

Physics Division Published Journal Articles, July-December 2010

Polarization Transfer in the  ${}^4\text{He}(\vec{\epsilon}, e'\vec{p}){}^3\text{H}$  Reaction at  $Q_2 = 0.8$  and  $1.3$  (GeV/c) $^2$

M. Paolone *et al.* (E03-104 Collaboration)  
Phys. Rev. Lett. **105**, 072001/1-5 (2010)

Absorption of the  $\omega$  and  $\phi$  Mesons in Nuclei

M. H. Wood *et al.* (CLAS Collaboration)  
Phys. Rev. Lett. **105**, 112301/1-6 (2010)

${}^{15}\text{C}(d,p){}^{16}\text{C}$  Reaction and Exotic Behavior in  ${}^{16}\text{C}$

A. H. Wuosmaa, B. B. Back, S. Baker, B. A. Brown, C. M. Deibel, P. Fallon, C. R. Hoffman,  
B. P. Kay, H. Y. Lee, J. C. Lighthall, A. O. Macchiavelli, S. T. Marley, R. C. Pardo, K. E.  
Rehm, J. P. Schiffer, D. V. Shetty, and M. Wiedeking  
Phys. Rev. Lett. **105**, 132501/1-4 (2010)

Scaling of the  $F_2$  Structure Function in Nuclei and Quark Distributions at  $x > 1$

N. Fomin *et al.*  
Phys. Rev. Lett. **105**, 212502/1-5 (2010)

Tensor Correlations Measured in  ${}^3\text{He}(e, e' p p)n$

H. Baghdasaryan *et al.* (CLAS Collaboration)  
Phys. Rev. Lett. **105**, 222501/1-5 (2010)

Measurement of Single- and Double-Spin Asymmetries in Deep Inelastic Pion Electroproduction  
with a Longitudinally Polarized Target

H. Avakin *et al.* (CLAS Collaboration)  
Phys. Rev. Lett. **105**, 262002/1-5 (2010)

Neutron-Induced Fission Cross Sections of Short-Lived Actinides with the Surrogate Reaction  
Method

G. Kessedjian, B. Jurado, M. Aiche, G. Barreau, A. Bidaud, S. Czajkowski, D. Dassie, B.  
Haas, L. Mathieu, L. Audouin, N. Capellan, L. Tassan-Got, J. N. Wilson, E. Berthoumieux, F.  
Gunsing, Ch. Theisen, O. Serot, E. Bauge, I. Ahmad, J. P. Greene, and R. V. F. Janssens  
Phys. Lett. **B692**, 297-301 (2010)

