UK Nuclear Activity

October 2025 Issue 147

In this issue,

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 October*

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

Phys. Rev. Lett. **135** 142502 (2025) (https://doi.org/10.1103/hyj7-l22h)
Study of the Beta Spectrum Shape of ^{92}Rb and ^{142}Cs Decays for the Prediction of Reactor Antineutrino Spectra
G. A. Alcala *et al.*
Published 2 October 2025

Phys. Rev. Lett. **135** 152501 (2025) (https://doi.org/10.1103/l24v-5m31)
First β-Delayed Two-Neutron Spectroscopy of the r-Process Nucleus ^{134}In and Observation of the $i_{13/2}$ Single-Particle Neutron State in ^{133}Sn
P. Dyszel *et al.*
Published 8 October 2025

Phys. Rev. Lett. **135** 172501 (2025) (https://doi.org/10.1103/qxtf-5b4y)
Toward a Microscopic Description of Nucleus-Nucleus Collisions
M. Vorabbi *et al.*
Published 21 October 2025

Edited by Jack Henderson, IOP Nuclear Physics Group Committee
jack.henderson@surrey.ac.uk

Phys. Rev. C **112** 044613 (2025) (https://doi.org/10.1103/6r82-456g)
α-induced neutron emission from ^{27}Al: A cross-section study
R. Roy *et al.*
Published 28 October 2025

Phys. Rev. C **112** 044904 (2025) (https://doi.org/10.1103/ls6w-x1bb)
Measurement of ω meson production in pp and p-Pb collisions at $\sqrt{s_{NN}}$=5.02 TeV
S. Acharya *et al.* (ALICE Collaboration)
Published 16 October 2025

Phys. Rev. C **112** 045503 (2025) (https://doi.org/10.1103/yzlp-wcyf)
Spectroscopy of ^{113m}Cd
P. Belli *et al.*
Published 8 October 2025

J. High Energ. Phys. **2025** 94 (2025) (https://doi.org/10.1007/JHEP10(2025)094)
First measurement of D*+ vector meson spin alignment in Pb–Pb collisions at √s_NN = 5.02 TeV
ALICE collaboration., Acharya, S., Agarwal, A. *et al.*
Published 10 October 2025

Nucl. Sci. Tech. **36** 222 (2025) (https://doi.org/10.1007/s41365-025-01812-2)
Ab initio calculations of the highest-multipole electromagnetic transition ever observed in nuclei,
S.Q. Fan, Q. Yuan, F.R. Xu and P.M. Walker
Published 12 September 2025

J. of Phys. G: Nucl. and Part. Physics **52** 105103 (2025) (https://doi.org/10.1088/1361-6471/ade0dc)
Detector characterization for a new ^{12}C+^{12}C reaction study at LUNA
R. M. Gesuè *et al.*
Published 24 October 2025

Chinese Phys. C **49** 114001 (2025) (https://iopscience.iop.org/article/10.1088/1674-1137/ade956)
Bayesian and Monte Carlo approaches to estimating uncertainty for the measurement of the bound-state β- decay of $^{205}Tl^{81+}$
G. Leckenby *et al.*
Published 19 June 2025

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2. News to Report

a. UK-India academia-industry partnership event

We share the success of our workshop in York on 18th September: Flexible detectors for nuclear decommissioning and healthcare. This was the fourth workshop through the fruitful partnership of the University of York (Dr Samadhan Patil and Prof David Jenkins) and the Indian Institute of Technology Bombay (Prof Rajiv Dusane and Prof Triratna Muneshwar).

Funded by the UK-India Education and Research Initiative (UKIERI), our partnership combines nuclear physics, materials science, and semiconductor fabrication expertise from across our universities to create novel radiation detection solutions for the UK, India, and globally.

As with previous workshops, we were delighted to be joined by an industry panel, hearing clinical and nuclear decommissioning end-user challenges and receiving invaluable guidance on our technology development. We were joined this year by The Christie NHS Foundation Trust, LabLogic, NPL, Sellafield, Silson, and Tuv Sud Nuclear Technologies.

Through these events, we celebrate and strengthen UK-India and academia-industry connections, putting great minds together to solve great challenges.

Contribution from Adam Featherstone, University of York

b. Frugal physics innovations - UK-Africa collaboration

At the University of York, through a collaboration led by Prof David Jenkins, we celebrate a successful second FISICA workshop: Frugal Innovation for Societally Important Challenges in Africa.

From 8th to 11th September 2025, scientists and engineers from Ghana, Rwanda, Tanzania, South Africa, Botswana, and the UK (York) met with innovation facilitators at the Future Africa Campus at the University of Pretoria.

Building upon the collaboration cemented at our first FISICA workshop in York, our goal was to facilitate collaborative innovation addressing critical societal challenges, specifically focusing on physics education, agriculture, and healthcare. We focused on developing gamma detectors and multispectral cameras, promoting the concept of frugal innovation through modular, low-cost devices and open-source tools. Core activities in the workshop included intensive work on prototypes of products and services followed by a pitching event to invited external guests.

We remain grateful for funding from the STFC Africa-UK Physics Partnership grant, as well as generous support from Hilger Crystals and RS Components. We also express gratitude to the many individuals and institutions in Pretoria who volunteered their time and expertise to supplement our workshop.

Contribution from Adam Featherstone, University of York

c. Nuclear Data: Applications to Society and Industry published

A new textbook entitled Nuclear Data: Applications to Society and Industry has just been published by IOP Publishing - https://iopscience.iop.org/book/edit/978-0-7503-5102-7. The book is edited by David Jenkins from the University of York and features contributions primarily from experts in UK universities and national laboratories such as UKAEA, AWE and NPL. The book explores the often underappreciated domain of nuclear data. In doing so, it covers a range of different industrial and societal applications, starting with the emerging domain of nuclear fusion before discussing several different aspects where nuclear data is important to nuclear fission energy and the nuclear fuel cycle. Lastly, the book covers topics related to medical isotope production. The introductory chapter provides an overview of key topics in nuclear structure, nuclear reaction theory and nuclear data evaluation which underpin the other chapters. This book will interest final year undergraduate students and PhD students with a background in physics. It will also interest those beginning their career in the nuclear industry.

The current book continues the IOP series on Nuclear Spectroscopy and Nuclear Structure which also contains three books providing a data-driven introduction to Nuclear Physics written by David Jenkins and John Wood including Nuclear Data: A primer, Nuclear Data: A collective motion view and Nuclear Data: An independent-particle motion view.

Contribution from David Jenkins, University of York

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3. Outreach Activity

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4. Media Interactions