PHYSICAL REVIEW C

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

PERIODICALS
Postmaster send address changes to:
PHYSICAL REVIEW C
APS Subscription Services
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 77, NUMBER 5 ***CONTENTS*** **MAY 2008**

RAPID COMMUNICATIONS

Deformation properties of the Barcelona-Catania-Paris (BCP) energy density functional *(5 pages)* . . . . . 051301(R)
L. M. Robledo, M. Baldo, P. Schuck, and X. Viñas

Structure in $E1$ strength distribution built on the 15.1 MeV $T = 1$ state in ^{12}C *(5 pages)* . . . . . 051302(R)
D. R. Chakrabarty, V. M. Datar, Suresh Kumar, E. T. Mirgule, A. Mitra, V. Nanal, and P. C. Rout

Role of multiparticle-multihole states of ^{18,19}O in ^{18}O$(n, \gamma)^{19}$O reactions at keV energy *(5 pages)* . . . . . 051303(R)
T. Ohsaki, M. Igashira, Y. Nagai, M. Segawa, and K. Muto

Absence of low-temperature dependence of the decay of ^{7}Be and ^{198}Au in metallic hosts *(4 pages)* . . . . . 051304(R)
V. Kumar, M. Hass, Y. Nir-El, G. Haquin, and Z. Yungreiss

Benchmark on neutron capture extracted from (d, p) reactions *(5 pages)* . . . . . 051601(R)
A. M. Mukhamedzhanov, F. M. Nunes, and P. Mohr

Hypernuclear production by the (γ, K^+) reaction within a relativistic model *(5 pages)* . . . . . 052201(R)
R. Shyam, H. Lenske, and U. Mosel

Polarization and relaxation rates of radon *(5 pages)* . . . . . 052501(R)
E. R. Tardiff, J. A. Behr, T. E. Chupp, K. Gulyuz, R. S. Lefferts, W. Lorenzon, S. R. Nuss-Warren, M. R. Pearson, N. Pietralla, G. Rainovski, J. F. Sell, and G. D. Sprouse

ARTICLES

Nucleon-Nucleon Interaction, Few-Body Systems

Bridging p-wave π production and weak processes in few-nucleon systems with chiral perturbation theory *(15 pages)* 054001
Satoshi X. Nakamura

Measurement of the neutron-neutron scattering length using the $\pi^- d$ capture reaction *(19 pages)* 054002
Q. Chen, C. R. Howell, T. S. Carman, W. R. Gibbs, B. F. Gibson, A. Hussein, M. R. Kiser, G. Mertens, C. F. Moore, C. Morris, A. Obst, E. Pasyuk, C. D. Roper, F. Salinas, H. R. Setze, I. Slaus, S. Sterbenz, W. Tornow, R. L. Walter, C. R. Whiteley, and M. Whitton

$\pi B_8 B_8$ and $\sigma B_8 B_8$ couplings from a chiral quark potential model *(11 pages)* 054003
M. T. Fernández-Caramés, P. González, and A. Valcarce

Copyright 2008 by The American Physical Society

0556-2813(200805)77:5;1-T

(Continued)

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 77, NUMBER 5** **MAY 2008**

Nuclear Structure

New efficient method for performing Hartree-Fock-Bogoliubov calculations for weakly bound nuclei *(12 pages)* 054301
M. Stoitsov, N. Michel, and K. Matsuyanagi

Two-quasiparticle states in ^{250}Bk studied by decay scheme and transfer reaction spectroscopy *(12 pages)* 054302
I. Ahmad, F. G. Kondev, Z. M. Koenig, Wm. C. McHarris, and S. W. Yates

Excited states in the neutron-deficient nuclei ^{197,199,201}Rn *(7 pages)* 054303
K. Andgren, B. Cederwall, J. Uusitalo, A. N. Andreyev, S. J. Freeman, P. T. Greenlees, B. Hadinia, U. Jakobsson, A. Johnson, P. M. Jones, D. T. Joss, S. Juutinen, R. Julin, S. Ketelhut, A. Khaplanov, M. Leino, M. Nyman, R. D. Page, P. Rahkila, M. Sandzelius, P. Sapple, J. Sarén, C. Scholey, J. Simpson, J. Sorri, J. Thomson, and R. Wyss

Enhanced mixing of intrinsic states in deformed Hf nuclei *(14 pages)* 054304
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

