UK Nuclear Activity

July 2026 Issue 156

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

Nuclear Physics Public Engagement Website: NuclearPhysicsForYou

Support for ECR travel and other research expenses is available from the IoP.

Support is typically at the level of about £300. Applications typically require the completion of a short form, and are reviewed periodically, so try to apply well in advance.

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

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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. **137** 052301 (2026) (https://doi.org/10.1103/jmwb-75m7)
Evidence for J/ψ Suppression in Incoherent Photonuclear Production
S. Acharya *et al.* (ALICE Collaboration)
Published 29 July 2026

Phys. Rev. Lett. **137** 022701 (2026) (https://doi.org/10.1103/gbbj-hpqk)
Single-Nucleon Transfer on Unstable ^{59}Cu Probes the NiCu Cycle in Astrophysical X-Ray Bursts
C. O'Shea *et al.*
Published 6 July 2026

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Phys. Lett. B **880** 140729 (2026) (https://doi.org/10.1016/j.physletb.2026.140729)
Production of isotopes near the heavy-element nucleosynthesis path at FRS
S. Pietri *et al.*
Published 14 July 2026

Phys. Lett. B **880** 140672 (2026) (https://doi.org/10.1016/j.physletb.2026.140672)
Limits on the chiral magnetic effect from the event shape engineering and participant-spectator correlation techniques in Pb-Pb collisions at $\sqrt{s_{\mathrm{NN}}}$ = 5.02 TeV
D.A.H. Abdallah *et al.* (ALICE Collaboration)
Published 21 July 2026

Phys. Lett. B **880** 140800 (2026) (https://doi.org/10.1016/j.physletb.2026.140800)
Experimental Gamow–Teller strength in the β decay of the rp-process waiting-point nucleus ^{64}Ge and its impact on stellar weak-decay rates
E. Nacher *et al.*
Published 28 July 2026

Phys. Rev. C **114** 014905 (2026) (https://doi.org/10.1103/7kjw-vfgp)
Longitudinal dynamics of large and small systems from a 3D Bayesian calibration of RHIC top-energy collision data
A. Mankolli *et al.* (JETSCAPE Collaboration)
Published 15 July 2026
Editor's suggestion

Phys. Rev. C **114** 014305 (2026) (https://doi.org/10.1103/2f9y-d3dy)
g-factor measurements on $\nu g_{9/2}$ isomeric states in ^{67,69,70}Ni
K. Stoychev *et al.*
Published 7 July 2026

Phys. Rev. C **114** 014316 (2026) (https://doi.org/10.1103/s6dz-2tbn)
Spectroscopy of excited neutron configurations of ^{54}Ca
F. Browne *et al.*
Published 15 July 2026

Phys. Rev. C **114** 014319 (2026) (https://doi.org/10.1103/zvdk-57bt)
β-spectrum shapes of first-forbidden transitions with $\Delta I^{\pi}=0^{-}$ in ^{92}Rb and ^{142}Cs decays
G. A. Alcalá *et al.*
Published 16 July 2026

Phys. Rev. C **114** 014325 (2026) (https://doi.org/10.1103/ggc8-mn83)
Conversion electron spectroscopy unveils internal transition pathways of isomers in the neutron-deficient nuclei ^{179,181}Hg and ^{179}Tl
S. Y. Zhang *et al.*
Published 20 July 2026

Phys. Rev. C **114** 014337 (2026) (https://doi.org/10.1103/5pmf-nxdg)
Experimental search for the symmetric double-α decay in ^{216,218}Rn and ^{220,222}Ra
L. Heitz *et al.*
Published 30 July 2026

Phys. Rev. C **114** 014627 (2026) (https://doi.org/10.1103/qx28-3tkb)
Fission mode identification in the ^{180}Hg region: Derivative analysis approach
D. T. Kattikat Melcom *et al.*
Published 20 July 2026

Phys. Rev. C **114** 015203 (2026) (https://doi.org/10.1103/ml3y-pmb8)
Polarization observables T and F in the $\gamma p \rightarrow \pi^0 p$ reaction at CLAS
H. Jiang *et al.* (CLAS Collaboration)
Published 9 July 2026

Eur. Phys. J. A **62** 138 (2026) (https://doi.org/10.1140/epja/s10050-026-01914-4)
Identification of MNT fragments produced by an energy-degraded ^{238}U beam on a ^{209}Bi target at the FRS Ion Catcher
A. Shraier *et al.*
Published 13 July 2026

Eur. Phys. J. C **86** 756 (2026) (https://doi.org/10.1140/epjc/s10052-026-15447-z)
Multiplicity dependence of two-particle angular correlations of identified particles in pp collisions at $\sqrt{s}$=13 TeV
ALICE Collaboration
Published 3 July 2026

