

Physics Division Published Journal Articles, January-June 2011

PHY-12863-TH-2010

Cold Neutrons Trapped in External Fields

S. Gandolfi, J. Carlson, and Steven C. Pieper

Phys. Rev. Lett. **106**, 012501/1-4 (2011)

PHY-12899-ME-2010

Precise Extraction of the Induced Polarization in the  ${}^4\text{He}(e, e'\bar{p}){}^3\text{He}$  Reaction

S. P. Malace *et al.* (E03-104 Collaboration)

Phys. Rev. Lett. **106**, 052501/1-5 (2011)

PHY-12844-TH-2010

Dressed-Quark Anomalous Magnetic Moments

Lei Chang, Yu-Xin Liu, and Craig D. Roberts

Phys. Rev. Lett. **106**, 072001/1-4 (2011)

PHY-12835-HI-2010

${}^{39}\text{Ar}$  Detection at the  $10^{-16}$  Isotopic Abundance Level with Atom Trap Trace Analysis

W. Jiang, W. Williams, K. Bailey, A. M. Davis, S.-M. Hu, Z.-T. Lu, T. P. O'Connor, R.

Purtschert, N. C. Sturchio, Y. R. Sun, and P. Mueller

Phys. Rev. Lett. **106**, 103001/1-4 (2011)

PHY-12852-ME-2010

Search for Effects Beyond the Born Approximation in Polarization Transfer Observables in  $\bar{e}p$  Elastic Scattering

M. Meziane *et al.* (GEp2 $\gamma$  Collaboration)

Phys. Rev. Lett. **106**, 132501/1-6 (2011)

PHY-12905-TH-2011

Knockout Reactions from  $p$ -Shell Nuclei: Tests of *Ab Initio* Structure Models

G. F. Grinyer, D. Bazin, A. Gade, J. A. Tostevin, P. Adrich, M. D. Bowen, B. A. Brown, C.

M. Campbell, J. M. Cook, T. Glasmacher, S. McDaniel, P. Navrátil, A. Obertelli, S.

Quaglioni, K. Siwek, J. R. Terry, D. Weisshaar, and R. B. Wiringa

Phys. Rev. Lett. **106**, 162502/1-4 (2011)

PHY-12888-TH-2010

Phase Diagram and Critical End Point for Strongly Interacting Quarks

Si-xue Qin, Lei Chang, Huan Chen, Yu-xin Liu, and Craig D. Roberts

Phys. Rev. Lett. **106**, 172301/1-4 (2011)

PHY-12936-HI-2011

Fusion Reactions with the One-Neutron Halo Nucleus  ${}^{15}\text{C}$

M. Alcorta, K. E. Rehm, B. B. Back, S. Bedoor, P. F. Bertone, C. M. Deibel, B. DiGiovine, H.

Esbensen, J. P. Greene, C. R. Hoffman, C. L. Jiang, J. C. Lighthall, S. T. Marley, R. C.

Pardo, M. Paul, A. M. Rogers, C. Ugalde, and A. H. Wuosmaa

Phys. Rev. Lett. **106**, 172701/1-4 (2011)

PHY-12887-HI-2010

High Spin Spectroscopy in  $^{125}\text{Xe}$

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

Phys. Rev. C **83**, 024306/1-13 (2011)

PHY-12860-HI-2010

Shape Coexistence in  $^{72}\text{Se}$  Investigated Following the  $\beta$ -Decay of  $^{72}\text{Br}$

E. A. McCutchan, C. J. Lister, T. Ahn, R. J. Casperson, A. Heinz, G. Ilie, J. Qian, E. Williams, R. Winkler, and V. Werner

Phys. Rev. C **83**, 024310/1-12 (2011)

PHY-13011-HI-2011

Charged-Particle Multiplicity and Pseudorapidity Distributions Measured with the PHOBOS Detector in Au + Au, Cu + Cu, D + Au, and P + P Collisions at Ultrarelativistic Energies

B. Alver, B. B. Back, M. D. Baker, M. Ballintijn, D. S. Barton, R. R. Betts, A. A. Bickley, R. Bindel, A. Budzanowski, W. Busza, A. Carroll, Z. Chai, V. Chetluru, M. P. Decowski, E. García, T. Gburek, N. George, K. Gulbrandsen, S. Gushue, C. Halliwell, J. Hamblen, G. A. Heintzelman, C. Henderson, D. J. Hofman, R. S. Hollis, R. Holyński, B. Holzman, A. Iordanova, E. Johnson, J. L. Kane, J. Katzy, N. Khan, J. Kotula, W. Kucewicz, P. Kulinich, C. M. Kuo, W. Li, W. T. Lin, C. Loizides, S. Manly, D. McLeod, J. Michalowski, A. C. Mignerey, R. Nouicer, A. Olszewski, R. Pak, I. C. Park, H. Pernegger, C. Reed, L. P. Remsberg, M. Reuter, C. Roland, G. Roland, L. Rosenberg, J. Sagerer, P. Sarin, P. Sawicki, I. Sedykh, W. Skulski, C. E. Smith, S. G. Steadman, P. Steinberg, G. S. F. Stephans, M. Stodulski, A. Sukhanov, M. B. Tonjes, A. Trzupek, C. Vale, G. J. van Nieuwenhuizen, S. S. Vaurynovich, R. Verrier, G. I. Veres, B. Wadsworth, P. Walters, E. Wenger, F. L. H. Wolfs, B. Wosiek, K. Woźniak, A. H. Wuosmaa, and B. Wysłouch