Nuclear structure of ^{18}N and the neighboring $N = 11$ isotones *(6 pages)* 054305
M. Wiedeking, P. Fallon, A. O. Macchiavelli, L. A. Bernstein, J. Gibelin, L. Phair, J. T. Burke, D. L. Bleuel, R. M. Clark, M-A. Deleplanque, S. Gros, R. Hatarik, H. B. Jeppesen, I-Y. Lee, B. F. Lyles, M. A. McMahan, L. G. Moretto, J. Pavan, E. Rodriguez-Vieitez, and A. Volya

In-beam γ-ray spectroscopy and inclusive two-proton knockout cross section measurements at $N \approx 40$ *(6 pages)* 054306
P. Adrich, A. M. Amthor, D. Bazin, M. D. Bowen, B. A. Brown, C. M. Campbell, J. M. Cook, A. Gade, D. Galaviz, T. Glasmacher, S. McDaniel, D. Miller, A. Obertelli, Y. Shimbara, K. P. Siwek, J. A. Tostevin, and D. Weisshaar

Relation between $E(5)$ models and the interacting boson model *(9 pages)* 054307
José Enrique García-Ramos and José M. Arias

Pairing correlations and effective mass *(5 pages)* 054308
Satoshi Yoshida and Hiroyuki Sagawa

Effective pairing interactions with isospin density dependence *(10 pages)* 054309
J. Margueron, H. Sagawa, and K. Hagino

Temperature-dependent particle-number projected moment of inertia *(8 pages)* 054310
N. H. Allal, M. Fellah, N. Benhamouda, and M. R. Oudih

Neutron decay width of one-particle resonant levels in deformed nuclei *(6 pages)* 054311
Ikuko Hamamoto

Lowest eigenvalues of random Hamiltonians *(5 pages)* 054312
J. J. Shen, Y. M. Zhao, A. Arima, and N. Yoshinaga

Three-body structure of low-lying ^{12}Be states *(15 pages)* 054313
C. Romero-Redondo, E. Garrido, D. V. Fedorov, and A. S. Jensen

Quark mean field approach with derivative coupling for nuclear matter *(4 pages)* 054314
M. Kawabata, S. Akiyama, Y. Futami, T. Nakasone, and T. Yukino

γ-ray spectroscopy of $^{16}_{\Lambda}$O and $^{15}_{\Lambda}$N hypernuclei via the ^{16}O$(K^-, \pi^-\gamma)$ reaction *(20 pages)* 054315
M. Ukai, S. Ajimura, H. Akikawa, D. E. Alburger, A. Banu, R. E. Chrien, G. B. Franklin, J. Franz, O. Hashimoto, T. Hayakawa, H. Hotchi, K. Imai, T. Kishimoto, M. May, D. J. Millener, S. Minami, Y. Miura, T. Miyoshi, K. Mizunuma, T. Nagae, S. N. Nakamura, K. Nakazawa, Y. Okayasu, P. Pile, B. P. Quinn, A. Rusek, Y. Sato, R. Sutter, H. Takahashi, L. Tang, H. Tamura, K. Tanida, and S. H. Zhou

(Continued)

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 77, NUMBER 5** **MAY 2008**

Mean-field study of single-particle spectra evolution in $Z = 14$ and $N = 28$ chains *(5 pages)* 054316
Dimitar Tarpanov, Haozhao Liang, Nguyen Van Giai, and Chavdar Stoyanov

Strong dineutron correlation in ^{8}He and ^{18}C *(9 pages)* 054317
K. Hagino, N. Takahashi, and H. Sagawa

α particle preformation in heavy nuclei and penetration probability *(7 pages)* 054318
H. F. Zhang and G. Royer

Two-step γ cascades following thermal neutron capture in ^{95}Mo *(15 pages)* 054319
M. Krtička, F. Bečvář, I. Tomandl, G. Rusev, U. Agvaanluvsan, and G. E. Mitchell

Classes of β-γ mixing and $E0$ transitions in deformed nuclei *(5 pages)* 054320
E. A. McCutchan and R. F. Casten

Determination of nuclear symmetry energy in the Cornwall-Jackiw-Tomboulis approach *(8 pages)* 054321
Tran Huu Phat, Nguyen Tuan Anh, and Nguyen Van Long

