

Published Journal Articles of the Physics Division, July-December 2008

PHY-11992-HI-2008

Unified Description of 0^+ States in a Large Class of Nuclear Collective Models

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

Phys. Rev. Lett. **101**, 022501/1-4 (2008)

PHY-12144-ME-2008

Hyperfine Suppression of $2\ ^3S_1 - 3\ ^3P_J$ Transitions in ^3He

I. A. Sulai, Qixue Wu, M. Bishof, G. W. F. Drake, Z.-T. Lu, P. Mueller, and R. Santra

Phys. Rev. Lett. **101**, 173001/1-4 (2008)

PHY-12066-ME-2008

Quark-Hadron Duality in Neutron (^3He) Spin Structure

P. Solvignon *et al.* (Jefferson Lab E01-012 Collaboration)

Phys. Rev. Lett. **101**, 182502/1-5 (2008)

PHY-12057-HI-2008

Collective Oblate Rotation at High Spins in Neutron-Rich ^{180}Hf

U. S. Tandel, S. K. Tandel, P. Chowdhury, D. Cline, C. Y. Wu, M. P. Carpenter, R. V. F.

Janssens, T. L. Khoo, T. Lauritsen, C. J. Lister, D. Seweryniak, and S. Zhu

Phys. Rev. Lett. **101**, 182503/1-4 (2008)

PHY-11909-ME-2007

Transverse Momentum Dependence of Semi-Inclusive Pion Production

H. Mkrtchyan *et al.*

Phys. Lett. **B665**, 20-25 (2008)

PHY-12267-HI-2009

Low-Lying Proton Intruder State in ^{13}B

S. Ota *et al.*

Phys. Lett. **B666**, 311-314 (2008)

PHY-12047-ME-2008

Measurement of Parton Distributions of Strange Quarks in the Nucleon from Charged-Kaon Production in Deep-Inelastic Scattering on the Deuteron

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

Phys. Lett. **B666**, 446-450 (2008)

PHY-12155-HI-2008

High- K Structure in ^{250}Fm and the Deformed Shell Gaps in $N = 152$ and $Z = 100$

P. T. Greenlees, R.-D. Herzberg, S. Ketelhut, P. A. Butler, P. Chowdhury, T. Grahn, C.

Gray-Jones, G. D. Jones, P. Jones, R. Julin, S. Juutinen, T. L. Khoo, M. Leino, S. Moon, M.

Nyman, J. Pakarinen, P. Rakhila, D. Rostron, J. Sarén, C. Scholey, J. Sorri, S. K. Tandel, J.

Uusitalo, and M. Venhart

Phys. Rev. C **78**, 021303(R)/1-5 (2008)

PHY-12147-HI-2008

Determination of the Proton Separation Energy of ^{93}Rh from Mass Measurements

J. Fallis, J. A. Clark, K. S. Sharma, G. Savard, F. Buchinger, S. Caldwell, J. E. Crawford, C. M. Deibel, J. L. Fisker, S. Gulick, A. A. Hecht, D. Lascar, J. K. P. Lee, A. F. Levand, G. Li, B. F. Lundgren, A. Parikh, S. Russell, M. Scholte-van de Vorst, N. D. Scielzo, R. E. Segel, H. Sharma, S. Sinha, M. Sternberg, T. Sun, I. Tanihata, J. Van Schelt, J. C. Wang, Y. Wang, C. Wrede, and Z. Zhou

Phys. Rev. C **78**, 022801(R)/1-4 (2008)

PHY-12108-HI-2008

Lifetime Measurement of Candidate Chiral Doublet Bands in the $^{103,104}\text{Rh}$ Isotopes with the Recoil-Distance Doppler-Shift Method in Inverse Kinematics

T. Suzuki, G. Rainovski, T. Koike, T. Ahn, M. P. Carpenter, A. Costin, M. Danchev, A. Dewald, R. V. F. Janssens, P. Joshi, C. J. Lister, A. Möller, N. Pietralla, T. Shinozuka, J. Timár, R. Wadsworth, C. Vaman, and S. Zhu