Phys. Rev. C **83**, 024913/1-24 (2011)

PHY-12904-TH-2011

Strong  $D^* \rightarrow D\pi$  and  $B^* \rightarrow B\pi$  Couplings

Bruno El-Bennich, Mikhail A. Ivanov, and Craig D. Roberts

Phys. Rev. C **83**, 025205/1-5 (2011)

PHY-12883-HI-2010

Observation of a Two-Neutron Cascade from a Resonance in  $^{24}\text{O}$

C. R. Hoffman, T. Baumann, J. Brown, P. A. DeYoung, J. E. Finck, N. Frank, J. Hinnefeld, S. Mosby, W. A. Peters, W. F. Rogers, A. Schiller, J. Snyder, A. Spyrou, S. L. Tabor, and M. Thoennessen

Phys. Rev. C **83**, 031303(R)/1-5 (2011)

PHY-12923-TH-2011

Jastrow Functions in Double- $\beta$  Decay

J. Engel, J. Carlson, and R. B. Wiringa  
Phys. Rev. C **83**, 034317/1-6 (2011)

PHY-12938-TH-2011

Asymptotic Normalization Coefficients from *Ab Initio* Calculations

Kenneth M. Nollett and R. B. Wiringa  
Phys. Rev. C **83**, 041001/1-5 (2011)

PHY-12894-HI-2010

Structure Changes in  $^{160}\text{Er}$  from Low to Ultrahigh Spin

J. Ollier, J. Simpson, M. A. Riley, E. S. Paul, X. Wang, A. Aguilar, M. P. Carpenter, I. G. Darby, D. J. Hartley, R. V. F. Janssens, F. G. Kondev, T. Lauritsen, P. J. Nolan, M. Petri, J. M. Rees, S. V. Rigby, C. Teal, J. Thomson, C. Unsworth, S. Zhu, A. Kardan, and I. Ragnarsson  
Phys. Rev. C **83**, 044309/1-18 (2011)

PHY-12941-HI-2011

Quadrupole Moment Measurements for Strongly Deformed Bands in  $^{171,172}\text{Hf}$

S. Mukhopadhyay, W. C. Ma, R. V. F. Janssens, M. P. Carpenter, C. J. Chiara, P. Chowdhury, D. M. Cullen, G. B. Hagemann, D. J. Hartley, S. S. Hota, Q. A. Ijaz, T. L. Khoo, F. G. Kondev, S. Lakshmi, T. Lauritsen, J. Marsh, L. L. Riedinger, Y. Toh, R. B. Yadav, and S. Zhu  
Phys. Rev. C **83**, 044311/1-7 (2011)

PHY-12955-HI-2011

Non-Yrast Positive-Parity Structures in the  $\gamma$ -Soft Nucleus  $^{156}\text{Er}$

J. M. Rees, E. S. Paul, M. A. Riley, J. Simpson, A. D. Ayangeakaa, H. C. Boston, M. P. Carpenter, C. J. Chiara, U. Garg, D. J. Hartley, R. V. F. Janssens, D. S. Judson, F. G. Kondev, T. Lauritsen, J. Matta, P. J. Nolan, J. Ollier, M. Petri, J. P. Reville, L. L. Riedinger, S. V. Rigby, C. Unsworth, X. Wang, and S. Zhu  
Phys. Rev. C **83**, 044314/1-7 (2011)

PHY-12983-HI-2011

O(6)-Symmetry Breaking in the  $\gamma$ -Soft Nucleus  $^{126}\text{Xe}$  and Its Evolution in the Light Stable Xenon Isotopes

L. Coquard, G. Rainovski, N. Pietralla, T. Ahn, L. Bettermann, M. P. Carpenter, R. V. F. Janssens, J. Leske, C. J. Lister, T. Möller, W. Rother, V. Werner, and S. Zhu  
Phys. Rev. C **83**, 044318/1-8 (2011)

PHY-12985-HI-2011

Synthesis of Heavy Nuclei Using Damped Collisions: A Test

W. Loveland, A. M. Vinodkumar, D. Peterson, and J. P. Greene  
Phys. Rev. C **83**, 044610/1-6 (2011)

PHY-12984-HI-2011

Improving the  $^{30}\text{P}(p,\gamma)^{31}\text{S}$  Rate in Oxygen-Neon Novae: Constraints on  $J^\pi$  Values for Proton-Threshold States in  $^{31}\text{S}$

