

Published Journal Articles of the Physics Division, January-June 2008

PHY-11999-ME-2008

Bayesian Analysis of Pentaquark Signals from CLAS Data

D. G. Ireland *et al.* (The CLAS Collaboration)

Phys. Rev. Lett. **100**, 052001/1-5 (2008)

PHY-11910-ME-2007

Measurement of  $\Upsilon$  Production for  $p + p$  and  $p + d$  Interactions at 800 GeV/ $c$

L. Y. Zhu *et al.* (FNAL E866/NuSea Collaboration)

Phys. Rev. Lett. **100**, 062301/1-5 (2008)

PHY-11964-HI-2008

Motional Narrowing and Ergodic Bands in Excited Superdeformed States of  $^{194}\text{Hg}$

A. Lopez-Martens, T. Døssing, T. L. Khoo, M. Matsuo, B. Herskind, T. Lauritsen, M. P.

Carpenter, R. V. F. Janssens, G. Hackman, I-Y. Lee, A. O. Macchiavelli, E. Viguzzi, and K.

Yoshida

Phys. Rev. Lett. **100**, 102501/1-4 (2008)

PHY-11866-HI-2007

Nuclear Structure Relevant to Neutrinoless Double  $\beta$  Decay:  $^{76}\text{Ge}$  and  $^{76}\text{Se}$

J. P. Schiffer, S. J. Freeman, J. A. Clark, C. Deibel, C. R. Fitzpatrick, S. Gros, A. Heinz, D.

Hirata, C. L. Jiang, B. P. Kay, A. Parikh, P. D. Parker, K. E. Rehm, X. D. Tang, A. C. C.

Villari, V. Werner, and C. Wrede

Phys. Rev. Lett. **100**, 112501/1-4 (2008)

PHY-12059-ME-2008

Measurement of Deeply Virtual Compton Scattering Beam-Spin Asymmetries

F. X. Girod *et al.* (CLAS Collaboration)

Phys. Rev. Lett. **100**, 162002/1-6 (2008)

PHY-12082-HI-2008

Measurement of the Two-Halo Neutron Transfer Reaction  $^1\text{H}(^{11}\text{Li}, ^9\text{Li})^3\text{H}$  at 3A MeV

I. Tanihata, M. Alcorta, D. Bandyopadhyay, R. Bieri, L. Buchmann, B. Davids, N. Galinski,

D. Howell, W. Mills, S. Mythili, R. Openshaw, E. Padilla-Rodal, G. Ruprecht, G. Sheffer, A.

C. Shotter, M. Trinczek, P. Walden, H. Savajols, T. Roger, M. Caamano, W. Mittig, P.

Roussel-Chomaz, R. Kanungo, A. Gallant, M. Notani, G. Savard, and I. J. Thompson

Phys. Rev. Lett. **100**, 192502/1-5 (2008)

PHY-11843-HI-2007

High- $j$  Single-Particle Neutron States Outside the  $N = 82$  Core

B. P. Kay, S. J. Freeman, J. P. Schiffer, J. A. Clark, C. Deibel, A. Heinz, A. Parikh, and C.

Wrede

Phys. Lett. **B658**, 216-221 (2008)

PHY-11852-TH-2007

Transversity Quark Distributions in a Covariant Quark-Diquark Model

I. C. Cloët, W. Bentz, and A. W. Thomas

Phys. Lett. **B659**, 214-220 (2008)

PHY-11881-ME-2007

Cross Sections for Hard Exclusive Electroproduction of  $\pi^+$  Mesons on a Hydrogen Target

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

Phys. Lett. **B659**, 486-492 (2008)

PHY-11913-TH-2007

Spectroscopic Factors for the  ${}^9\text{Li}$  Ground State and  $N = 6$  Shell Closure

R. Kanungo, A. N. Andreyev, L. Buchmann, B. Davids, G. Hackman, D. Howell, P. Khalili, B. Mills, E. Padilla Rodal, Steven C. Pieper, J. Pearson, C. Ruiz, G. Ruprecht, A. Shotter, I.

