UK Nuclear Activity

November 2023 Issue 124

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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 November*

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. Lett. **131** 222503 (2023) (https://doi.org/10.1103/PhysRevLett.131.222503)
Further Evidence for Shape Coexistence in $^{79}Zn^{m}$ near Doubly Magic ^{78}Ni
L. Nies *et al.*
Published 30 November 2023

Phys. Rev. Lett. **131** 222502 (2023) (https://doi.org/10.1103/PhysRevLett.131.222502)
Editors' Suggestion
Nuclear Charge Radius of ^{26m}Al and Its Implication for V_{ud} in the Quark Mixing Matrix
P. Plattner *et al.*
Published 27 November 2023

Phys. Rev. Lett. **131** 202501 (2023) (https://doi.org/10.1103/PhysRevLett.131.202501)
Editors' Suggestion
Deformation versus Sphericity in the Ground States of the Lightest Gold Isotopes
J. G. Cubiss *et al.*
Published 14 November 2023

Phys. Rev. Lett. **131** 192301 (2023) (https://doi.org/10.1103/PhysRevLett.131.192301)
Measurements of Groomed-Jet Substructure of Charm Jets Tagged by D^0 Mesons in Proton-Proton Collisions at $\sqrt{s}$=13 TeV
S. Acharya *et al.* (ALICE Collaboration)
Published 7 November 2023

Edited by Jack Henderson, IOP Nuclear Physics Group Committee
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Phys. Lett. B **848** 138352 (2023) (https://doi.org/10.1016/j.physletb.2023.138352)
Measurements of binding energies and electromagnetic moments of silver isotopes – A complementary benchmark of density functional theory
R. P. de Groote *et al.*
Published 27 November 2023

Phys. Lett. B **848** 138337 (2023) (https://doi.org/10.1016/j.physletb.2023.138337)
Measurement of the low-energy antitriton inelastic cross section
S. Acharya *et al.* (ALICE Collaboration)

Phys. Rev. C **108** L051305 (2023) (https://doi.org/10.1103/PhysRevC.108.L051305)
Identifying the spin-trapped character of the ^{32}Si isomeric state
J. Williams *et al.*
Published 27 November 2023

Phys. Rev. C **108** L052801 (2023) (https://doi.org/10.1103/PhysRevC.108.L052801)
First measurement of the low-energy direct capture in ^{20}Ne(p,γ)^{21}Na and improved energy and strength of the $E_{c.m.}$=368keV resonance
E. Masha *et al.* (LUNA collaboration)
Published 22 November 2023

Phys. Rev. C **108** 054301 (2023) (https://doi.org/10.1103/PhysRevC.108.054301)
High-precision measurements of low-lying isomeric states in $^{120–124}$In with the JYFLTRAP double Penning trap
D. A. Nesterenko *et al.*
Published 1 November 2023

Phys. Rev. C **108** 055203 (2023) (https://doi.org/10.1103/PhysRevC.108.055203)
Higher-order correlations between different moments of two flow amplitudes in Pb-Pb collisions at $\sqrt{s_{NN}}$=5.02 TeV
S. Acharya *et al.* (ALICE Collaboration)
Published 14 November 2023

Phys. Rev. C **108** 055204 (2023) (https://doi.org/10.1103/PhysRevC.108.055204)
Measurement of spin-density matrix elements in ρ(770) production with a linearly polarized photon beam at E_γ=8.2–8.8 GeV
S. Adhikari *et al.* (GlueX Collaboration)
Published 15 November 2023

Eur. Phys. J. A **59** 281 (2023) (https://doi.org/10.1140/epja/s10050-023-01160-y)
On the possibility of laser-plasma-induced depopulation of the isomer in ^{93}Mo at ELI-NP
K. M. Spohr *et al.*
Published 27 November 2023

Eur. Phys. J. A **59** 276 (2023) (https://doi.org/10.1140/epja/s10050-023-01172-8)
Shape evolution in even-mass $^{98\text{-}104}$Zr isotopes via lifetime measurements using the γγ-coincidence technique
G. Pasqualato *et al.*
Published 21 November 2023

Nucl. Instr. Methods A **1058** 168898 (2024) (https://doi.org/10.1016/j.nima.2023.168898)
A phoswich for thermal-neutron and gamma-ray detection
J. Maslin, J. Henderson and M. P. Taggart
Published 15 November 2023

Journal of Instrumentation **18** P11032 (2024) (https://doi.org/10.1088/1748-0221/18/11/P11032)
Data-driven precision determination of the material budget in ALICE
S. Acharya *et al.* (ALICE Collaboration)
Published 30 November 2023

J. High Energy Phys. **2023** 92 (2023) (https://doi.org/10.1007/JHEP10(2023)119)
Energy dependence of coherent photonuclear production of J/ψ mesons in ultra-peripheral Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV
S. Acharya *et al.* (ALICE Collaboration)
Published 20 October 2023

Phys. Rev. D **108** 072008 (2023) (https://doi.org/10.1103/PhysRevD.108.072008)
Pseudorapidity densities of charged particles with transverse momentum thresholds in pp collisions at $\sqrt{s}$=5.02 and 13 TeV
S. Acharya *et al.* (ALICE Collaboration)
Published 11 October 2023

*Also includes missed publications from previous months

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2. News to Report

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3. Outreach Activity

a. Early Careers - Mentorship

This is the first of a series of entries to the newsletter providing early careers advice to those in the first 10 years of their professional career. This month's topic is on the benefits of having a mentor.

Whether you are in academia or industry, you will be in a position to seek out mentorship. This is having someone more experienced than you in your institution (or external) form a professional relationship with you, where they can coach and guide you throughout your early career, and possibly further. Having a mentor provides many benefits: they can give advice, help you to extend your network and help you to seek out opportunities. Many of the world's top entrepreneurs have credited their success in part to their mentors. To find a mentor, you can start by exploring your personal and professional networks to find someone suitable. Some institutions have a mentoring program where they can match you with a mentor that fits with your career path. You can then begin to set up meetings and discuss what you both want to gain from having a mentor-mentee relationship.

If schedules permit, then monthly meetings are recommended so that your mentor can see your progress and help you overcome any challenges you are facing. It is likely that they will be a member of the same professional institution you are aiming to pursue chartership from, meaning they can be used to help you write your application. They can be a great support system and good mentors can cultivate a "safe space" where you can discuss any concerns or present your new ideas. During your meetings together, they can help to identify and achieve your career goals, and crucially they can introduce you to key people in your industry.

Overall, there are many benefits to having a mentor in your early career. This professional relationship can lead to new ideas and achievements and is a great way to kick-start your career.

Contribution from Hannah Gill, Babcock International, IoP Nuclear Physics Group Committee

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4. Media Interactions

a. ISOLDE sees shape shifting in gold nuclei

A recent publication describing the competition between deformed and spherical shapes in gold nuclei was featured in a CERN news article.

https://home.web.cern.ch/news/news/physics/isolde-sees-shape-shifting-gold-nuclei

b. Physics Viewpoint: Quark Picture Put to the Test

Work performed by the IGISOL and COLLAPS collaborations to study the charge radius of ^{26m}Al was featured in the APS physics magazine.

https://physics.aps.org/articles/v16/199