A. Parikh, K. Wimmer, T. Faestermann, R. Hertenberg, J. José, R. Longland, H.-F. Wirth, V. Bildstein, S. Bishop, A. A. Chen, J. A. Clark, C. M. Deibel, C. Herlitzius, R. Krücken, D. Seiler, K. Straub, and C. Wrede  
Phys. Rev. C **83**, 045806/1-8 (2011)

PHY-12944-TH-2011

Pion and Kaon Valence-Quark Parton Distribution Functions

Trang Nguyen, Adnan Bashir, Craig D. Roberts, and Peter C. Tandy  
Phys. Rev. C **83**, 062201(R)/1-5 (2011)

PHY-12959-HI-2011

Single-Particle and Collective Structures in  $^{55}\text{Cr}$  and  $^{55}\text{V}$

A. N. Deacon, D. Steppenbeck, S. Zhu, S. J. Freeman, R. V. F. Janssens, M. P. Carpenter, B. Fornal, M. Honma, B. P. Kay, F. G. Kondev, J. Kozemczak, A. Larabee, T. Lauritsen, C. J. Lister, A. P. Robinson, D. Seweryniak, J. F. Smith, Y. Sun, X. Wang, F. R. Xu, and Y.-C. Yang  
Phys. Rev. C **83**, 064305/1-15 (2011)

PHY-12961-HI-2011

Rotational Structures and the Wobbling Mode in  $^{167}\text{Ta}$

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, A. Ludington, W. C. Ma, E. A. McCutchan, S. Mukhopadhyay, R. Pifer, E. P. Seyfried, U. Shirwadkar, I. Stefanescu, S. K. Tandel, J. R. Vanhoy, S. Zhu, and S. Frauendorf  
Phys. Rev. C **83**, 064307/1-19 (2011)

PHY-12949-HI-2011

Search for a 2-Quasiparticle High- $K$  Isomer in  $^{256}\text{Rf}$

A. P. Robinson, T. L. Khoo, D. Seweryniak, I. Ahmad, M. Asai, B. B. Back, M. P. Carpenter, P. Chowdhury, C. N. Davids, J. Greene, P. T. Greenlees, K. Hauschild, A. Heinz, R.-D. Herzberg, R. V. F. Janssens, D. G. Jenkins, G. D. Jones, S. Ketelhut, F. G. Kondev, T. Lauritsen, C. J. Lister, A. Lopez-Martens, P. Marley, E. McCutchan, P. Papadakis, D. Peterson, J. Qian, D. Rostron, U. Shirwadkar, I. Stefanescu, S. K. Tandel, X. Wang, and S. Zhu  
Phys. Rev. C **83**, 064311/1-7 (2011)

PHY-12971-HI-2011

Yrast Structure of the Two-Proton- and the Three-Neutron-Hole Nucleus  $^{203}\text{Hg}$  from the Decay of the  $53/2^+$  Isomer

B. Szpak, K. H. Maier, A. S. Smolkowska, B. Fornal, R. Broda, M. P. Carpenter, N. Cieplicka, R. V. F. Janssens, W. Królas, T. Pawlat, J. Wrzesiński, and S. Zhu  
Phys. Rev. C **83**, 064315/1-8 (2011)

PHY-12945-TH-2011

$\pi$  and  $\rho$ -Mesons, and their Diquark Partners, from a Contact Interaction

H. L. L. Roberts, A. Bashir, L. X. Gutiérrez-Guerrero, C. D. Roberts, and D. J. Wilson  
Phys. Rev. C **83**, 065206/1-12 (2011)

PHY-13018-HI-2011

Near-Yrast, Medium-Spin Structure of  $^{143}\text{Xe}$

T. Rzaca-Urban, W. Urban, J. A. Pinston, A. G. Smith, and I. Ahmad  
Phys. Rev. C **83**, 067301/1-4 (2011)

PHY-12957-RI-2011

Measurements of Charge State Breeding Efficiency at BNL Test EBIS

S. Kondrashev, J. G. Alessi, E. N. Beebe, C. Dickerson, P. N. Ostroumov, A. Pikin, and G. Savard  
Nucl. Instrum. Methods **A642**, 18-24 (2011)

PHY-12942-HI-2011

Gas Cell Targets for Experiments with Radioactive Beams

K. E. Rehm, J. P. Greene, B. Harss, D. Henderson, C. L. Jiang, R. C. Pardo, B. Zabransky, and M. Paul  
Nucl. Instrum. Methods **A647**, 3-9 (2011)

PHY-12989-TH-2011

Masses of Ground- and Excited-State Hadrons

Hannes L. L. Roberts, Lei Chang, Ian C. Cloët, and Craig D. Roberts  
Few-Body Syst. **51**, 1-25 (2011)