Effects of Transversity in Deep-Inelastic Scattering by Polarized Protons

A. Airapetian *et al.* (HERMES Collaboration)  
Phys. Lett. **B693**, 11-16 (2010)

- Rotational Bands in Odd- $A$  Cm and Cf Isotopes: Exploring the Highest Neutron Orbitals  
S. K. Tandel, P. Chowdhury, S. Lakshmi, U. S. Tandel, I. Ahmad, M. P. Carpenter, S. Gros, R. V. F. Janssens, T. L. Khoo, F. G. Kondev, J. P. Greene, D. J. Hartley, T. Lauritsen, C. J. Lister, D. Peterson, A. Robinson, D. Seweryniak, and S. Zhu  
Phys. Rev. C **82**, 041301(R)/1-5 (2010)
- Structure of Neutron-Rich Tungsten Nuclei and Evidence for a  $10^-$  Isomer in  $^{190}\text{W}$   
G. J. Lane, G. D. Dracoulis, F. G. Kondev, R. O. Hughes, H. Watanabe, A. P. Bryne, M. P. Carpenter, C. J. Chiara, P. Chowdhury, R. V. F. Janssens, T. Lauritsen, C. J. Lister, E. A. McCutchan, D. Seweryniak, I. Stefanescu, and S. Zhu  
Phys. Rev. C **82**, 051304(R)/1-5 (2010)
- $\beta$  Decay and Isomeric Properties of Neutron-Rich Ca and Sc Isotopes  
H. L. Crawford, R. V. F. Janssens, P. F. Mantica, J. S. Berryman, R. Broda, M. P. Carpenter, N. Cieplicka, B. Fornal, G. F. Grinyer, N. Hoteling, B. P. Kay, T. Lauritsen, K. Minamisono, I. Stefanescu, J. B. Stoker, W. B. Walters, and S. Zhu  
Phys. Rev. C **82**, 014311/1-15 (2010)
- Near-Yrast, Medium-Spin, Excited States of  $^{91}\text{Rb}$ ,  $^{93}\text{Rb}$ , and  $^{95}\text{Rb}$   
G. S. Simpson, W. uUrban, K. Sieja, J. A. Dare, J. Jolie, A. Linneman, R. Orlandi, A. Scherillo, A. G. Smith, T. Soldner, I. Tsekhanovich, B. J. Varley, A. Zlomaniec, J. L. Durell, J. F. Smith, T. Rzaca-Urban, H. Faust, I. Ahmad, and J. P. Greene  
Phys. Rev. C **82**, 024302/1-13 (2010)
- Evolution of the Mixed-Symmetry  $2_{1,ms}^+$  Quadrupole-Phonon Excitation from Spherical to  $\gamma$ -Soft Xe Nuclei  
L. Coquard, N. Pietralla, G. Rainovski, T. Ahn, L. Bettermann, M. P. Carpenter, R. V. F. Janssens, J. Leske, C. J. Lister, O. Möller, W. Rother, V. Werner, and S. Zhu  
Phys. Rev. C **82**, 024317/1-7 (2010)
- Differential Cross Sections and Recoil Polarizations for the Reaction  $\gamma p \rightarrow K^+ \Sigma^0$   
B. Dey *et al.*  
Phys. Rev. C **82**, 025202/1-20 (2010)
- Pair Correlations in the Neutrinoless Double- $\beta$  Decay Candidate  $^{130}\text{Te}$   
T. Bloxham, B. P. Kay, J. P. Schiffer, J. A. Clark, C. M. Deibel, S. J. Freeman, S. J. Freedman, A. M. Howard, S. A. McAllister, P. D. Parker, D. K. Sharp, and J. S. Thomas  
Phys. Rev. C **82**, 027308/1-4 (2010)
- Power Counting Regime of Chiral Effective Field Theory and Beyond  
J. M. M. Hall, D. B. Leinweber, and R. D. Young  
Phys. Rev. D **82**, 034010/1-19 (2010)

Noncollective Aligned and Antialigned States in  $^{125}\text{I}$

Purnima Singh, Somnath Nag, A. K. Singh, H. Hübel, A. Al-Khatib, P. Bringel, C. Engelhardt, A. Neußer-Neffgen, I. Ragnarsson, M. P. Carpenter, R. V. F. Janssens, T. L. Khoo, T. Lauritsen, G. B. Hagemann, C. R. Hansen, B. Herskind, G. Sletten, A. Bracco, G. Benzoni, F. Camera, P. Fallon, R. M. Clark, P. Chowdhury, and H. Amro  
Phys. Rev. C **82**, 034301/1-11 (2010)

Cross-Shell Excitations Near the “Island of Inversion”: Structure of  $^{30}\text{Mg}$

A. N. Deacon, J. F. Smith, S. J. Freeman, R. V. F. Janssens, M. P. Carpenter, B. Hadinia, C. R. Hoffman, B. P. Kay, T. Lauritsen, C. J. Lister, D. O'Donnell, J. Ollier, T. Otsuka, D. Seweryniak, K.-M. Spohr, D. Steppenbeck, S. L. Tabor, V. Tripathi, Y. Utsuno, P. T. Wady, and S. Zhu  
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Multi-Quasiparticle Structures Up to Spin  $\sim 44 \hbar$  in the Odd-Odd Nucleus  $^{168}\text{Ta}$