Phys. Rev. C **78**, 031302(R)/1-5 (2008)

PHY-12100-ME-2008

Neutron Negative Central Charge Density: An Inclusive-Exclusive Connection

Gerald A. Miller and John Arrington

Phys. Rev. C **78**, 032201(R)/1-4 (2008)

PHY-12102-HI-2008

Structure of ^7He by Proton Removal from ^8Li with the ($d, ^3\text{He}$) Reaction

A. H. Wuosmaa, J. P. Schiffer, K. E. Rehm, J. P. Greene, D. J. Henderson, R. V. F. Janssens, C. L. Jiang, L. Jisonna, J. C. Lighthall, S. T. Marley, E. F. Moore, R. C. Pardo, N. Patel, M. Paul, D. Peterson, Steven C. Pieper, G. Savard, R. E. Segel, R. H. Siemssen, X. D. Tang, and R. B. Wiringa

Phys. Rev. C. **78**, 041302(R)/1-5 (2008)

PHY-12149-HI-2008

Identified Charged Antiparticle to Particle Ratios Near Midrapidity in Cu + Cu Collisions at $\sqrt{s_{NN}} = 62.4$ and 200 GeV

B. Alver, B. B. Back, M. D. Baker, M. Ballintijn, D. S. Barton, R. R. Betts, R. Bindel, W. Busza, Z. Chai, V. Chetluru, E. Garcia, T. Gburek, K. Gulbrandsen, J. Hamblen, I. Harnarine, C. Henderson, D. J. Hofman, R. S. Hollis, R. Holynski, B. Holzman, A. Iordanova, J. L. Kane, 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, E. Richardson, C. Roland, G. Roland, J. Sagerer, I. Sedykh, C. E. Smith, M. A. Stankiewicz, P. Steinberg, G. S. F. Stephans, A. Sukhanov, A. Szostak, M. B. Tonjes, A. Trzupek, G. J. van Nieuwenhuizen, S. S. Vaurynovich, R. Verrier, G. I. Veres, P. Walters, E. Wenger, D. Willhelm, F. L. H. Wolfs, B. Wosiek, K. Wozniak, S. Wyngaardt, and B. Wyslouch

Phys. Rev. C **77**, 061901(R)/1-5 (2008)

PHY-12148-HI-2008

Importance of Correlations and Fluctuations on the Initial Source Eccentricity in High-Energy Nucleus-Nucleus Collisions

B. Alver, B. B. Back, M. D. Baker, M. Ballintijn, D. S. Barton, R. R. Betts, R. Bindel, W. Busza, V. Chetluru, E. Garcia, T. Gburek, J. Hamblen, U. Heinz, D. J. Hofman, R. S. Hollis, A. Jordanova, W. Li, C. Loizides, S. Manly, A. C. Mignerey, R. Nouicer, A. Olszewski, C. Reed, C. Roland, G. Roland, J. Sagerer, P. Steinberg, G. S. F. Stephans, M. B. Tonjes, A. Trzupek, G. J. van Nieuwenhuizen, S. S. Vaurynovich, R. Verrier, G. I. Veres, P. Walters, E. Wenger, B. Wosiek, K. Wozniak, and B. Wyslouch
Phys. Rev. C **77**, 014906/1-16 (2008)

PHY-12027-HI-2008

Two-Quasineutron States in $^{248}_{98}\text{Cf}$ and $^{250}_{98}\text{Cf}$ and the Neutron-Neutron Residual Interactions

K. Katori, I. Ahmad, and A. M. Friedman
Phys. Rev. C **78**, 014301/1-9 (2008)

PHY-11981-HI-2008

β Decay Spectroscopy of ^{192}Pt and the Nature of 0^+ Excitations

E. A. McCutchan, R. F. Casten, V. Werner, R. Winkler, R. B. Cakirli, G. Gürdal, X. Liang, and E. Williams
Phys. Rev. C **78**, 014320/1-19 (2008)