Eur. Phys. J. C **86** 598 (2026) (https://doi.org/10.1140/epjc/s10052-026-15412-w)
Medium-induced modification of azimuthal correlations of electrons from heavy-flavor hadron decays with charged particles in Pb–Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV
ALICE Collaboration
Published 2 June 2026

Prog. Part. and Nucl. Phys. **151** 104262 (2026) (https://doi.org/10.1016/j.ppnp.2026.104262)
Deformation, halo, and bubble structure: A paradigm shift of exotic phenomena in light to medium mass nuclei
R. Barman *et al.*
Published 15 July 2026

JHEP **07** 051 (2026) (https://doi.org/10.1007/JHEP07(2026)051)
Multiplicity dependence of prompt and non-prompt J/ψ production at midrapidity in pp collisions at $\sqrt{s}$=13 TeV
D. A. H. Abdallah, *et al.* (ALICE Collaboration)
Published 3 July 2026

JHEP **06** 227 (2026) (https://doi.org/10.1007/JHEP06(2026)227)
Strangeness enhancement at its extremes: multiple (multi-)strange hadron production in pp collisions at $\sqrt{s}$=5.02 TeV
I. J. Abualrob, *et al.* (ALICE Collaboration)
Published 22 June 2026

JHEP **06** 152 (2026) (https://doi.org/10.1007/JHEP06(2026)152)
Observation of flow vector fluctuations in p–Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV
D. A. H. Abdallah, *et al.* (ALICE Collaboration)
Published 15 June 2026

Chinese Physics C (https://doi.org/10.1088/1674-1137/ae84ab)
High-spin states of the semimagic nucleus ^{151}Tm
X. Yu *et al.*
Published 1 July 2026

*Also includes missed publications from previous months

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2. News to Report

a. EIC Early Career (EC) Workshop held in Glasgow

The 2026 EIC Early Career (EC) Workshop took place from July 11-12, 2026, at the University of Glasgow. There were a total of 75 registered participants in the end, with attending 32 in person and 43 remote.

The workshop featured two talks by invited speakers. The first by Dr Lijuan Ruan, Senior Scientist at Brookhaven National Lab, who gave an overview of the last 20 years of the RHIC science programme and the transition to the coming EIC. The second by Dr Tarini Konchady, Staff at the National Acadamies of Science who gave an overview of the policy and funding decisions and framework that govern projects like the EIC from the political perspective in US administration.

There were 15 contributed talks by early career researchers, as well as an outreach/poster competition which had five contributed flash talks and also featured a demonstration by student Sean Preins of his virtual reality programme VIRTUE (3D VR Sim of the ePIC detector at EIC). Finally, there was a software tutorial for EPIC/EIC, run by organiser Derek Anderson. The second day was closed out with an ECR town hall which spurred fruitful discussion about the concerns, achievements and future prospects for ECRs in the EIC Users Group, before finishing the weekend with a workshop dinner.

Support for the event was provided by the IoP Nuclear Physics and High Energy Particle Physics groups.

Contribution from Gary Penman, University of Glasgow

b. Joint Electron-Ion Collider User Group and ePIC Collaboration Meeting Held in Glasgow

The 2026 Joint Electron-Ion Collider User Group (EICUG) and ePIC Collaboration Meeting was held at the University of Glasgow from the 13th to 17th of July on behalf of the UK Electron-Ion Collider (EIC) community. This week-long meeting brought together in person over 100 ePIC collaborators and EIC users from around the world. Many more joined virtually at this hybrid meeting to engage with the range of talks and the lively discussions that accompanied them.

Over the week, collaborators discussed the breadth of exciting science that will be enabled by this upcoming facility. As part of the opening sessions, the latest status of the EIC project and the ePIC detector were discussed. Later in the week detailed parallel sessions covered a range of topics, including on how AI can be incorporated into analysis and simulation workflows at this facility. Other parallel sessions included comprehensive discussions on tracking and the latest developments and plans for the innovative streaming readout system that will be used in the ePIC detector. Priorities and objectives for what will be pivotal year ahead for the project, with many upcoming project milestones, were also discussed and set. Another topic of discussion was plans for future publications related to the high impact science achievable in the early years of running the EIC.

Time during the meeting was also devoted to organisational matters of the user group and collaboration. This included an awards ceremony for the EICUG in which Stephen Kay at the University of York was one of the awardees as he was awarded the EICUG Postdoc Award. This award was in recognition of Stephen's ongoing work and contributions to the EIC and ePIC across multiple fronts. This award also represents a vote of confidence and recognition from the international community of UK contributions to the EIC more broadly.

