UK Nuclear Activity

May 2021 Issue 95

In this issue,

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

Nuclear Physics Public Engagement Website: NuclearPhysicsForYou

Nuclear Physics Outreach Poster – order hardcopies from STFC free of charge here

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1. Nuclear Physics Publications for May (also includes missed publications from previous months)

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.

Phys. Rev. C **103**, 054610 **(Editor's Pick)**
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.103.054610
Updated systematics of intermediate-energy single-nucleon removal cross sections
J. A. Tostevin and A. Gade
Published 19 May 2021

J. Phys. G: Nucl. Part. Phys. **48** 075105
https://iopscience.iop.org/article/10.1088/1361-6471/abf7d7
The kinks in charge radii across N = 82 and 126 revisited
M Bhuyan[9,1,2,3], B Maheshwari[9,4], H A Kassim[1], N Yusof[1], S K Patra[5,8], B V Carlson[6] and P D Stevenson[9,7]
Published 20 May 2021

The European Physical Journal A **volume 57**, Article number: 150 (2021)
https://link.springer.com/article/10.1140/epja/s10050-021-00431-w
Precision branching-ratio measurements in ^{18}O
S. Pirrie, C. Wheldon, Tz. Kokalova, J. Bishop, Th. Faestermann, R. Hertenberger, H. F. Wirth, S. Bailey, N. Curtis, D. Dell'Aquila, D. Mengoni, R. Smith, D. Torresi & A. Turner
Published: 27 April 2021

Phys. Rev. C **103**, 054323
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.103.054323
Isomeric $^{13}/_{2}$+ (vi^{-1} $^{13}/_{2}$) state in ^{211}Th
K. Auranen1,*, J. Uusitalo1, H. Badran1,†, T. Grahn1, P. T. Greenlees1, A. Herzáň1,2, U. Jakobsson1, R. Julin1, S. Juutinen1, J. Konki1, M. Leino1, A.-P. Leppänen3, G. O'Neill1,4,‡, J. Pakarinen1, P. Papadakis1,§, J. Partanen1,‖, P. Peura1, P. Rahkila1, P. Ruotsalainen1, M. Sandzelius1, J. Sarén1, C. Scholey1,¶, L. Sinclair1,5, J. Sorri1,†, S. Stolze1,#, and A. Voss1
Published 25 May 2021

Phys. Rev. C **103**, 054327
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.103.054327
Competition between allowed and first-forbidden β decays of ^{208}At and expansion of the ^{208}Po level scheme
M. Brunet1,*, Zs. Podolyák1, T. A. Berry1, B. A. Brown2, R. J. Carroll1, R. Lica3,4, Ch. Sotty4,5, A. N. Andreyev6,7, M. J. G. Borge3, J. G. Cubiss3,8, L. M. Fraile8, H. O. U. Fynbo9, E. Gamba10, P. Greenlees11, L. J. Harkness-Brennan12, M. Huyse5, D. S. Judson12, J. Konki11, J. Kurcewicz3, I. Lazarus13, M. Madurga3, N. Marginean4, R. Marginean4, I. Marroquin14, C. Mihai4, E. Nácher15, A. Negret4, S. Pascu4, R. D. Page12, A. Perea14, J. Phrompao16, M. Piersa17, V. Pucknell13, P. Rahkila11, E. Rapisarda3, P. H. Regan1,18, F. Rotaru4, M. Rudigier1, C. M. Shand1, R. Shearman1,18, E. C. Simpson19, T. Stora3, O. Tengblad14, P. Van Duppen5, V. Vedia8, S. Vinals14, R. Wadsworth6, N. Warr19, and H. De Witte5
Published 28 May 2021

Phys. Rev. C **103**, 055801
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.103.055801
Proton capture on ^{34}S in the astrophysical energy regime of O-Ne novae
M. Lovely1, A. Lennarz2, D. Connolly2,3, M. Williams2,4, M. Alcorta2, A. A. Chen5, B. Davids2, N. E. Esker2, C. Fry6, S. A. Gillespie2, R. Giri7, U. Greife1,*, A. Hussein8, D. Hutcheon2, J. Karpesky1, L. Kroll5, J. Liang5, P. D. O'Malley9, S. Paneru7, A. Psaltis5, C. Ruiz2, and A. C. Shotter10 (DRAGON Collaboration)
Published 6 May 2021

Phys. Rev. C **103**, 055805
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.103.055805
New measurement of the $E_{c.m.}$=323 keV resonance in the ^{19}F(p,γ)^{20}Ne reaction
M. Williams1,2,*, P. Adsley3,4, B. Davids2,5, U. Greife6, D. Hutcheon2, J. Karpesky6, A. Lennarz2, M. Lovely6, and C. Ruiz2
Published 12 May 2021