PHY-12139-ME-2008

Light Vector Mesons in the Nuclear Medium

M. H. Wood *et al.* (CLAS Collaboration)
Phys. Rev. C **78**, 015201/1-15 (2008)

PHY-12136-ME-2008

Ratios of $^{15}\text{N}/^{12}\text{C}$ and $^4\text{He}/^{12}\text{C}$ Inclusive Electroproduction Cross Sections in the Nucleon Resonance Region

P. E. Bosted *et al.* (CLAS Collaboration)
Phys. Rev. C **78**, 015202/1-6 (2008)

PHY-12274-HI-2009

Triaxial Strongly Deformed Bands in $^{160,161}\text{Tm}$

C. Teal, K. Lagergren, A. Aguilar, D. J. Hartley, M. A. Riley, J. Simpson, M. P. Carpenter, U. Garg, R. V. F. Janssens, D. T. Joss, F. G. Kondev, T. Lauritsen, C. J. Lister, X. Wang, S. Zhu, and I. Ragnarsson
Phys. Rev. C **78**, 017305/1-4 (2008)

PHY-12055-HI-2008

Fusion Hindrance for a Positive Q-Value System

C. L. Jiang, B. B. Back, H. Esbensen, J. P. Greene, R. V. F. Janssens, D. J. Henderson, H. Y. Lee, C. J. Lister, M. Notani, R. C. Pardo, N. Patel, K. E. Rehm, D. Seweryniak, B. Shumard, X. Wang, S. Zhu, S. Misicu, P. Collon, and X. D. Tang
Phys. Rev. C **78**, 017601/1-4 (2008)

PHY-12080-TH-2008

Dependence of Two-Nucleon Momentum Densities on Total Pair Momentum

R. B. Wiringa, R. Schiavilla, Steven C. Pieper, and J. Carlson
Phys. Rev. C **78**, 021001/1-3 (2008)

PHY-12160-TH-2008

Poincaré Invariant Three-Body Scattering at Intermediate Energies

T. Lin, Ch. Elster, W. N. Polyzou, H. Witala, and W. Glöckle
Phys. Rev. C **78**, 024002/1-19 (2008)

PHY-12113-HI-2008

Analog $E1$ Transitions and Isospin Mixing

N. S. Pattabiraman, D. G. Jenkins, M. A. Bentley, R. Wadsworth, C. J. Lister, M. P. Carpenter, R. V. F. Janssens, T. L. Khoo, T. Lauritsen, D. Seweryniak, S. Zhu, G. Lotay, P. J. Woods, Krishichayan, and P. Van Isacker
Phys. Rev. C **78**, 024301/1-8 (2008)

PHY-12275-HI-2009

Large Proton Contribution to the 2^+ Excitation in ^{20}Mg Studied by Intermediate Energy Inelastic Scattering

N. Iwasa *et al.*
Phys. Rev. C **78**, 024306/1-5 (2008)

PHY-12097-TH-2008

Coulomb Excitation at Intermediate Energies

H. Esbensen
Phys. Rev. C **78**, 024608/1-11 (2008)

PHY-12062-TH-2008

Coupled-Channels Study of the $\pi^-p \rightarrow \eta n$ Process

J. Durand, B. Juliá-Díaz, T.-S. H. Lee, B. Saghai, and T. Sato
Phys. Rev. C **78**, 025204/1-12 (2008)

PHY-12140-ME-2008

Electroproduction of $\phi(1020)$ Mesons at $1.4 \leq Q^2 \leq 3.8 \text{ GeV}^2$ Measured with the CLAS Spectrometer

J. P. Santoro *et al.* (CLAS Collaboration)
Phys. Rev. C **78**, 025210/1-14 (2008)

PHY-11945-HI-2007

$K^\pi = 8^-$ Isomers and $K^\pi = 2^-$ Octupole Vibrations in $N = 150$ Shell-Stabilized Isotones

