PHYSICAL REVIEW C

For editorial and subscription correspondence, please see inside front cover
(ISSN: 0556-2813)

PERIODICALS
Postmaster send address changes to:
American Institute of Physics
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 66, NUMBER 3 *CONTENTS* **SEPTEMBER 2002**

RAPID COMMUNICATIONS

Evidence of X(5) symmetry for $n_\gamma = 0,1,2$ bands in ^{104}Mo *(4 pages)* . . . . . 031301(R)
P. G. Bizzeti and A. M. Bizzeti-Sona

Caloric curves and nuclear expansion *(4 pages)* . . . . . 031601(R)
J. B. Natowitz, K. Hagel, Y. Ma, M. Murray, L. Qin, S. Shlomo, R. Wada, and J. Wang

Light front cloudy bag model: Nucleon electromagnetic form factors *(5 pages)* . . . . . 032201(R)
Gerald A. Miller

ARTICLES

Nucleon-Nucleon Interaction, Few-Body Systems

Phase equivalent chains of Darboux transformations in scattering theory *(12 pages)* 034001
Boris F. Samsonov and Fl. Stancu

Deuteron binding energies and form factors from light-front Hamiltonian field theory *(21 pages)* 034002
Jason R. Cooke and Gerald A. Miller

Polarization transfer observables in πd elastic scattering *(18 pages)* 034003
G. Suft, W. Kretschmer, E. Boschitz, R. Meier, B. Brinkmöller, B. van den Brandt, P. Hautle, J. A. Konter, S. Mango, L. Mathelitsch, H. Garcilazo, and W. Grüebler

Nuclear Structure

Random phase approximation vs exact shell-model correlation energies *(6 pages)* 034301
Ionel Stetcu and Calvin W. Johnson

Simple approach to the angular momentum distribution in the ground states of many-body systems *(4 pages)* 034302
Y. M. Zhao, A. Arima, and N. Yoshinaga

Effects of $T=0$ two body matrix elements on $M1$ and Gamow-Teller transitions: Isospin decomposition *(13 pages)* 034303
Shadow J. Q. Robinson and Larry Zamick

Quasiparticle random phase approximation with finite rank approximation for Skyrme interactions *(7 pages)* 034304
A. P. Severyukhin, Ch. Stoyanov, V. V. Voronov, and Nguyen Van Giai

Correlating the giant-monopole resonance to the nuclear-matter incompressibility *(5 pages)* 034305
J. Piekarewicz

Relativistic mean field for nuclear periphery *(8 pages)* 034306
Y. K. Gambhir and A. A. Bhagwat

Multicluster configuration in highly excited states of ^{24}Mg *(18 pages)* 034307
M. Ito, Y. Hirabayashi, and Y. Sakuragi

Copyright 2002 by The American Physical Society

(Continued)

0556-2813(200209)66:3;1-4

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 66, NUMBER 3** **SEPTEMBER 2002**

Identification of excited states in doubly odd $^{140}_{63}Eu_{77}$ by recoil-isomer tagging *(11 pages)* 034308
D. M. Cullen, L. K. Pattison, R. S. Chakrawarthy, D. Dobson, J. L. Durell, S. J. Freeman, D. T. Scholes, C. Scholey, E. S. Paul, P. T. W. Choy, P. T. Greenlees, P. M. Jones, R. Julin, S. Juutinen, A. Keenan, H. Kettunen, P. Kuusiniemi, M. Leino, A.-P. Leppänen, P. Nieminen, J. Pakarinen, P. Rahkila, J. Uusitalo, M. A. Bentley, and D. T. Joss

Circulation of a triaxial, charged ellipsoidal droplet *(8 pages)* 034309
J. L. Graber and G. Rosensteel

Analytic solution of the pairing problem: One pair in many levels *(12 pages)* 034310
M. Barbaro, R. Cenni, A. Molinari, and M. R. Quaglia

Nonyrast states of ^{108}Cd: Investigation with complementary $\gamma\gamma$-spectroscopic methods *(26 pages)* 034311
A. Gade, A. Fitzler, C. Fransen, J. Jolie, S. Kasemann, H. Klein, A. Linnemann, V. Werner, and P. von Brentano

