



# UK Nuclear Activity

July 2024 Issue 132

In this issue,

1. [Nuclear Physics Publications for July](#)
2. [News to Report](#)
  - a. [European Physical Journal Special Issue - Nuclear Isomers](#)
3. [Outreach Activity](#)
4. [Media Interactions](#)

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

Nuclear Physics Public Engagement Website: [NuclearPhysicsForYou](#)

---

## 1. Nuclear Physics Publications for July\*

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. **133** 052702 (2024) (<https://doi.org/10.1103/PhysRevLett.133.052702>)  
Shedding Light on the Origin of  $^{204}\text{Pb}$ , the Heaviest  $s$ -Process-Only Isotope in the Solar System  
A. Casanovas-Hoste et al. (n\_TOF Collaboration)  
Published 31 July 2024

Phys. Rev. Lett. **133** 052701 (2024) (<https://doi.org/10.1103/PhysRevLett.133.052701>)  
First Direct Measurement of the 64.5 keV Resonance Strength in the  $^{17}\text{O}(p,\gamma)^{18}\text{F}$  Reaction  
R. M. Gesuè et al. (LUNA Collaboration)  
Published 30 July 2024

Phys. Rev. Lett. **133** 042501 (2024) (<https://doi.org/10.1103/PhysRevLett.133.042501>)  
Compound-Nucleus and Doorway-State Decays of  $\beta$ -Delayed Neutron Emitters  $^{51,52,53}\text{K}$   
Z. Y. Xu et al.  
Published 22 July 2024

Phys. Rev. Lett. **133** 022302 (2024) (<https://doi.org/10.1103/PhysRevLett.133.022302>)  
Observation of the  $\Upsilon(3S)$  Meson and Suppression of  $\Upsilon$  States in Pb-Pb Collisions at  $\sqrt{s_{NN}}=5.02$  TeV  
A. Tumasyan et al. (CMS Collaboration)  
Published 12 July 2024

Phys. Rev. Lett. **133** 022502 (2024) (<https://doi.org/10.1103/PhysRevLett.133.022502>)

Measurement of the Isolated Nuclear Two-Photon Decay in  $^{72}\text{Ge}$

D. Freire-Fernández et al.

Published 11 July 2024

Phys. Rev. Lett. **133** 022301 (2024) (<https://doi.org/10.1103/PhysRevLett.133.022301>)

Observation of Medium-Induced Yield Enhancement and Acoplanarity Broadening of Low- $p_T$  Jets from Measurements in  $pp$  and Central Pb-Pb Collisions at  $\sqrt{s_{\text{NN}}}=5.02$  TeV

S. Acharya et al. (ALICE Collaboration)

Published 9 July 2024

Phys. Lett. B **856** 138862 (2024) (<https://doi.org/10.1016/j.physletb.2024.138862>)

Search for the Chiral Magnetic Effect with charge-dependent azimuthal correlations in Xe–Xe collisions at  $\sqrt{s_{\text{NN}}} = 5.44$  TeV

S. Acharya et al. (ALICE Collaboration)

Published 9 July 2024

Phys. Lett. B **856** 138867 (2024) (<https://doi.org/10.1016/j.physletb.2024.138867>)

Nuclear charge radii of germanium isotopes around  $N = 40$

S. J. Wang et al.

Published 19 July 2024

Phys. Lett. B **856** 138916 (2024) (<https://doi.org/10.1016/j.physletb.2024.138916>)

Precision mass measurements in the zirconium region pin down the mass surface across the neutron midshell at  $N = 66$

M. Hukkanen et al.

Published 31 July 2024

Phys. Rev. C **110**, 014310 (2024) (<https://doi.org/10.1103/PhysRevC.110.014310>)

Isochronous mass spectrometry at the RIKEN Rare-RI Ring facility

D. Nagae et al.

Published 3 July 2024

Phys. Rev. C **110**, 015801 (2024) (<https://doi.org/10.1103/PhysRevC.110.015801>)

Strength measurement of the  $E_{\text{lab}} \alpha=830$  keV resonance in the  $^{22}\text{Ne}(\alpha, n)^{25}\text{Mg}$  reaction using a stilbene detector

Shahina et al.

Published 3 July 2024

Phys. Rev. C **110**, 014326 (2024) (<https://doi.org/10.1103/PhysRevC.110.014326>)

Attempt to synthesize the proton-unbound  $^{182,183}\text{Bi}$  isotopes

H. Huang et al.

Published 25 July 2024

Phys. Rev. C **110**, 014328 (2024) (<https://doi.org/10.1103/PhysRevC.110.014328>)

Detailed structure of  $^{131}\text{Sn}$  populated in the  $\beta$  decay of isomerically purified  $^{131}\text{In}$  states

J. Benito et al. (IDS and IGISOL Collaboration)

Published 26 July 2024

Phys. Rev. C **110**, 014331 (2024) (<https://doi.org/10.1103/PhysRevC.110.014331>)

First high-resolution  $\gamma$ -ray spectroscopy of  $^{41}\text{Si}$

A. Gade et al.

Published 29 July 2024

Phys. Rev. C 110, 014612 (2024) (<https://doi.org/10.1103/PhysRevC.110.014612>)

Modeling the  $\gamma$  spectrum from  $d-t$  collisions

N. K. Timofeyuk, G. W. Bailey, and M. R. Gilbert

Published 10 July 2024

Phys. Rev. C 110, 014906 (2024) (<https://doi.org/10.1103/PhysRevC.110.014906>)

Measurements of jet quenching using semi-inclusive hadron+jet distributions in  $pp$  and central Pb-Pb collisions at  $\sqrt{s_{NN}}=5.02$  TeV

S. Acharya et al. (ALICE Collaboration)

Published 9 July 2024

Phys. Rev. C 110, 015804 (2024) (<https://doi.org/10.1103/PhysRevC.110.015804>)

$\beta$ -delayed proton decay of  $^{27}\text{P}$  and  $^{25}\text{Si}$ : Implications for the  $^{26m}\text{Al}(p,\gamma)^{27}\text{Si}$  reaction rate

I. C. Stefanescu et al.

Published 17 July 2024

European Physical Journal A **60** 153 (2024) (<https://doi.org/10.1140/epja/s10050-024-01376-6>)

Detailed study of the decay of  $^{21}\text{Mg}$

E. A. M. Jensen et al.

Published 23 July 2024

---

## 2. News to Report

### a. EPI Special Issue - Nuclear Isomers

At the end of June a special issue on Nuclear Isomers was published by The European Physical Journal – Special Topics, <https://link.springer.com/journal/11734/volumes-and-issues/233-5> with guest editors Philip Walker, Ashok Jain and Bhoomika Maheshwari. This is a landmark issue, coming just over 100 years since the first evidence for the

phenomenon of nuclear isomerism was discovered in 1921 by Otto Hahn in  $^{234}\text{Pa}$ . The special issue contains 24 articles covering a range of isomer-related topics, from basic nuclear structure, to experimental techniques, astrophysics, the potential for nuclear clocks, the possibility of energy storage, and medical applications.

*Contributed by Philip Walker, University of Surrey*

---

## 3. Outreach Activity

-

---

## 4. Media Interactions

-