -Process Nucleosynthesis of Light Elements

H. Y. Lee, J. P. Greene, C. L. Jiang, R. C. Pardo, K. E. Rehm, J. P. Schiffer, A. H. Wuosmaa, N. J. Goodman, J. C. Lighthall, S. T. Marley, K. Otsuki, N. Patel, M. Beard, M. Notani, and X. D. Tang

Phys. Rev. C **81**, 015802/1-8 (2010)

PHY-12694-TH-2010

Composition and Thermodynamics of Nuclear Matter with Light Clusters

S. Typel, G. Röpke, T. Klähn, D. Blaschke, and H. H. Wolter

Phys. Rev. C **81**, 015803/1-32 (2010)

PHY-12481-HI-2009

Population of Positive-Parity States in ^{53}Sc Through One-Proton Knockout

S. McDaniel, A. Gade, R. V. F. Janssens, D. Bazin, B. A. Brown, C. M. Campbell, M. P. Carpenter, J. M. Cook, A. N. Deacon, D.-C. Dinca, S. J. Freeman, T. Glasmacher, P. G. Hansen, B. P. Kay, P. F. Mantica, W. F. Mueller, J. R. Terry, J. A. Tostevin, and S. Zhu

Phys. Rev. C **81**, 024301/1-5 (2010)

PHY-12628-HI-2010

Near-Yrast Structure of $N = 93$ Neutron-Rich Lanthanide Nuclei

G. S. Simpson, W. Urban, J. A. Pinston, J. C. Angelique, I. Deloncle, H. R. Faust, J. Genevey, U. Köster, T. Materna, R. Orlandi, A. Scherillo, A. G. Smith, J. F. Smith, T. Rzaca-Urban, I. Ahmad, and J. P. Greene

Phys. Rev. C **81**, 024313/1-13 (2010)

PHY-12567-HI-2009

Fusion Hindrance for $^{27}\text{Al} + ^{45}\text{Sc}$ and Other Systems with a Positive Q Value

C. L. Jiang, K. E. Rehm, H. Esbensen, B. B. Back, R. V. F. Janssens, P. Collon, C. M. Deibel, B. DiGiovine, J. M. Figueira, J. P. Greene, D. J. Henderson, H. Y. Lee, M. Notani, S. T. Marley, R. C. Pardo, N. Patel, D. Seweryniak, X. D. Tang, C. Ugalde, and S. Zhu

Phys. Rev. C **81**, 024611/1-7 (2010)

PHY-12764-ME-2010

Differential Cross Section and Recoil Polarization Measurements for the $\gamma p \rightarrow K^+\Lambda$

M. E. McCracken *et al.*

Phys. Rev. C **81**, 025201/1-20 (2010)

PHY-12640-TH-2010

Complete Fusion of ^9Be with Spherical Targets

Henning Esbensen

Phys. Rev. C **81**, 034606/1-8 (2010)

PHY-12641-ME-2010

Nuclear-Mass Dependence of Azimuthal Beam-Helicity and Beam-Charge Asymmetries in Deeply Virtual Compton Scattering

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

Phys. Rev. C **81**, 035202/1-10 (2010)

PHY-12578-HI-2010

Determination of the $E1$ Component of the Low-Energy $^{12}\text{C}(\alpha,\gamma)^{16}\text{O}$ Cross Section

X. D. Tang, K. E. Rehm, I. Ahmad, C. R. Brune, A. Champagne, J. P. Greene, A. Hecht, D. J. Henderson, R. V. F. Janssens, C. L. Jiang, L. Jisonna, D. Kahl, E. F. Moore, M. Notani, R. C. Pardo, N. Patel, M. Paul, G. Savard, J. P. Schiffer, R. E. Segel, S. Sinha, and A. H. Wuosmaa

Phys. Rev. C **81**, 045809/1-14 (2010)

PHY-12633-HI-2010

Two-Quasiparticle Structures and Isomers in ^{168}Er , ^{170}Er , and ^{172}Er

G. D. Dracoulis, G. J. Lane, F. G. Kondev, H. Watanabe, D. Seweryniak, S. Zhu, M. P.

Carpenter, C. J. Chiara, R. V. F. Janssens, T. Lauritsen, C. J. Lister, E. A. McCutchan, and I. Stefanescu