SU(3) versus deformed Hartree-Fock state *(5 pages)* 034312
Calvin W. Johnson, Ionel Stetcu, and J. P. Draayer

One-body overlap functions, equations of motion, and phenomenological potentials *(15 pages)* 034313
Jutta Escher and Byron K. Jennings

Single hole spectroscopic strength in ^{98}Ru through the ^{99}Ru(d,t) reaction *(7 pages)* 034314
M. R. D. Rodrigues, T. Borello-Lewin, L. B. Horodynski-Matsushigue, J. L. M. Duarte, C. L. Rodrigues, M. D. L. Barbosa, G. M. Ukita, and G. B. da Silva

Anisotropic multigap superfluid states in nuclear matter *(7 pages)* 034315
A. A. Isayev and G. Röpke

Nuclear Reactions

Search for entrance channel effects in heavy ion induced fusion reactions through the compound system ^{79}Rb* *(5 pages)* 034601
J. Kaur, I. M. Govil, G. Singh, Ajay Kumar, A. Kumar, B. R. Behera, and S. K. Datta

Analyzing power and cross section distributions of the knockout reaction ^{208}Pb$(\vec{p},2p)^{207}$Tl at an incident energy of 202 MeV *(13 pages)* 034602
R. Neveling, A. A. Cowley, G. F. Steyn, S. V. Förtsch, G. C. Hillhouse, J. Mano, and S. M. Wyngaardt

Exact and approximate postform distorted-wave Born approximation amplitudes for the Coulomb breakup of neutron halo nuclei *(10 pages)* 034603
M. Zadro

Quasimolecular states in ^{24}Mg and d-α angular correlations in the ^{12}C$(^{14}$N$,d)^{24}$Mg*$(\alpha)^{20}$Ne reaction *(15 pages)* 034604
T. L. Belyaeva and N. S. Zelenskaya

Excitation function measurements for ^{12}C$+^{12}$C inelastic scattering channels *(7 pages)* 034605
C. A. Bremner, S. P. G. Chappell, W. D. M. Rae, I. Boztosun, M. Freer, M. P. Nicoli, S. M. Singer, B. R. Fulton, D. L. Watson, B. J. Greenhalgh, G. K. Dillon, and R. L. Cowin

The reaction $np \rightarrow \eta d$ near threshold *(10 pages)* 034606
H. Garcilazo and M. T. Peña

Dominance of collective over proton transfer couplings in the fusion of ^{32}S and ^{34}S with ^{89}Y *(8 pages)* 034607
A. Mukherjee, M. Dasgupta, D. J. Hinde, K. Hagino, J. R. Leigh, J. C. Mein, C. R. Morton, J. O. Newton, and H. Timmers

Coupling effects in the elastic scattering of ^{6}He on ^{12}C *(17 pages)* 034608
V. Lapoux, N. Alamanos, F. Auger, V. Fékou-Youmbi, A. Gillibert, F. Marie, S. Ottini-Hustache, J-L. Sida, D. T. Khoa, Y. Blumenfeld, F. Maréchal, J-A. Scarpaci, T. Suomijärvi, J. H. Kelley, J.-M. Casandjian, M. Chartier, M. D. Cortina-Gil, M. Mac Cormick, W. Mittig, F. de Oliveira Santos, A. N. Ostrowski, P. Roussel-Chomaz, K. W. Kemper, N. Orr, and J. S. Winfield

(Continued)

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 66, NUMBER 3** **SEPTEMBER 2002**

Precursor of an isospin separation instability in heavy-ion collisions at intermediate, rare-isotope accelerator energies *(5 pages)* 034609

Bao-An Li

Meson exchange currents in a relativistic model for electromagnetic one nucleon emission *(8 pages)* 034610

Andrea Meucci, Carlotta Giusti, and Franco Davide Pacati

Monte Carlo integration in Glauber model analysis of reactions of halo nuclei *(8 pages)* 034611