A. P. Robinson, T. L. Khoo, I. Ahmad, S. K. Tandel, F. G. Kondev, T. Nakatsukasa, D. Seweryniak, M. Asai, B. B. Back, M. P. Carpenter, P. Chowdhury, C. N. Davids, S. Eeckhaudt, J. P. Greene, P. T. Greenlees, S. Gros, A. Heinz, R.-D. Herzberg, R. V. F. Janssens, G. D. Jones, T. Lauritsen, C. J. Lister, D. Peterson, J. Qian, U. S. Tandel, X. Wang, and S. Zhu
Phys. Rev. C **78**, 034308/1-6 (2008)

PHY-12092-HI-2008

Electromagnetic Transition Rates in High-Spin Bands in ^{136}Nd

S. Mukhopadhyay, D. Almeded, U. Garg, S. Frauendorf, T. Li, P. V. Madhusudhana Rao, X. Wang, S. S. Ghugre, M. P. Carpenter, S. Gros, A. Hecht, R. V. F. Janssens, F. G. Kondev, T. Lauritsen, D. Seweryniak, and S. Zhu
Phys. Rev. C **78**, 034311/1-6 (2008)

PHY-12276-HI-2009

Deformation of Rotational Structures in ^{73}Kr and ^{74}Rb : Probing the Additivity Principle at Triaxial Shapes

F. Johnston-Theasby, A. V. Afanasjev, C. Andreoiu, R. A. E. Austin, M. P. Carpenter, D. Dashdorj, S. J. Freeman, P. E. Garrett, J. Greene, A. Gorgen, D. G. Jenkins, P. Joshi, A. O. Macchiavelli, F. Moore, G. Mukherjee, W. Reviol, D. Sarantites, D. Seweryniak, M. B. Smith, C. E. Svensson, J. J. Valiente-Dobon, R. Wadsworth, and D. Ward
Phys. Rev. C **78**, 034312/1-8 (2008)

PHY-12049-HI-2008

Intruder Excitations in ^{35}P

M. Wiedeking, E. Rodriguez-Vieitez, P. Fallon, M. P. Carpenter, R. M. Clark, D. Cline, M. Cromaz, M. Descovich, R. V. F. Janssens, I-Y. Lee, M-A. Deleplanque, A. O. Macchiavelli, F. S. Stephens, R. Teng, X. Wang, D. Ward, C. Y. Wu, S. Zhu, T. Otsuka, Y. Utsuno, and A. Volya
Phys. Rev. C **78**, 037302/1-4 (2008)

PHY-12277-HI-2009

Reply to "Comment on 'Level Structure of ^{92}Rh : Implications for the Two-Proton Decay of $^{94}\text{Ag}^m$ ' "

O. L. Pechenaya, D. G. Sarantites, W. Reviol, C. J. Chiara, R. V. F. Janssens, C. J. Lister, and D. Seweryniak
Phys. Rev. C **78**, 039804/1 (2008)

PHY-12091-HI-2008

Identification of Triaxial Strongly Deformed Band in ^{168}Hf

R. B. Yadav, W. C. Ma, G. B. Hagemann, R. Bengtsson, H. Ryde, H. Amro, A. Bracco, M. P. Carpenter, J. Domscheit, S. Frattini, D. J. Hartley, B. Herskind, H. Hübel, R. V. F. Janssens, T. L. Khoo, F. G. Kondev, T. Lauritsen, C. J. Lister, B. Million, S. Ødegård, L. L. Riedinger, K. A. Schmidt, S. Siem, G. Sletten, P. G. Varmette, J. N. Wilson and Y. C. Zhang
Phys. Rev. C **78**, 044316/1-7 (2008)

PHY-12060-ME-2008

Charged Pion Form Factor Between $Q^2 = 0.60$ and 2.45 GeV^2 . 1. Measurements of the Cross Section for $^1\text{H}(e, e'\pi^+)n$ Reaction

H. P. Blok *et al.* (Jefferson Lab F_π Collaboration)
Phys. Rev. C **78**, 045202/1-25 (2008)

PHY-12061-ME-2008

Charged Pion Form Factor Between $Q^2 = 0.60$ and 2.45 GeV^2 . II: Determination of, and Results for, the Pion Form Factor

