UK Nuclear Activity

January 2019 Issue 67

In this issue,

Newsletter archive: http://npg.dl.ac.uk/OutreachNewsletter/index.html

Nuclear Physics Public Engagement Website: NuclearPhysicsForYou

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1. Nuclear Physics Publications for January*

If you are publishing a paper that you think would be of media value please contact Wendy Ellison, STFC Press Officer. She can help with press releases and publicity. If you get in touch with her before publication she can also get material ready in advance for the day of publication.

A&A 618, A133 (2018) https://www.aanda.org/articles/aa/abs/2018/10/aa33283-18/aa33283-18.html
Non-standard *s*-process in massive rotating stars Yields of 10–150 $M_{\odot}$ models at $Z = 10^{-3}$
Arthur Choplin[1], Raphael Hirschi[2,4,4], Georges Meynet[1], Sylvia Ekström[1], Cristina Chiappini[5] and Alison Laird[4,6]
*Published 23 October 2018

Phys. Rev. Lett. 121, 262501 (2019) https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.121.262501
Enhanced Electric Dipole Strength for the Weakly Bound States in ^{27}Ne
C. Loelius[1,2], N. Kobayashi[1,*], H. Iwasaki[1,2,†], D. Bazin[1], J. Belarge[1], P. C. Bender[1,‡], B. A. Brown[1,2], R. Elder[1,2], B. Elman[1,2], A. Gade[1,2], M. Grinder[1,2], S. Heil[3], A. Hufnagel[3], B. Longfellow[1,2], E. Lunderberg[1,2], M. Mathy[3], T. Otsuka[1,4,5,6], M. Petri[3,7], I. Syndikus[3], N. Tsunoda[4], D. Weisshaar[1], and K. Whitmore[1,2]
*Published 28 December 2018

Prog Part Nucl Phys 104, 142 (2019) https://www.sciencedirect.com/science/article/pii/S0146641018300851
Low-energy heavy-ion reactions and the Skyrme effective interaction
P.D.Stevenson, M.C.Barton
Published January 2019

Eur. Phys. J. A 55, 1 (2019) https://rd.springer.com/article/10.1140/epja/i2019-12675-8
Confirming band assignments in ^{167}ytterbium with gamma-gamma-electron triple-coincidence spectroscopy
J. Smallcombe, P. J. Davies, C. J. Barton, L. L. Andersson, P. A. Butler, D. M. Cox, T. Grahn, P. T. Greenlees, K. Hauschild, A. Herzan, R. -D. Herzberg, U. Jakobsson, D. G. Jenkins, P. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, A. Lopez-Martens, A. Mistry, P. Nieminen, J. Pakarinen, P. Papadakis, E. Parr, P. Peura, P. Rahkila, S. Rinta-Antila, P. Ruotsalainen, M. Sandzelius, J. Sarén, C. Scholey, J. Sorri, J. Uusitalo
Published January 2019

*Also including missed publications from previous months

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Eur. Phys. J. A 55, 4 (2019) https://rd.springer.com/article/10.1140/epja/i2019-12682-9
s-wave resonances for the $^{18}F(p,\alpha)^{15}O$ reaction in novae
D. Kahl, P. J. Woods, Y. Fujita, H. Fujita, K. Abe, T. Adachi, D. Frekers, T. Ito, N. Kikukawa, M. Nagashima, P. Puppe, D. Sera, T. Shima, Y. Shimbara, A. Tamii, J. H. Thies
Published January 2019

Phys. Rev. C 99, 011301(R) (2019) https://journals.aps.org/prc/abstract/10.1103/PhysRevC.99.011301
Structure of ^{70}Fe: Single-particle and collective degrees of freedom
A. Gade[1,2], R. V. F. Janssens[3], J. A. Tostevin[4], D. Bazin[1,2], J. Belarge[1,*], P. C. Bender[1,†], S. Bottoni[5,‡], M. P. Carpenter[5], B. Elman[1,2], S. J. Freeman[6], T. Lauritsen[5], S. M. Lenzi[7], B. Longfellow[1,2], E. Lunderberg[1,2], A. Poves[8], L. A. Riley[9], D. K. Sharp[6], D. Weisshaar[1], and S. Zhu[5]
Published 2 January 2019

Phys. Rev. C 99, 011302(R) (2019) https://journals.aps.org/prc/abstract/10.1103/PhysRevC.99.011302
Spectroscopy of strongly deformed ^{32}Ne by proton knockout reactions
I. Murray[1], M. MacCormick[1], D. Bazin[2], P. Doornenbal[3], N. Aoi[4], H. Baba[3], H. Crawford[5], P. Fallon[5], K. Li[3], J. Lee[6], M. Matsushita[3], T. Motobayashi[3], T. Otsuka[7,3,2,8], H. Sakurai[3,9], H. Scheit[10,3], D. Steppenbeck[3], S. Takeuchi[3], J. A. Tostevin[11], N. Tsunoda[7], Y. Utsuno[12], H. Wang[3], and K. Yoneda[3]
Published 7 January 2019