Tanihata, C. Vockenhuber, P. Walden, and R. B. Wiringa

Phys. Lett. **B660**, 26-31 (2008)

PHY-11911-TH-2007

Relativistic Effects in Exclusive  $pd$  Breakup Scattering at Intermediate Energies

T. Lin, Ch. Elster, W. N. Polyzou, and W. Glöckle

Phys. Lett. **B660**, 345-349 (2008)

PHY-11993-TH-2008

The New  $\Sigma_b$  Multiplet, Heavy Baryon Mass Predictions, Meson-Baryon Universality and Effective Supersymmetry in Hadron Spectrum

Marek Karliner and Harry J. Lipkin

Phys. Lett. **B660**, 539-544 (2008)

PHY-12271-HI-2009

New Shape Minimum in  ${}^{160}\text{Yb}$ : Evidence for a Triaxial, Strongly Deformed Band

A. Aguilar, D. B. Campbell, K. Chandler, A. Pipidis, M. A. Riley, C. Teal, J. Simpson, D. J. Hartley, F. G. Kondev, R. M. Clark, M. Cromaz, P. Fallon, I. Y. Lee, A. O. Macchiavelli, and I. Ragnarsson

Phys. Rev. C **77**, 021302(R)/1-5 (2008)

PHY-12133-ME-2008

Measurement of  $ep \rightarrow ep\pi^0$  Beam Spin Asymmetries Above the Resonance Region

R. De Masi *et al.* (CLAS Collaboration)

Phys. Rev. C **77**, 042201(R)/1-5 (2008)

PHY-11988-TH-2008

Perspective on Rainbow-Ladder Truncation

G. Eichmann, R. Alkofer, I. C. Cloët, A. Krassnigg, and C. D. Roberts

Phys. Rev. C **77**, 042202(R)/1-5 (2008)

PHY-12024-HI-2008

First In-Beam  $\gamma$ -Ray Spectroscopy Study of  $^{24}\text{Al}$  and Its Implications for the Astrophysical

$^{23}\text{Mg}(p,\gamma)^{24}\text{Al}$  Reaction Rate in ONe Novae

G. Lotay, P. J. Woods, D. Seweryniak, M. P. Carpenter, N. Hoteling, R. V. F. Janssens, D. G.

Jenkins, T. Lauritsen, C. J. Lister, A. Robinson, and S. Zhu

Phys. Rev. C **77**, 042802(R)/1-5 (2008)

PHY-11875-HI-2007

Yrast Structure of the Neutron-Rich  $N = 31$  Isotones  $^{51}\text{Ca}$  and  $^{52}\text{Sc}$

B. Fornal, R. V. F. Janssens, R. Broda, N. Marginean, S. Beghini, L. Corradi, M. P.

Carpenter, G. De Angelis, F. Della Vedova, E. Farnea, E. Fioretto, A. Gadea, B. Guiot, M.

Honma, W. Królas, T. Lauritsen, S. Lunardi, P. F. Mantica, P. Mason, G. Montagnoli, D. R.

Napoli, T. Otsuka, T. Pawlat, G. Pollarolo, F. Scarlassara, A. M. Stefanini, D. Seweryniak, S.

Szilner, C. A. Ur, M. Trotta, J. J. Valiente-Dobón, J. Wrzesiński, and S. Zhu

Phys. Rev. C **77**, 014304/1-7 (2008)

PHY-11944-HI-2007

$\beta$  Decay of Neutron-Rich  $^{53-56}\text{Ca}$

P. F. Mantica, R. Broda, H. L. Crawford, A. Damaske, B. Fornal, A. A. Hecht, C. Hoffman,

M. Horoi, N. Hoteling, R. V. F. Janssens, J. Pereira, J. S. Pinter, J. B. Stoker, S. L. Tabor, T.

Sumikama, W. B. Walters, X. Wang, and S. Zhu

Phys. Rev. C **77**, 014313/1-10 (2008)

PHY-12000-ME-2008

Cross Sections and Beam Asymmetries for  $\bar{\nu}p \rightarrow e n \pi^+$  in the Nucleon Resonance Region for  $1.7 \leq Q^2 \leq 4.5 \text{ GeV}^2$

K. Park *et al.* (CLAS Collaboration)

Phys. Rev. C **77**, 015208/1-17 (2008)

PHY-12272-HI-2009

Low-Spin Lifetime Measurements in  $^{74}\text{Kr}$

J. J. Valiente-Dobón *et al.*

Phys. Rev. C **77**, 024312/1-6 (2008)

PHY-11914-HI-2007

Search for Strongly Deformed Structures and Observation of Multiple Nucleon Alignments in  $^{174}\text{W}$

