



# UK Nuclear Activity

December 2025 Issue 150

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

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

IoP Support and grants: <https://www.iop.org/about/support-grants>

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## 1. Nuclear Physics Publications for December\*

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.

\*Also includes missed publications from previous months

Nature 648 306 (2025) (<https://doi.org/10.1038/s41586-025-09775-5>)  
Observation of deuteron and antideuteron formation from resonance-decay nucleons  
The ALICE Collaboration  
Published 10 December 2025

Nature 648 562 (2025) (<https://doi.org/10.1038/s41586-025-09814-1>)  
Laser spectroscopy and CP-violation sensitivity of actinium monofluoride  
M. Athanasakis-Kaklamanakis *et al.*  
Published 17 December 2025

Phys. Rev. Lett. 135 252502 (2025) (<https://doi.org/10.1103/tdfs-5qzw>)  
Direct Evidence for the  $\nu d_{5/2}$  Orbital in  $^{69}\text{Ni}$ : Implications for the  $N=40$  Island of Inversion  
A. Ceulemans *et al.*  
Published 19 December 2025

Phys. Lett. B 871 139921 (2025) (<https://doi.org/10.1016/j.physletb.2025.139921>)  
Femtoscopic study of the proton-proton and proton-deuteron systems in heavy-ion collisions at the LHC  
ALICE Collaboration, S. Acharya et al.  
Published 2 December 2025

Phys. Lett. B. 872 140006 (2025) (<https://doi.org/10.1016/j.physletb.2025.140006>)  
Exclusive photoproduction of excited  $\rho$  mesons decaying to four pions in ultraperipheral Pb–Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV  
ALICE Collaboration, S. Acharya et al.  
Published 2 December 2025

Phys. Lett. B 872 140070 (2026) (<https://doi.org/10.1016/j.physletb.2025.140070>)  
Low-uncertainty measurement of the  $^{239}\text{Pu}(n,f)$  cross section at n\_TOF in a very broad energy range from 0.02 eV up to 10 MeV  
A. Sanchez-Caballero *et al.* (n\_TOF Collaboration)  
Published 5 December 2025

Phys. Lett. B 871 139952 (2025) (<https://doi.org/10.1016/j.physletb.2025.139952>)  
Coherent  $J/\psi$  photoproduction at midrapidity in Pb-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV  
ALICE Collaboration, S. Acharya et al.  
Published 17 December 2025

Phys. Rev. C 112 (2025) 064003 (<https://doi.org/10.1103/mrp4-z4hh>)  
Accessing the deuteron source with pion-deuteron femtoscopy in Pb-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV  
ALICE Collaboration., S. Acharya et al.  
Published 12 December 2025

Phys. Rev. C 112 064302 (2025) (<https://doi.org/10.1103/kkszh-prtb>)  
Probing the quantum phase transition near  $N \approx 60$  via mass measurements of technetium isotopes  
J. Ruotsalainen *et al.*  
Published 1 December 2025

Phys. Rev. C 112 064311 (2025) (<https://doi.org/10.1103/5wkc-7gmf>)  
Quadrupole strength in isobaric triplets  
B. C. Backes *et al.*  
Published 8 December 2025

Phys. Rev. C 112 064314 (2025) (<https://doi.org/10.1103/c5zn-xn9j>)  
Rotational bands in  $^{249}\text{Md}$   
C. J. Appleton *et al.*  
Published 10 December 2025

Phys. Rev. C 112 064316 (2025) (<https://doi.org/10.1103/l6vg-jfkv>)  
Negative-parity high-spin structure of  $^{105}\text{Pd}$   
B. Kruzsicz *et al.*  
Published 11 December 2025

Phys. Rev. C 112 064321 (2025) (<https://doi.org/10.1103/1zz2-2hfm>)  
Seniority scheme for  $j=9/2$  nuclear orbitals  
Z. Podolyak  
Published 17 December 2025

Phys. Rev. C 112 064328 (2025) (<https://doi.org/10.1103/14qx-4jh6>)  
Isospin mixing in  $^{64,66}\text{Ga}$  reexamined via total absorption spectroscopy  
S. Parra *et al.*  
Published 24 December 2025

Phys. Rev. C 112 065211 (2025) (<https://doi.org/10.1103/1q5m-x849>)  
Measurement of beam-recoil observables  $C_x$  and  $C_z$  for  $K^+\Lambda$  photoproduction  
S. Adhikari *et al.* (CLAS Collaboration)  
Published 29 December 2025

Eur. Phys. J. C 85 (2025) 1407 (<https://doi.org/10.1140/epjc/s10052-025-14802-w>)  
Measurement of isolated prompt photon production in pp and p–Pb collisions at the LHC  
ALICE Collaboration  
Published 11 December 2025

J. High Energ. Phys. 2025 38 (2025) ([https://doi.org/10.1007/JHEP12\(2025\)038](https://doi.org/10.1007/JHEP12(2025)038))  
Multiplicity dependence of  $\Xi c^+$  and  $\Xi c^0$  production in pp collisions at  $\sqrt{s} = 13$  TeV  
The ALICE collaboration., Abualrob, I.J., Acharya, S. et al.  
Published 3 December 2025

Nuclear Physics News 35 24 (2025) (<https://doi.org/10.1080/10619127.2025.2565135>)  
University of Glasgow Workshop on Nuclear Data  
B. Seitz and P. Stevenson  
Published 4 December 2025

EPJ Web of Conferences 342 01018 (2025) (<https://doi.org/10.1051/epjconf/202534201018>)  
Origin of the electric hexadecapole isomer in  $^{93}\text{Mo}$   
B. Maheshwari, P. Van Isacker and P. M. Walker  
Published 21 November 2025

J. Env. Radioactivity **291** 107830 (2026) (<https://doi.org/10.1016/j.jenvrad.2025.107830>)  
Analysis of measurements from an array of radioxenon samplers near to Hartlepool Nuclear Power Station  
M. A. Goodwin *et al.*  
Published 5 November 2025

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## 2. News to Report

### ***a. Royal Society ISPF award to fund storage ring developments at RIKEN***

Dr Ragandeep Singh Sidhu was awarded a Royal Society International Science Partnership Fund project to fund developments at the Rare-Radioactive Isotope Ring (R3) at RIBF, RIKEN. More information can be found [here](#).

*Contribution from Ragan Sidhu, University of Surrey*

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## 3. Outreach Activity

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## 4. Media Interactions