Phys. Rev. C 99, 014307 (2019) https://journals.aps.org/prc/abstract/10.1103/PhysRevC.99.014307
Identification of high-K rotation in ^{130}Ba: Testing the consistency of electromagnetic observables
Y. H. Qiang[1,2,3], C. M. Petrache[4,*], S. Guo[1,*], P. M. Walker[5], D. Mengoni[6], Q. B. Chen[7], B. F. Lv[4], A. Astier[4], E. Dupont[4], M. L. Liu[1], X. H. Zhou[1], J. G. Wang[1], D. Bazzacco[6], A. Boso[6], A. Goasduff[6], F. Recchia[6], D. Testov[6], F. Galtarossa[8], G. Jaworski[8], D. R. Napoli[8], S. Riccetto[8], M. Siciliano[8], J. J. Valiente-Dobon[8], C. Andreoiu[9], F. H. Garcia[9], K. Ortner[9], K. Whitmore[9], B. Cederwall[10], E. A. Lawrie[11], I. Kuti[12], D. Sohler[12], T. Marchlewski[13], J. Srebrny[13], A. Tucholski[13], A. C. Dai[14], and F. R. Xu[14]
Published 8 January 2019

Phys. Lett. B 788, 225 (2019) https://www.sciencedirect.com/science/article/pii/S0370269318308803
The concept of nuclear photon strength functions: A model-independent approach via (γ→,γ′γ″) reactions
J.Isaak[abc], D.Savran[b], B.Löher[ab], T.Beck[a], M.Bhike[d], U.Gayer[a], Krishichayan[d], N.Pietralla[a], M.Scheck[e], W.Tornow[d], V.Werner[a], A.Zilges[f], M.Zweidinger[a],
Published 10 January 2019

Phys. Rev. C 99, 011304(R) (2019) https://journals.aps.org/prc/abstract/10.1103/PhysRevC.99.011304
Low-lying octupole isovector excitation in ^{144}Nd
M. Thürauf[1], Ch. Stoyanov[2], M. Scheck[1,3,4,*], M. Jentschel[5], C. Bernards[6], A. Blanc[5], N. Cooper[6], G. De France[7], E. T. Gregor[3,4], C. Henrich[1], S. F. Hicks[8], J. Jolie[9], O. Kaleja[1], U. Köster[5], T. Kröll[1], R. Leguillon[10], P. Mutti[5], D. O'Donnell[3,4], C. M. Petrache[10], G. S. Simpson[11], J. F. Smith[3,4], T. Soldner[5], M. Tezgel[1], W. Urban[12], J. Vanhoy[13], M. Werner[1], V. Werner[1,6], K. O. Zell[9], and T. Zerrouki[10]
Published 22 January 2019

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2. News to Report

a. 2019 TALENT Courses

The TALENT initiative, Training in Advanced Low Energy Nuclear Theory, aims to provide an advanced and comprehensive training to graduate students and young researchers in all aspects of low-energy nuclear theory. General information on TALENT and past courses can be found at http://www.nucleartalent.org.
Three TALENT courses will be offered in 2019. The topics, principal lecturers, and application links are:

Course 1: "From quarks and gluons to nuclear forces and structure" at the ECT* in Trento, Italy from July 15 to August 2, 2019. The principal lecturers will be Zohreh Davoudi, Evgeny Epelbaum, Dean Lee, Tom Luu, and Andrea Shindler. Apply at https://indico.frib.msu.edu/event/8/registrations/2/ starting February 25, 2019. Deadline for applications is April 19, 2019.
Contacts: Dean Lee (leed@frib.msu.edu) and Andrea Shindler (shindler@frib.msu.edu)

Course 6: "Theory for exploring nuclear reaction experiments" at on the Michigan State University campus in East Lansing, MI

from June 3 to 21, 2019. The principal lecturers will include Carl Brune, Charlotte Elster, and Sofia Quaglioni. Apply at https://academicjobsonline.org/ajo/jobs/13155. Deadline for applications is March 31, 2019.
Contact: Charlotte Elster (elster@ohio.edu)

Course 11: "Bayesian methods and machine learning" at the University of York in York, UK from June 10 to 28, 2019. The principal lecturers will be Christian Forssen, Dick Furnstahl, Daniel Phillips, and Ian Vernon. Apply at https://academicjobsonline.org/ajo/jobs/13154. Deadline for applications is March 31, 2019.
Contact: Dick Furnstahl (furnstahl.1@osu.edu)

For additional information on each of the courses, please see http://www.nucleartalent.org.

Contribution by Jacek Dobaczewski jacek.dobaczewski@york.ac.uk (York)

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3. Outreach Activity

Outreach article
Tzany Kokalova Wheldon (Birmingham) Chair of the IOP Nuclear Physics Group Committee explains the amazing world of the nucleus in an article for Qubit – the Institute of Physics' e-newsletter for 16-19 year olds studying physics.

The amazing world of the nucleus ... from rugby balls to the understanding of element formation in the universe.
Contribution by Tzany Kokalova Wheldon t.wheldon@bham.ac.uk (Birmingham)

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4. Media Interactions

Beyond the Bomb
BBC Radio Scotland - Brainwaves
Dave Ireland (Glasgow) was interviewed about the scientific legacy of the nuclear bomb.
Contribution by Dave Ireland David.Ireland@glasgow.ac.uk (Glasgow)