S. K. Tandel, A. J. Knox, C. Parnell-Lampen, U. S. Tandel, P. Chowdhury, M. P. Carpenter, R. V. F. Janssens, T. L. Khoo, T. Lauritsen, C. J. Lister, D. Seweryniak, X. Wang, S. Zhu, D. J. Hartley, and Jing-ye Zhang  
Phys. Rev. C **77**, 024313/1-8 (2008)

PHY-11941-HI-2007

Measurement of Conversion Coefficients in Normal and Triaxial Strongly Deformed Bands in  $^{167}\text{Lu}$

G. Gürdal, C. W. Beausang, D. S. Brenner, H. Ai, R. F. Casten, B. Crider, A. Heinz, E. Williams, D. J. Hartley, M. P. Carpenter, A. A. Hecht, R. V. F. Janssens, T. Lauritsen, C. J. Lister, R. Raabe, D. Seweryniak, S. Zhu, and J. X. Saladin  
Phys. Rev. C **77**, 024314/1-7 (2008)

PHY-11879-TH-2007

Strangeness -2 and -3 Baryons in a Constituent Quark Model

Muslema Pervin and W. Roberts  
Phys. Rev. C **77**, 025202/1-7 (2008)

PHY-11689-TH-2007

Vector Meson Form Factors and Their Quark-Mass Dependence

M. S. Bhagwat and P. Maris  
Phys. Rev. C **77**, 025203/1-12 (2008)

PHY-11822-HI-2007

High-Spin, Multiparticle Isomers in  $^{121,123}\text{Sb}$

G. A. Jones, S. J. Williams, P. M. Walker, Zs. Podolyák, S. Zhu, M. P. Carpenter, J. J. Carroll, R. S. Chakrawarthy, P. Chowdhury, I. J. Cullen, G. D. Dracoulis, A. B. Garnsworthy, G. Hackman, R. V. F. Janssens, T. L. Khoo, F. G. Kondev, G. J. Lane, Z. Liu, D. Seweryniak, and N. J. Thompson  
Phys. Rev. C **77**, 034311/1-11 (2008)

PHY-11918-HI-2007

Rotation-Aligned Coupling in  $^{61}\text{Fe}$

N. Hoteling, W. B. Walters, R. V. F. Janssens, R. Broda, M. P. Carpenter, B. Fornal, A. A. Hecht, M. Hjorth-Jensen, W. Królas, T. Lauritsen, T. Pawlat, D. Seweryniak, J. R. Stone, X. Wang, A. Wöhr, J. Wrzesiński, and S. Zhu  
Phys. Rev. C **77**, 044314/1-7 (2008)

PHY-11990-TH-2008

Dynamical Coupled-Channels Effects on Pion Photoproduction

B. Juliá-Díaz, T.-S. H. Lee, A. Matsuyama, T. Sato, and L. C. Smith  
Phys. Rev. C **77**, 045205/1-9 (2008)

PHY-11963-HI-2008

Two-Quasiparticle States in  $^{250}\text{Bk}$  Studied by Decay Scheme and Transfer Reaction Spectroscopy

I. Ahmad, F. G. Kondev, Z. M. Koenig, Wm. C. McHarris, and S. W. Yates  
Phys. Rev. C **77**, 054302/1-12 (2008)

PHY-11967-HI-2008

Enhanced Mixing of Intrinsic States in Deformed Hf Nuclei

E. A. McCutchan, R. F. Casten, V. Werner, E. Williams, R. Winkler, A. Wolf, Z. Berant, G. Gürdal, J. Qian, H. Ai, L. Amon, C. W. Beausang, D. S. Brenner, R. B. Cakirli, R. J. Casperson, C. R. Fitzpatrick, D. Frank, A. B. Garnsworthy, A. Heinz, R. Lüttke, A. F. Mertz, Y. Oktem, N. Pietralla, P. H. Regan, B. Shoraka, J. R. Terry, and N. J. Thompson  
Phys. Rev. C **77**, 054304/1-14 (2008)

PHY-11975-HI-2008

Classes of  $\beta - \gamma$  Mixing and  $E0$  Transitions in Deformed Nuclei

E. A. McCutchan and R. F. Casten  
Phys. Rev. C **77**, 054320/1-5 (2008)

PHY-12236-TH-2008

Coupled-Channels Calculations of  $^{16}\text{O} + ^{16}\text{O}$  Fusion

H. Esbensen  
Phys. Rev. C **77**, 054608/1-7 (2008)

PHY-12273-HI-2009

Prompt Proton Decay and Deformed Bands in  $^{56}\text{Ni}$

E. K. Johansson *et al.*  
Phys. Rev. C **77**, 064316/1-11 (2008)

PHY-12137-ME-2008

Polarized Structure Function  $\sigma_{LT'}$  for  $^1\text{H}(\vec{e}, e'K^+)\Lambda$  in the Nucleon Resonance Region