Nuclear Reactions

Transmission through multi-humped fission barriers with absorption: A recursive approach *(5 pages)* 054601
M. Sin and R. Capote

Neutron transfer coupling effects on near-barrier elastic scattering and total fusion of ^{6}He *(5 pages)* 054602
N. Keeley and N. Alamanos

Pickup coupling effects in deuteron scattering: The case of $d + {}^{40}$Ca *(13 pages)* 054603
N. Keeley and R. S. Mackintosh

Effect of strangeness for neutrino (antineutrino) scattering in the quasi-elastic region *(10 pages)* 054604
K. S. Kim, Myung-Ki Cheoun, and Byung Geel Yu

New calculation method for initial exciton numbers on nucleon induced pre-equilibrium reactions *(9 pages)* 054605
E. Tel, A. Aydin, A. Kaplan, and B. Şarer

Simultaneous optical model analysis of elastic scattering, fusion, and breakup for the ^{9}Be + ^{144}Sm system at near-barrier energies *(8 pages)* 054606
A. Gómez Camacho, P. R. S. Gomes, J. Lubian, and I. Padrón

Cross section measurements of the ^{10}B$(d, n_0)^{11}$C reaction below 160 keV *(6 pages)* 054607
S. Stave, M. W. Ahmed, A. J. Antolak, M. A. Blackston, A. S. Crowell, B. L. Doyle, S. S. Henshaw, C. R. Howell, P. Kingsberry, B. A. Perdue, P. Rossi, R. M. Prior, M. C. Spraker, and H. R. Weller

Coupled-channels calculations of ^{16}O + ^{16}O fusion *(7 pages)* 054608
H. Esbensen

Exit doorway model for nuclear elastic breakup of weakly bound projectiles *(6 pages)* 054609
M. S. Hussein and R. Lichtenthäler

Measurement of the ^{241}Am$(n, 2n)$ reaction cross section from 7.6 MeV to 14.5 MeV *(7 pages)* 054610
A. P. Tonchev, C. T. Angell, M. Boswell, A. S. Crowell, B. Fallin, S. Hammond, C. R. Howell, A. Hutcheson, H. J. Karwowski, J. H. Kelley, R. S. Pedroni, W. Tornow, J. A. Becker, D. Dashdorj, J. Kenneally, R. A. Macri, M. A. Stoyer, C. Y. Wu, E. Bond, M. B. Chadwick, J. Fitzpatrick, T. Kawano, R. S. Rundberg, A. Slemmons, D. J. Vieira, and J. B. Wilhelmy

Complete set of polarization transfer coefficients for the ^{3}He(p, n) reaction at 346 MeV and 0 degrees *(6 pages)* 054611
T. Wakasa, E. Ihara, M. Dozono, K. Hatanaka, T. Imamura, M. Kato, S. Kuroita, H. Matsubara, T. Noro, H. Okamura, K. Sagara, Y. Sakemi, K. Sekiguchi, K. Suda, T. Sueta, Y. Tameshige, A. Tamii, H. Tanabe, and Y. Yamada

(Continued)

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 77, NUMBER 5** **MAY 2008**

Nuclear, chemical and mechanical instability and the liquid-gas phase transition in nuclei *(15 pages)* 054612
S. J. Lee and A. Z. Mekjian

Decay of ^{246}Bk* formed in similar entrance channel reactions of ^{11}B+^{235}U and ^{14}N+^{232}Th at low energies using the dynamical cluster-decay model *(8 pages)* 054613
BirBikram Singh, Manoj K. Sharma, and Raj K. Gupta

Neutron inelastic scattering processes as a background for double-β decay experiments *(15 pages)* 054614
D.-M. Mei, S. R. Elliott, A. Hime, V. Gehman, and K. Kazkaz

Thermal neutron capture cross sections of the palladium isotopes *(14 pages)* 054615
M. Krtička, R. B. Firestone, D. P. McNabb, B. Sleaford, U. Agvaanluvsan, T. Belgya, and Z. S. Revay

Relativistic Nuclear Collisions

Centrality dependence of charged hadron and strange hadron elliptic flow from $\sqrt{s_{NN}} = 200$ GeV Au+Au collisions *(17 pages)* 054901
B. I. Abelev *et al.* (STAR Collaboration)