K. Varga, Steven C. Pieper, Y. Suzuki, and R. B. Wiringa

Highly deformed ^{40}Ca configurations in ^{28}Si+^{12}C *(15 pages)* 034612

M. Rousseau, C. Beck, C. Bhattacharya, V. Rauch, O. Dorvaux, K. Eddahbi, C. Enaux, R. M. Freeman, F. Haas, D. Mahboub, R. Nouicer, P. Papka, O. Stezowski, S. Szilner, A. Hachem, E. Martin, S. J. Sanders, A. K. Dummer, and A. Szanto de Toledo

First measurement of $\pi^- e \to \pi^- e \gamma$ pion virtual compton scattering *(9 pages)* 034613

A. Ocherashvili, G. Alkhazov, A. G. Atamantchouk, M. Y. Balatz, N. F. Bondar, P. S. Cooper, L. J. Dauwe, G. V. Davidenko, U. Dersch, A. G. Dolgolenko, G. B. Dzyubenko, R. Edelstein, L. Emediato, A. M. F. Endler, J. Engelfried, I. Eschrich, C. O. Escobar, A. V. Evdokimov, I. S. Filimonov, F. G. Garcia, M. Gaspero, I. Giller, V. L. Golovtsov, P. Gouffon, E. Gülmez, He Kangling, M. Iori, S. Y. Jun, M. Kaya, J. Kilmer, V. T. Kim, L. M. Kochenda, I. Konorov, A. P. Kozhevnikov, A. G. Krivshich, H. Krüger, M. A. Kubantsev, V. P. Kubarovsky, A. I. Kulyavtsev, N. P. Kuropatkin, V. F. Kurshetsov, A. Kushnirenko, S. Kwan, J. Lach, A. Lamberto, L. G. Landsberg, I. Larin, E. M. Leikin, Li Yunshan, M. Luksys, T. Lungov, V. P. Maleev, D. Mao, Mao Chensheng, Mao Zhenlin, P. Mathew, M. Mattson, V. Matveev, E. McCliment, M. A. Moinester, V. V. Molchanov, A. Morelos, K. D. Nelson, A. V. Nemitkin, P. V. Neoustroev, C. Newsom, A. P. Nilov, S. B. Nurushev, A. Ocherashvili, Y. Onel, E. Ozel, S. Ozkorucuklu, A. Penzo, S. I. Petrenko, P. Pogodin, B. Pouh, M. Procario, V. A. Prutskoi, E. Ramberg, G. F. Rappazzo, B. V. Razmyslovich, V. I. Rud, J. Russ, P. Schiavon, J. Simon, A. I. Sitnikov, D. Skow, V. J. Smith, M. Srivastava, V. Steiner, V. Stepanov, L. Stutte, M. Svoiski, N. K. Terentyev, G. P. Thomas, L. N. Uvarov, A. N. Vasiliev, D. V. Vavilov, V. S. Verebryusov, V. A. Victorov, V. E. Vishnyakov, A. A. Vorobyov, K. Vorwalter, J. You, Zhao Wenheng, Zheng Shuchen, and R. Zukanovich-Funchal

Polarization measurements in neutral pion photoproduction *(14 pages)* 034614

K. Wijesooriya, A. Afanasev, M. Amarian, K. Aniol, S. Becher, K. Benslama, L. Bimbot, P. Bosted, E. J. Brash, J. Calarco, Z. Chai, C. C. Chang, T. Chang, J. P. Chen, S. Choi, E. Chudakov, S. Churchwell, D. Crovelli, S. Dieterich, S. Dumalski, D. Dutta, M. Epstein, K. Fissum, B. Fox, S. Frullani, H. Gao, J. Gao, F. Garibaldi, O. Gayou, R. Gilman, A. Glamazdin, C. Glashausser, J. Gomez, V. Gorbenko, O. Hansen, R. J. Holt, J. Hovdebo, G. M. Huber, C. W. de Jager, X. Jiang, C. Jones, M. K. Jones, J. Kelly, E. Kinney, E. Kooijman, G. Kumbartzki, M. Kuss, J. LeRose, M. Liang, R. Lindgren, N. Liyanage, S. Malov, D. J. Margaziotis, P. Markowitz, K. McCormick, D. Meekins, Z. -E. Meziani, R. Michaels, J. Mitchell, L. Morand, C. F. Perdrisat, R. Pomatsalyuk, V. Punjabi, R. D. Ransome, R. Roche, M. Rvachev, A. Saha, A. Sarty, E. C. Schulte, D. Simon, S. Strauch, R. Suleiman, L. Todor, P. E. Ulmer, G. M. Urciuoli, B. Wojtsekhowski, F. Xiong, and W. Xu (Jefferson Lab Hall A Collaboration)