G. M. Huber *et al.* (Jefferson Lab F_π Collaboration)
Phys. Rev. C **78**, 045203/1-16 (2008)

PHY-12142-ME-2008

First Measurement of Target and Double Spin Asymmetries for $\vec{e}\vec{p} \rightarrow e p \pi^0$ in the Nucleon Resonance Region Above the $\Delta(1232)$

A. S. Biselli *et al.*
Phys. Rev. C **78**, 045204/1-11 (2008)

PHY-12141-ME-2008

Electroexcitation of the Roper Resonance for $1.7 < Q^2 < 4.5 \text{ GeV}^2$ in $\vec{e}\vec{p} \rightarrow e n \pi^+$

I. G. Aznauryan *et al.* (CLAS Collaboration)
Phys. Rev. C **78**, 045209/1-7 (2008)

PHY-12129-TH-2008

Collectivity-Induced Quenching of Signatures for Shell Closures

M. Bender, G. F. Bertsch, and P.-H. Heenen
Phys. Rev. C **78**, 054312/1-7 (2008)

PHY-12491-HI-2009

Deformation and Magnetic Rotations in the ^{60}Ni Nucleus

D. A. Torres, F. Cristancho, L.-L. Andersson, E. K. Johansson, D. Rudolph, C. Fahlander, J. Ekman, R. du Rietz, C. Andreoiu, M. P. Carpenter, D. Seweryniak, S. Zhu, R. J. Charity, C. J. Chiara, C. Hoel, O. L. Pechenaya, W. Reviol, D. G. Sarantites, L. G. Sobotka, C. Baktash, C.-H. Yu, B. G. Carlsson, and I. Ragnarsson
Phys. Rev. C **78**, 054318/1-24 (2008)

PHY-12157-HI-2008

Possible Shears Bands in ^{204}At and ^{206}Fr , and Identification of Excited States in $^{205,207}\text{Fr}$

D. J. Hartley, E. P. Seyfried, W. Reviol, D. G. Sarantites, C. J. Chiara, O. L. Pechenaya, K. Hauschild, A. Lopez-Martens, M. P. Carpenter, R. V. F. Janssens, D. Seweryniak, and S. Zhu
Phys. Rev. C **78**, 054319/1-8 (2008)

PHY-12492-HI-2009

$^{132}\text{Sn} + ^{96}\text{Zr}$ Reaction: A Study of Fusion Enhancement/Hindrance

A. M. Vinodkumar, W. Loveland, J. J. Neeway, L. Prisbrey, P. H. Sprunger, D. Peterson, J. F. Liang, D. Shapira, C. J. Gross, R. L. Varner, J. J. Kolata, A. Roberts, and A. L. Caraley
Phys. Rev. C **78**, 054608/1-7 (2008)

PHY-12078-TH-2008

Confinement and Dynamical Chiral Symmetry Breaking in QED3

A. Bashir, A. Raya, I. C. Cloët, and C. D. Roberts
Phys. Rev. C **78**, 055201/1-7 (2008)

PHY-11994-ME-2008

Scaling Study of the Pion Electroproduction Cross Sections

T. Horn *et al.*
Phys. Rev. C **78**, 058201/1-4 (2008)

PHY-12158-HI-2008

Electron-Capture Branch of ^{100}Tc and Tests of Nuclear Wave Functions for Double- β Decays

S. K. L. Sjøe, D. Melconian, A. Garcia, I. Ahmad, A. Algora, J. Äystö, V.-V. Elomaa, T. Eronen, J. Hakala, S. Hoedl, A. Kankainen, T. Kessler, I. D. Moore, F. Naab, H. Penttilä, S. Rahaman, A. Saastamoinen, H. E. Swanson, C. Weber, S. Triambak, and K. Deryckx
Phys. Rev. C **78**, 064317/1-7 (2008)

PHY-12159-TH-2008

Quantum Monte Carlo Calculations of Magnetic Moments and $M1$ Transitions in $A \leq 7$ Nuclei Including Meson-Exchange Currents

L. E. Marcucci, Muslema Pervin, Steven C. Pieper, R. Schiavilla, and R. B. Wiringa
Phys. Rev. C **78**, 065501/1-10 (2008)