R. Nasseripour *et al.* (CLAS Collaboration)  
Phys. Rev. C **77**, 065208/1-15 (2008)

PHY-11982-RI-2008

Superconducting Accelerating Structures for Very Low Velocity Ion Beams

J. Xu, K. W. Shepard, P. N. Ostroumov, J. D. Fuerst, G. Waldschmidt, and I. V. Gonin  
Phys. Rev. ST Accel. Beams **11**, 032001/1-8 (2008)

PHY-12028-ME-2008

Atom Trap, Krypton-81, and Saharan Water

Zheng-Tian Lu

Nucl. Phys. News **18**, 24-27 (2008)

PHY-12266-HI-2009

Discovery of Underground Argon with Low Level of Radioactive  $^{39}\text{Ar}$  and Possible Applications to WIMP Dark Matter Detectors

D. Acosta-Kane *et al.*

Nucl. Instrum. Methods **A587**, 46-51 (2008)

PHY-12098-ME-2008

A Double-Target System for Precision Measurements of Nuclear Medium Effects

H. Hakobyan, W. K. Brooks, K. Bruhwel, V. D. Burkert, T. Carstens, S. Christo, H. Egiyan, N. Gevorgyan, J. Gram, K. Hafidi, P. Hemler, D. Insley, G. Jacobs, D. Kashy, B. A. Mecking, Y. Sharabian, S. Stepanyan, D. Tilles, L. Weinsein, and X. Zheng

Nucl. Instrum. Methods **A592**, 218-223 (2008)

PHY-12219-TH-2008

The Neon Abundance in the Ejecta of QU Vulpeculae from Late-Epoch Infrared Spectra

Robert D. Gehrz, Charles E. Woodward, L. Andrew Helton, Elisha F. Polomski, Thomas L.

Hayward, James R. Houck, A. Evans, Joachim Krautter, Steven N. Shore, Sumner Starrfield,

James Truran, G. J. Schwarz, and R. Mark Wagner

Astrophys. J. **672**, 1167-1173 (2008)

PHY-11977-HI-2008

The Impact of the  $^{18}\text{F}(\alpha,p)^{21}\text{Ne}$  Reaction on Asymptotic Giant Branch Nucleosynthesis

A. I. Karakas, H. Y. Lee, M. Lugaro, J. Görres, and M. Wiescher

Astrophys. J. **676**, 1254-1261 (2008)

PHY-11874-RI-2007

A Parallel 3D Poisson Solver for Space Charge Simulation in Cylindrical Coordinates

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

Comp. Phy. Comm. **178**, 290-300 (2008)

PHY-12156-HI-2008

Transition to Non-Collective States at High Spin in  $^{124}\text{Xe}$

A. Al-Khatib, H. Hübel, P. Bringel, C. Engelhardt, A. Neußer-Neffgen, G. B. Hagemann, C. R. Hansen, B. Herskind, G. Sletten, A. Bracco, F. Camera, G. Benzoni, P. Fallon, R. M. Clark, M. P. Carpenter, R. V. F. Janssens, T. L. Khoo, T. Lauritsen, P. Chowdhury, H. Amro, A. K. Singh, and R. Bengtsson

Eur. Phys. J. A **36**, 21-29 (2008)

PHY-12134-ME-2008

Evidence for a Transverse Single-Spin Asymmetry in Leptoproduction of  $\pi^+\pi^-$  Pairs

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

J. High Energy Phys. **6**, 17/1-20 (2008)

PHY-12135-ME-2008

Measurement of Azimuthal Asymmetries with Respect to Both Beam Charge and Transverse Target Polarization in Exclusive Electroproduction of Real Photons

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

J. High Energy Phys. **6**, 66/1-26 (2008)

PHY-11980-HI-2008

Direct Plasma Injection Scheme in Accelerators

M. Okamura, T. Takeuchi, R. A. Jameson, S. Kondrashev, H. Kashiwagi, K. Sakakibara, T. Kanetsue, J. Tamura, and T. Hattori

Rev. Sci. Instrum. **79**, 1-4 (2008)

PHY-12003-ME-2008

Probing Cold Dense Nuclear Matter

R. Subedi *et al.*

Science **320**, 1476-1478 (2008)