Phys. Rev. C **81**, 054313/1-13 (2010)

PHY-12643-ME-2010

Proton and Deuteron F_2 Structure Function at Low Q^2

V. Tvaskis *et al.*

Phys. Rev. C **81**, 055207/1-7 (2010)

PHY-12554-ME-2009

Experimental Study of the $\text{A}(e,e'\pi^+)$ Reaction on ^1H , ^2H , ^{12}C , ^{27}Al , ^{63}Cu , and ^{197}Au

X. Qian *et al.*

Phys. Rev. C **81**, 055209/1-27 (2010)

PHY-12634-HI-2010

Alignments, Additivity, and Signature Inversion in Odd-Odd ^{170}Ta : A Comprehensive High-Spin Study

A. Aguilar, D. J. Hartley, M. A. Riley, C. Teal, M. P. Carpenter, P. Chowdhury, M. Danchev, M. K. Djongolov, G. B. Hagemann, A. A. Hecht, R. V. F. Janssens, F. G. Kondev, T.

Lauritsen, W. C. Ma, W. H. Mohr, E. F. Moore, S. W. Odegård, L. L. Riedinger, G. Sletten, S. K. Tandel, J. R. Vanhoy, X. Wang, and S. Zhu

Phys. Rev. C **81**, 064317/1-19 (2010)

PHY-12618-TH-2010

Extraction of P_{11} Resonances from πN Data

H. Kamano, S. X. Nakamura, T.-S. H. Lee, and T. Sato

Phys. Rev. C **81**, 065207/1-8 (2010)

PHY-12737-HI-2010

Medium-Spin Structure of ^{145}Cs

T. Rzaca-Urban, W. Urban, J. A. Pinston, G. S. Simpson, J. L. Durell, A. G. Smith, and I. Ahmad

Phys. Rev. C **82**, 017301/1-4 (2010)

PHY-12595-ME-2010

Measurement of Azimuthal Asymmetries Associated with Deeply Virtual Compton Scattering on an Unpolarized Deuterium Target

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

Nucl. Phys. **B829**, 1-27 (2010)

PHY-12677-TH-2010

Interaction of ^{17}F with a ^{208}Pb Target Below the Coulomb Barrier

C. Signorini, D. Pierroutsakou, B. Martin, M. Mazzocco, T. Glodariu, R. Bonetti, A. Guglielmetti, M. La Commara, M. Romoli, M. Sandoli, E. Vardaci, H. Esbensen, F. Farinon, P. Molini, C. Parascandolo, F. Soramel, S. Sidortchuk, and L. Stroe

Eur. Phys. J. A **44**, 63-69 (2010)

PHY-12687-TH-2010

A Proposal for Testing Subcritical Vacuum Pair Production with High Power Lasers

G. Gregori, D. B. Blaschke, P. P. Rajeev, H. Chen, R. J. Clarke, T. Huffman, C. D. Murphy, A. V. Prozorkevich, C. D. Roberts, G. Röpke, S. M. Schmidt, S. A. Smolyansky, S. Wilks, and R. Bingham

J. High Energy Density Phys. **6**, 166-170 (2010)

PHY-12619-TH-2010

ABB50/25: An Anniversary Celebration of the Aharonov-Bohm Effect and the Berry Phase

Murray Peshkin and Lev Vaidman

Nature **6**, 160-161 (2010)

PHY-12568-HI-2009

Viewpoint - Implications of Old Physics Simplify the Understanding of Nuclei

John P. Schiffer

Physics **3**, 2/1-2 (2010)

PHY-12602-HI-2010

Viewpoint: Do Alpha Particles Cluster Inside Heavy Nuclei?

M. P. Carpenter

Physics **3**, 8/1-3 (2010)

PHY-12743-ME-2010

Experiments with Internal Targets at the VEPP-3 Electron Storage Ring

D. M. Nikolenko *et al.*

Physics of Atomic Nuclei **73**, 1322-1338 (2010)

PHY-12688-TH-2010

More SCALABILITY, Less PAIN

Ewing Lusk, Steven Pieper, and Ralph Butler

SciDAC Review **17**, 30-37 (2010)