PHY-12094-TH-2008

Chemical Potential and the Gap Equation

Huan Chen, Wei Yuan, Lei Chang, Yu-Xin Liu, Thomas Klähn, and Craig D. Roberts
Phys. Rev. D **78**, 116015/1-11 (2008)

PHY-12081-TH-2008

Viscous Damping of r -Mode Oscillations in Compact Stars with Quark Matter

Prashanth Jaikumar, Gautam Rupak, and Andrew W. Steiner

Phys. Rev. D **78**, 123007/1-14 (2008)

PHY-12050-HI-2008

Optimizing Recoil-Isomer Tagging with the Argonne Fragment Mass Analyzer

A. B. Garnsworthy, C. J. Lister, P. H. Regan, B. B. Blank, I. J. Cullen, S. Gros, D. J.

Henderson, G. A. Jones, Z. Liu, D. Seweryniak, B. R. Shumard, N. J. Thompson, S. J.

Williams, and Z. Shu

Nucl. Instrum. Methods **A594**, 184-187 (2008)

PHY-11793-HI-2007

A Study of the Cyclotron Gas-Stopping Concept for the Production of Rare Isotope Beams

M. Sternberg and G. Savard

Nucl. Instrum. Methods **A596**, 257-268 (2008)

PHY-12265-HI-2009

First Results from the Nuclear Astrophysics AMS Program at the NSL Using the MANTIS

System in Gas-Filled Mode

D. Robertson, P. Collon, D. Henderson, S. Kurtz, L. Lamm, C. Schmitt, B. Shumard, and J.

Webb

Nucl. Instrum. Methods **B266**, 3481-3486 (2008)

PHY-12220-TH-2008

Three-Dimensional Simulations of the Deflagration Phase of the Gravitationally Confined

Detonation Model of Type Ia Supernovae

G. C. Jordan IV, R. T. Fisher, D. M. Townsley, A. C. Calder, C. Graziani, S. Asida, D. Q.

Lamb, and J. W. Truran

Astrophys. J. **681**, 1448-1457 (2008)

PHY-12221-TH-2008

Proton-Rich Nuclear Statistical Equilibrium

I. R. Seitenzahl, F. X. Timmes, A. Marin-Laf eche, E. Brown, G. Magkotsios, and J. Truran

Astrophys. J. Lett. **685**, L129-L132, (2008)

PHY-12179-TH-2008

Modeling Electromagnetic Form Factors of Light and Heavy Pseudoscalar Mesons

B. El-Bennich, J. P. B. C. de Melo, B. Loiseau, J.-P. Dedonder, and T. Frederico

Braz. J. Phys. **38**, 465-471 (2008)

PHY-12243-ME-2008

Flavor Physics of Leptons and Dipole Moments

M. Raidal *et al.*

Eur. Phys. J. C **57**, 13-182 (2008)

PHY-12043-TH-2008

Current Quark-Mass Dependence of Nucleon Magnetic Moments and Radii

I. C. Cloët, G. Eichmann, V. V. Flambaum, C. D. Roberts, M. S. Bhagwat, and A. Höll

Few-Body Systems **42**, 91-113 (2008)

PHY-11971-TH-2008

Heavy Baryons in a Quark Model

W. Roberts and Muslema Pervin

Int. J. Mod. Phys. A **23**, 2817-2860 (2008)

PHY-12107-RI-2008

Identification of New Isotopes ^{125}Pd and ^{126}Pd Produced by In-Flight Fission of 345 MeV/Nucleon ^{238}U : First Results from the RIKEN RI Beam Factory

Tetsuya Ohnishi *et al.*

J. Phys. Soc. Japan **77**, 083201/1-4 (2008)

PHY-12143-ME-2008

Halo Nuclei in Laser Light

G. W. F. Drake, Z.-T. Lu, W. Noertershaeuser, and Z.-C. Yan

Lecture Notes in Physics **745**, 131-153 (2008)

PHY-11954-TH-2008

Quantum Monte Carlo Methods for Nuclei

Robert B. Wiringa

Physics in Canada **64**, 67 (2008)