X. Wang, D. J. Hartley, M. A. Riley, L. L. Riedinger, A. Aguilar, M. P. Carpenter, C. J. Chiara, P. Chowdhury, I. Darby, U. Garg, Q. Ijaz, R. V. F. Janssens, F. G. Kondev, S. Lakshmi, T. Lauritsen, W. C. Ma, E. A. McCutchan, S. Mukhopadhyay, E. P. Seyfried, I. Stefanescu, S. K. Tandel, U. S. Tandel, C. Teal, J. R. Vanhoy, and S. Zhu  
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Structure of Three-Quasiparticle Isomers in  $^{169}\text{Ho}$  and  $^{171}\text{Tm}$

G. D. Dracoulis, G. J. Lane, R. O. Hughes, 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, I. Stefanescu, and P. Chowdhury  
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Proton-Hole States in the  $N = 30$  Neutron-Rich Isotope  $^{49}\text{K}$

R. Broda, J. Wrzesinski, A. Gadea, N. Marginean, B. Fornal, L. Corradi, A. M. Stefanini, W. Krolas, T. Pawlat, B. Szpak, S. Lunardi, J. J. Valiente-Dobon, D. Mengoni, E. Farnea, M. P. Carpenter, G. De Angelis, F. Della Vedova, E. Fioretto, B. Guiot, R. V. F. Janssens, P. F. Mantica, P. Mason, G. Montagnoli, D. R. Napoli, R. Orlandi, I. Pokrovsky, G. Pollardo, E. Sahin, F. Scarlassara, R. Silvestri, S. Szilner, C. A. Ur, M. Trotta, and S. Zhu  
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Fusion Hindrance for Ca + Ca Systems - Influence of Neutron Excess

C. L. Jiang, A. M. Stefanini, H. Esbensen, K. E. Rehm, L. Corradi, E. Fioretto, P. Mason, G. Montagnoli, F. Scarlassara, R. Silvestri, P. P. Singh, S. Szilner, X. D. Tang, and C. A. Ur  
Phys. Rev. C **82**, 041601/1-4 (2010)

Structure of  $^{60,62}\text{Fe}$  and the Onset of  $vg_{9/2}$  Occupancy

N. Hoteling, C. J. Chiara, R. Broda, W. B. Walters, R. V. F. Janssens, M. Hjorth-Jensen, M. P. Carpenter, B. Fornal, A. A. Hecht, W. Królas, T. Lauritsen, T. Pawlat, D. Seweryniak, X. Wang, A. Wöhr, J. Wrzesiński, and S. Zhu  
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Coulomb Excitation of a  $^{242}\text{Am}$  Isomeric Target:  $E2$ ,  $E3$  Strengths, Rotational Alignment, and Collective Enhancement

A. B. Hayes, D. Cline, K. J. Moody, I. Ragnarsson, C. Y. Wu, J. A. Becker, M. P. Carpenter, J. J. Carroll, D. Gohlke, J. P. Greene, A. A. Hecht, R. V. F. Janssens, S. A. Karamian, T. Lauritsen, C. J. Lister, R. A. Macri, R. Propri, D. Seweryniak, X. Wang, R. Wheeler, and S. Zhu  
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Influence of the  $vg_{9/2}$  Orbital on Level Structures of Neutron-Rich  $^{61,62}\text{Mn}_{36,37}$

C. J. Chiara, I. Stefanescu, N. Hoteling, W. B. Walters, R. V. F. Janssens, R. Broda, M. P. Carpenter, B. Fornal, A. A. Hecht, W. Królas, T. Lauritsen, T. Pawlat, D. Seweryniak, X. Wang, A. Wöhr, J. Wrzesiński, and S. Zhu  
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$K$ -Hindered Decay of a Six-Quasiparticle Isomer in  $^{176}\text{Hf}$

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Hindrance in the Fusion of  $^{48}\text{Ca}+^{48}\text{Ca}$