Excitation of triple giant resonances in heavy-ion reactions *(5 pages)* 034615

M. S. Hussein, B. V. Carlson, L. F. Canto, and A. F. R. de Toledo Piza

(Continued)

PHYSICAL REVIEW C THIRD SERIES, VOLUME 66, NUMBER 3 SEPTEMBER 2002

Relativistic Nuclear Collisions

Proton and deuteron rapidity distributions and nuclear stopping in ^{96}Ru(^{96}Zr)+^{96}Ru(^{96}Zr) collisions at 400*A* MeV *(9 pages)* 034901

B. Hong, Y. J. Kim, D. H. Kang, Y. Leifels, F. Rami, B. de Schauenburg, K. S. Sim, J. P. Alard, A. Andronic, V. Barret, Z. Basrak, N. Bastid, G. Berek, R. Čaplar, P. Crochet, A. Devismes, P. Dupieux, M. Dželalija, C. Finck, Z. Fodor, A. Gobbi, Yu. Grishkin, O. N. Hartmann, N. Herrmann, K. D. Hildenbrand, J. Kecskemeti, M. Kirejczyk, P. Koczon, M. Korolija, R. Kotte, T. Kress, R. Kutsche, A. Lebedev, X. Lopez, W. Neubert, D. Pelte, M. Petrovici, W. Reisdorf, D. Schűll, Z. Seres, B. Sikora, V. Simion, K. Siwek-Wilczyńska, V. Smolyankin, M. R. Stockmeier, G. Stoicea, P. Wagner, K. Wiśniewski, D. Wohlfarth, I. Yushmanov, and A. Zhilin (FOPI Collaboration)

Off-shell pions in Boltzmann-Uehling-Uhlenbeck transport theory *(9 pages)* 034902

A. B. Larionov and U. Mosel

The K/π ratio from condensed Polyakov loops *(7 pages)* 034903

O. Scavenius, A. Dumitru, and J. T. Lenaghan

Elliptic flow from two- and four-particle correlations in Au+Au collisions at $\sqrt{s_{NN}}=130$ GeV *(17 pages)* . . . 034904