Probing nuclear matter with jet conversions *(10 pages)* 054902
W. Liu and R. J. Fries

Higher twist jet broadening and classical propagation *(15 pages)* 054903
A. Majumder and B. Müller

Covariant transport theory approach to elliptic flow in relativistic heavy ion collision *(4 pages)* 054904
Clément Gombeaud and Jean-Yves Ollitrault

Hadronic Physics and QCD

Tensor meson production in proton-proton collisions from the color glass condensate *(12 pages)* 055201
François Fillion-Gourdeau and Sangyong Jeon

$K^- pp$ bound states from Skyrmions *(11 pages)* 055202
Tetsuo Nishikawa and Yoshihiko Kondo

Faddeev calculation of the pentaquark Θ^+ in the Nambu–Jona-Lasinio model-based diquark picture *(12 pages)* 055203
H. Mineo, J. A. Tjon, K. Tsushima, and Shin Nan Yang

Consistent thermodynamic treatment for a quark-mass density-dependent model *(8 pages)* 055204
Shaoyu Yin and Ru-Keng Su

Radiative corrections to the deeply virtual Compton scattering electron tensor *(9 pages)* 055205
V. V. Bytev, E. A. Kuraev, and E. Tomasi-Gustafsson

Hadron loops: General theorems and application to charmonium *(9 pages)* 055206
T. Barnes and E. S. Swanson

Large-angle production of charged pions with 3–12.9 GeV/c incident protons on nuclear targets *(49 pages)* 055207
M. G. Catanesi *et al.* (HARP Collaboration)

Electroweak Interaction, Symmetries

Untangling supernova-neutrino oscillations with β-beam data *(12 pages)* 055501
N. Jachowicz, G. C. McLaughlin, and C. Volpe

Exact relativistic tritium β-decay endpoint spectrum in a hadron model *(6 pages)* 055502
Fedor Šimkovic, Rastislav Dvornický, and Amand Faessler

(Continued)

PHYSICAL REVIEW C **THIRD SERIES, VOLUME 77, NUMBER 5** **MAY 2008**

Nuclear Astrophysics

^{24}Mg(α, γ)^{28}Si resonance parameters at low α-particle energies *(9 pages)* 055801
E. Strandberg, M. Beard, M. Couder, A. Couture, S. Falahat, J. Görres, P. J. LeBlanc, H. Y. Lee, S. O'Brien, A. Palumbo, E. Stech, W. P. Tan, C. Ugalde, M. Wiescher, H. Costantini, K. Scheller, M. Pignatari, R. Azuma, and L. Buchmann

Neutrino energy loss rates and positron capture rates on ^{55}Co for presupernova and supernova physics *(13 pages)* 055802
Jameel-Un Nabi and Muhammad Sajjad

Lifetime measurement of the 6792 keV state in ^{15}O, important for the astrophysical S factor extrapolation in ^{14}N(p, γ)^{15}O *(7 pages)* 055803
D. Schürmann, R. Kunz, I. Lingner, C. Rolfs, F. Schümann, F. Strieder, and H.-P. Trautvetter

Appearance of light clusters in post-bounce evolution of core-collapse supernovae *(5 pages)* 055804
Kohsuke Sumiyoshi and Gerd Röpke

BRIEF REPORTS

Exact and collective treatments of the pairing phase transition *(4 pages)* 057301
R. M. Clark and A. O. Macchiavelli

Identification of the $\nu 7/2^+[404]$ band in neutron-rich ^{109}Ru *(4 pages)* 057302
H. B. Ding, S. J. Zhu, J. H. Hamilton, A. V. Ramayya, J. K. Hwang, K. Li, S. H. Liu, Y. X. Luo, J. O. Rasmussen, C. T. Goodin, I. Y. Lee, A. V. Daniel, G. M. Ter-Akopian, J. G. Wang, X. L. Che, L. Gu, and W. C. Ma

^{6}Li and ^{6}He elastic scattering from ^{12}C and the effect of direct reaction couplings *(4 pages)* 057601
N. Keeley, K. W. Kemper, O. Momotyuk, and K. Rusek

Axial coupling from matching a constituent quark model to QCD *(4 pages)* 058201
S. S. Afonin

Coupling constant for $N^*(1535)N\rho$ *(4 pages)* 058202
Ju-Jun Xie, Colin Wilkin, and Bing-Song Zou