H. Esbensen, C. L. Jiang, and A. M. Stefanini  
Phys. Rev. C **82**, 054621/1-8 (2010)

Band Crossings in  $^{166}\text{Ta}$

D. J. Hartley, R. V. F. Janssens, L. L. Riedinger, M. A. Riley, X. Wang, A. Aguilar, M. P. Carpenter, C. J. Chiara, P. Chowdhury, I. G. Darby, U. Garg, Q. A. Ijaz, F. G. Kondev, S. Lakshmi, T. Lauritsen, W. C. Ma, E. A. McCutchan, S. Mukhopadhyay, E. P. Seyfried, U. Shirwadkar, I. Stefanescu, S. K. Tandel, J. R. Vanhoy, and S. Zhu  
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Near-Yrast, Medium-Spin Structure of the  $^{109}\text{Tc}$  Nucleus

W. Urban, J. A. Pinston, T. Rzaca-Urban, J. Kurpeta, A. G. Smith, and I. Ahmad  
Phys. Rev. C **82**, 064308/1-12 (2010)

Near-Yrast Structure of  $^{149}\text{Pr}$

T. Rzaca-Urban, W. Urban, J. A. Pinston, G. S. Simpson, A. G. Smith, J. F. Smith, and I. Ahmad  
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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  
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Scalar Resonance Effects on the  $B_s - \bar{B}_s$  Mixing Angle

O. Leitner, J.-P. Dedonder, B. Loiseau, and B. El-Bennich  
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An Analysis of the Nucleon Spectrum from Lattice Partially-Quenched QCD

W. Armour, C. R. Allton, D. B. Leinweber, A. W. Thomas, and R. D. Young  
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Atom Trap Trace Analysis of Rare Noble Gas Isotopes

Zheng-Tian Lu and Peter Mueller  
Advances in Atomic, Molecular, and Optical Physics **58**, 173-205 (2010)

The Dusty Nova V1065 Centauri (Nova Cen 2007): A Spectroscopic Analysis of Abundances and Dust Properties

L. A. Helton, C. E. Woodward, F. M. Walter, K. Vanlandingham, G. J. Schwarz, A. Evans, J.-U. Ness, T. R. Geballe, R. D. Gehrz, M. Greenhouse, J. Krautter, W. Liller, D. K. Lynch, R. J. Rudy, S. N. Shore, S. Starrfield, and J. Truran  
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Direct Vlasov Solvers with High-Order Spectral Element Method

J. Xu, P. N. Ostroumov, B. Mustapha, and J. Nolen  
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S. V. Artemov, S. B. Igamov, A. A. Karakhodzhaev, G. K. Nie, R. Yarmukhamedov, E. A. Zapparov, N. Burtebaev, and K. E. Rehm  
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Leading-Order Determination of the Gluon Polarization from High- $p_T$  Hadron Electroproduction

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

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Against a Proposed Alternative Explanation of the Aharonov-Bohm Effect

Murray Peshkin

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Identification of 45 New Neutron-Rich Isotopes Produced by In-Flight Fission of a  $^{238}\text{U}$  Beam at 345 MeV/Nucleon

Tetsuya Ohnishi *et al.*

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New Data for the Geochemical Determination of the Solar pp-Neutrino Flux by Means of Lorandite Mineral

M. K. Pavićević, F. Bosch, G. Amthauer, I. Aničin, B. Boev, W. Brüchle, Z. Djurcic, T.

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Commissioning of the HELIOS Spectrometer

J. C. Lighthall, B. B. Back, S. I. Baker, S. J. Freeman, H. Y. Lee, B. P. Kay, S. T. Marley, K.

E. Rehm, J. E. Rohrer, J. P. Schiffer, D. V. Shetty, A. W. Vann, J. R. Winkelbauer, and A. H.

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Aptly Named Aharonov-Bohm Effect Has Classical Analogue, Long History

Michael Berry and Murray Peshkin

Phys. Today **63**, 8-10 (2010)

Nucleon and Pion Distribution Functions in the Valence Region

Roy J. Holt and Craig D. Roberts

Rev. Mod. Phys. **82**, 2991-3044 (2010)

Scalable Direct Vlasov Solver with Discontinuous Galerkin Method on Unstructured Mesh

J. Xu, P. N. Ostroumov, B. Mustapha, and J. Nolen

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