C. Adler, Z. Ahammed, C. Allgower, J. Amonett, B. D. Anderson, M. Anderson, G. S. Averichev, J. Balewski, O. Barannikova, L. S. Barnby, J. Baudot, S. Bekele, V. V. Belaga, R. Bellwied, J. Berger, H. Bichsel, A. Billmeier, L. C. Bland, C. O. Blyth, B. E. Bonner, A. Boucham, A. Brandin, A. Bravar, R. V. Cadman, H. Caines, M. Calderón de la Barca Sánchez, A. Cardenas, J. Carroll, J. Castillo, M. Castro, D. Cebra, P. Chaloupka, S. Chattopadhyay, Y. Chen, S. P. Chernenko, M. Cherney, A. Chikanian, B. Choi, W. Christie, J. P. Coffin, T. M. Cormier, J. G. Cramer, H. J. Crawford, W. S. Deng, A. A. Derevschikov, L. Didenko, T. Dietel, J. E. Draper, V. B. Dunin, J. C. Dunlop, V. Eckardt, L. G. Efimov, V. Emelianov, J. Engelage, G. Eppley, B. Erazmus, P. Fachini, V. Faine, K. Filimonov, E. Finch, Y. Fisyak, D. Flierl, K. J. Foley, J. Fu, C. A. Gagliardi, N. Gagunashvili, J. Gans, L. Gaudichet, M. Germain, F. Geurts, V. Ghazikhanian, O. Grachov, V. Grigoriev, M. Guedon, E. Gushin, T. J. Hallman, D. Hardtke, J. W. Harris, T. W. Henry, S. Heppelmann, T. Herston, B. Hippolyte, A. Hirsch, E. Hjort, G. W. Hoffmann, M. Horsley, H. Z. Huang, T. J. Humanic, G. Igo, A. Ishihara, Yu. I. Ivanshin, P. Jacobs, W. W. Jacobs, M. Janik, I. Johnson, P. G. Jones, E. G. Judd, M. Kaneta, M. Kaplan, D. Keane, J. Kiryluk, A. Kisiel, J. Klay, S. R. Klein, A. Klyachko, A. S. Konstantinov, M. Kopytine, L. Kotchenda, A. D. Kovalenko, M. Kramer, P. Kravtsov, K. Krueger, C. Kuhn, A. I. Kulikov, G. J. Kunde, C. L. Kunz, R. Kh. Kutuev, A. A. Kuznetsov, L. Lakehal-Ayat, M. A. C. Lamont, J. M. Landgraf, S. Lange, C. P. Lansdell, B. Lasiuk, F. Laue, A. Lebedev, R. Lednický, V. M. Leontiev, M. J. LeVine, Q. Li, S. J. Lindenbaum, M. A. Lisa, F. Liu, L. Liu, Z. Liu, Q. J. Liu, T. Ljubicic, W. J. Llope, G. LoCurto, H. Long, R. S. Longacre, M. Lopez-Noriega, W. A. Love, T. Ludlam, D. Lynn, J. Ma, R. Majka, S. Margetis, C. Markert, L. Martin, J. Marx, H. S. Matis, Yu. A. Matulenko, T. S. McShane, F. Meissner, Yu. Melnick, A. Meschanin, M. Messer, M. L. Miller, Z. Milosevich, N. G. Minaev, J. Mitchell, V. A. Moiseenko, C. F. Moore, V. Morozov, M. M. de Moura, M. G. Munhoz, J. M. Nelson, P. Nevski, V. A. Nikitin, L. V. Nogach, B. Norman, S. B. Nurushev, G. Odyniec, A. Ogawa, V. Okorokov, M. Oldenburg, D. Olson, G. Paic, S. U. Pandey, Y. Panebratsev, S. Y. Panitkin, A. I. Pavlinov, T. Pawlak, V. Perevoztchikov, W. Peryt, V. A. Petrov, M. Planinic, J. Pluta, N. Porile, J. Porter, A. M. Poskanzer, E. Potrebenikova, D. Prindle, C. Pruneau, J. Putschke, G. Rai, G. Rakness, O. Ravel, R. L. Ray, S. V. Razin, D. Reichhold, J. G. Reid, G. Renault, F. Retiere, A. Ridiger, H. G. Ritter, J. B. Roberts, O. V. Rogachevski, J. L. Romero, A. Rose, C. Roy, V. Rykov, I. Sakrejda, S. Salur, J. Sandweiss, A. C. Saulys, I. Savin, J. Schambach, R. P. Scharenberg,

(Continued)

PHYSICAL REVIEW C THIRD SERIES, VOLUME 66, NUMBER 3 SEPTEMBER 2002

N. Schmitz, L. S. Schroeder, A. Schüttauf, K. Schweda, J. Seger, D. Seliverstov, P. Seyboth, E. Shahaliev, K. E. Shestermanov, S. S. Shimanskii, V. S. Shvetcov, G. Skoro, N. Smirnov, R. Snellings, P. Sorensen, J. Sowinski, H. M. Spinka, B. Srivastava, E. J. Stephenson, R. Stock, A. Stolpovsky, M. Strikhanov, B. Stringfellow, C. Struck, A. A. P. Suaide, E. Sugarbaker, C. Suire, M. Šumbera, B. Surrow, T. J. M. Symons, A. Szanto de Toledo, P. Szarwas, A. Tai, J. Takahashi, A. H. Tang, J. H. Thomas, M. Thompson, V. Tikhomirov, M. Tokarev, M. B. Tonjes, T. A. Trainor, S. Trentalange, R. E. Tribble, V. Trofimov, O. Tsai, T. Ullrich, D. G. Underwood, G. Van Buren, A. M. VanderMolen, I. M. Vasilevski, A. N. Vasiliev, S. E. Vigdor, S. A. Voloshin, F. Wang, H. Ward, J. W. Watson, R. Wells, G. D. Westfall, C. Whitten Jr. , H. Wieman, R. Willson, S. W. Wissink, R. Witt, J. Wood, N. Xu, Z. Xu, A. E. Yakutin, E. Yamamoto, J. Yang, P. Yepes, V. I. Yurevich, Y. V. Zanevski, I. Zborovský, H. Zhang, W. M. Zhang, R. Zoulkarneev, and A. N. Zubarev (STAR Collaboration)