Phys. Rev. C **103**, L051301
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.103.L051301
Exploring the role of high-j configurations in collective observables through the Coulomb excitation of ^{106}Cd
D. Rhodes1,2,*, B. A. Brown1,2, J. Henderson3,4, A. Gade1,2, J. Ash1,2, P. C. Bender1,†, R. Elder1,2, B. Elman1,2, M. Grinder1,2, M. Hjorth-Jensen1,2,5, H. Iwasaki1,2, B. Longfellow1,2,‡, T. Mijatović1,§, M. Spieker1,‖, D. Weisshaar1, and C. Y. Wu4
Published 13 May 2021

Phys. Rev. C **103**, L051302
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.103.L051302
Cross-shell excitations in ^{46}Ca studied with fusion reactions induced by a reaccelerated rare isotope beam
J. Ash1,2,*, H. Iwasaki1,2, T. Mijatović1,3, T. Budner1,2, R. Elder4, B. Elman1,2, M. Friedman1, A. Gade1,2, M. Grinder1,2, J. Henderson5, B. Longfellow1,2, A. Revel1, D. Rhodes1,2, M. Spieker1,6, Y. Utsuno7, D. Weisshaar1, and C. Y. Wu8
Published 14 May 2021

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2. News to Report

a. IOP Nuclear Physics Colloquia

From nuclei to stars: The strong interaction in the universe

June 2nd, 3pm BST
Speakers: Prof Achim Schwenk, Mr Luke Tetley
Chair: Dr Marina Petri

The IOP Nuclear Physics Colloquia is a series of online open access research colloquium for all those involved in nuclear physics.
In this series we will highlight the latest results, new techniques and future prospects in the field, for the attention and discussion of the research community.

Colloquia will feature talks from invited international speakers and the best of young British researchers, as well as open discussions.

Sessions are open to all, but are aimed towards graduate students, researchers and academics.

Each of the sessions will be chaired on behalf of the IOP by experts in the field invited from esteemed UK research groups.

The IOP nuclear physics group has invited Dr Marina Petri of the University of York to chair the first colloquium of the series on the topic of nuclear theory.

The session will be held on June 2nd at 3pm BST, and will include the following talks :
"From nuclei to stars: The strong interaction in the universe" - Prof Achim Schwenk
"Benchmarking nuclear theory through state-of-the art experiments" - Mr Luke Tetley

To join please use the following link to access the Zoom platform:
https://york-ac-uk.zoom.us/j/91663428271?pwd=aXloYkdhaWpkeTg5amRNRmZTY0VyQT09
Meeting ID: 916 6342 8271
Passcode: 949093

We encourage student participation in discussions and offer the option to submit anonymous questions through the session chair.

https://www.iop.org/physics-community/special-interest-groups/nuclear-physics-group

Contribution by James Smallcombe (IOP Nuclear Physics Group and University of Liverpool)

b. "Spooky" quantum entanglement applied to PET medical imaging

A team at the University of York has reported on using quantum entanglement to improve PET medial imagining. This article on the York website gives more details.

https://www.york.ac.uk/physics/news/departmentalnews/2021/spooky-quantum-entanglement-pet-imaging/

Contribution by Daniel Watts (University of York)

c. Learning through Sharing - US & UK Nuclear Security and Non-Proliferation Skills Network

More than 220 US & UK participants attended the launch of a **NuSec -NNSA Collaboration Grants Scheme** at an online workshop hosted by the University of Michigan, on 27-28 April 2021.

NuSec - NNSA Collaboration Grants will provide funding to UK researchers working in nuclear security who wish to collaborate with US colleagues in the NNSA funded consortia ETI, MTV and NSSC on a range of activities including research, engagement, mobility and skills training.

24 presentations were made by leading UK and US scientists over the course of two afternoons. There was also an opportunity for participants to ask questions directly to speakers about their nuclear security and non-proliferation research and help make connections to develop potential Collaboration Grant applications.

Speaker profiles and presentations are now available to view and download from the **University of Michigan Workshop Website**

Following the workshop the NuSec Network has updated their NuSec -NNSA Collaboration Grants Guidance and produced a set of FAQs, for further details please visit our **NuSec Funding webpage**

The NuSec Science Network are now inviting **NuSec-NNSA Collaboration Grant Applications** from UK based Academics and Researchers on line. The first application deadline is **1st July 2021**. There will be two application deadlines per year, on January 1st and July 1st each calendar year.

Please do share details of this Grant Scheme with your colleagues and do get in touch if you have any further questions by e mailing **info@nusec.uk**

Contribution by Lisa Flectcher (University of Surrey)

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3. Outreach Activity

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4. Media Interactions

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