Domain wall bubbles in high energy heavy ion collisions *(6 pages)* 034905
E. V. Shuryak and A. R. Zhitnitsky

Hadronic Physics and QCD

Comparison among Hamiltonian light-front formalisms at $q^+=0$ and $q^+\neq 0$: Spacelike elastic form factors of pseudoscalar and vector mesons *(13 pages)* 035201
Silvano Simula

Σ photoproduction in the resonance region *(12 pages)* 035202
S. Janssen, J. Ryckebusch, D. Debruyne, and T. Van Cauteren

Electroweak Interaction, Symmetries

Calculated corrections to superallowed Fermi β decay: New evaluation of the nuclear-structure-dependent terms *(13 pages)* 035501
I. S. Towner and J. C. Hardy

Nuclear Astrophysics

Determination of the S_{18} astrophysical factor for $^8\mathrm{B}(p,\gamma)^9\mathrm{C}$ from the breakup of $^9\mathrm{C}$ at intermediate energies *(10 pages)* 035801
L. Trache, F. Carstoiu, A. M. Mukhamedzhanov, and R. E. Tribble

If sterile neutrinos exist, how can one determine the total solar neutrino fluxes? *(20 pages)* 035802
John N. Bahcall, M. C. Gonzalez-Garcia, and C. Peña-Garay

BRIEF REPORTS

Observation of yrast states in neutron-rich $^{41}\mathrm{Cl}$ *(4 pages)* 037301
X. Liang, R. Chapman, F. Haas, K.-M. Spohr, P. Bednarczyk, S.M. Campbell, P.J. Dagnall, M. Davison, G. de Angelis, G. Duchêne, Th. Kröll, S. Lunardi, S. Naguleswaran, and M.B. Smith

Comparison of the Hartree-Fock-Bogoliubov approximation with Monte Carlo calculations *(4 pages)* 037302
G. Puddu

Short-range effects on nuclear pairing *(3 pages)* 037303
W. Zuo, U. Lombardo, H.-J. Schulze, and C. W. Shen

COMMENTS

Comment on ''Two-phonon γ-vibrational strength in osmium nuclei'' *(2 pages)* 039801
D. G. Burke

(Continued)

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 66, NUMBER 3** **SEPTEMBER 2002**

Reply to ''Comment on 'Two-phonon γ-vibrational strength in osmium nuclei' '' *(2 pages)* 039802
C. Y. Wu, D. Cline, A. B. Hayes, M. W. Simon, R. Krücken, J. R. Cooper, C. J. Barton, C. W. Beausang, C. Bialik, M. A. Caprio, R. F. Casten, A. A. Hecht, H. Newman, J. Novak, N. Pietralla, K. Zyromski, and N. V. Zamfir

ERRATA

Erratum: Total charge-changing and partial cross-section measurements in the reactions of ~110–250 MeV/nucleon ^{12}C in carbon, paraffin, and water [Phys. Rev. C **66**, 014609 (2002)] *(1 page)* . . . . . 039901(E)
A. N. Golovchenko, J. Skvarč, N. Yasuda, M. Giacomelli, S. P. Tretyakova, R. Ilić, R. Bimbot, M. Toulemonde, and T. Murakami
Erratum: Compton scattering from the proton at fourth order NLO in the chiral expansion [Phys. Rev. C **63**, 064608 (2001)] *(3 pages)* . . . . . 039902(E)
Judith A. McGovern
Erratum: Neutron and proton spectra from the decay of Λ hypernuclei [Phys. Rev. C **55**, 735 (1997)] *(3 pages)* . . . . . 039903(E)
A. Ramos, M. J. Vicente-Vacas, and E. Oset

Selected Abstracts from Other Physical Review Journals i
Cumulative Author Index vi