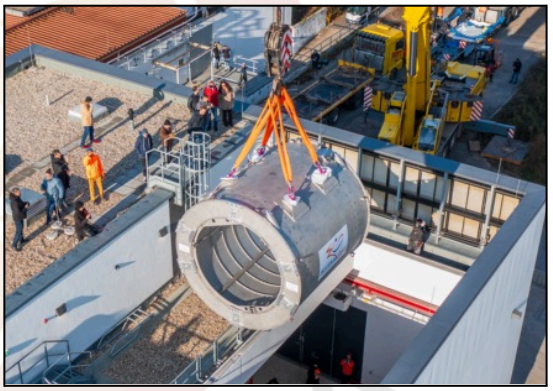
This was the first time this joint meeting has been held in the UK and it was an enormous success. Many collaborators and colleagues commented on how much they enjoyed the meeting and praised the organisational effort, as well as the excellent team of local student and postdoc helpers from Glasgow and York. These comments were perhaps somewhat helped by the unbroken sunshine and warm weather that accompanied the meeting for the whole week; as can be seen in the meeting photo.

The success of this meeting was also down to the generous financial support of both the UK Institute of Physics and the UKRI Science and Technology Facilities Council. This financial support kept costs for participants down as much as possible, particularly for early career researchers. The organisers are very grateful for this financial support.

Contribution from *Gary Penman (University of Glasgow) on behalf of the local organising committee,*
Daria Sokhan (University of Glasgow), Rachel Montgomery (University of Glasgow), Gary Penman (University of Glasgow) and Stephen Kay (University of York)

c. Physics Opportunities with the MESA Facility

A half day workshop was held at University of York to discuss prospects for the upcoming physics program at the Mainz Energy-recovering Superconducting Accelerator (MESA), which is scheduled to commence physics operations in 2027. The MESA facility is an energy recovery linac that will be able to generate a high intensity electron beam with unprecedented efficiency, delivering a high rate of particle collisions within a short period of time. The currently planned experimental program will aid in the hunt for very rare events such as the consequences of the decay of dark photons and of other, as yet, unidentified particles. By bringing interested UK researchers together, the organisers hope this workshop will generate interest in UK groups participating in MESA, either by contributing to existing experiments, or proposing new ones which will exploit the optimal conditions for precision experiments that MESA will provide.



The event was anchored by a keynote talk from Patrick Achenbach from the Johannes Gutenberg University in Mainz, giving an overview of the facility and the initial experimental program, followed by a series of flash talks which highlighted the strong legacy in the UK of participation in the program of the Mainzer Microtron (MAMI), the existing accelerator in Mainz. Around 20 participants joined either in-person or online, and an informal parallel session took place in Glasgow the following day, when Patrick Achenbach took his keynote talk from this event to the Nuclear and Hadron Physics Group at the University of Glasgow as a seminar.

Contribution from Stuart Fegan, University of York

d. University of Surrey leads first GRETA science experiment

A team from the University of Surrey successfully led the first science experiment with the Gamma Ray Energy Tracking Array (GRETA) at FRIB in late June. The experiment, proposed and led by Dr Jacob Heery, investigated Coulomb excitation of radioactive ^{68}Ge. A $58 million project funded by the US DoE and led by Lawrence Berkeley National Laboratory, GRETA is the world's only 4π gamma-ray tracking array, and the world's most powerful gamma-ray spectrometer.

Further details can be found here.

Contribution from Jack Henderson, University of Surrey

e. Session Chair Report: NF3 — Nuclear Fission Technologies: Advanced Reactor Systems, Radiation Detection, and Multi-Sector Applications, EKC2026

It was a privilege to serve as Session Chair for NF3, part of the Nuclear & Fusion Technology (NF) Division at EKC2026, held on 21 July 2026 in Toulouse, France. The session proved to be one of the most engaging and well-attended technical sessions of the conference.

EKC2026 marked the 18th edition of the Europe-Korea Conference on Science and Technology, hosted by ASCoF (Association des Scientifiques Coréens en France) together with the Korean Federation of Science and Technology Societies (KOFST) and eight partner Korean Scientists and Engineers Associations across Europe. Held under the theme "AI-Driven Future of Science and Technology," EKC brings together Korean and European scientists and engineers to exchange research, build relationships, and explore shared scientific priorities.

NF3 (Nuclear Fission) session attracted strong attendance from researchers, scientists, and industry professionals spanning both the nuclear fission and nuclear fusion communities, creating a genuinely cross-disciplinary environment for discussion of current challenges, emerging technologies, and the near-term future of the nuclear sector.
A particular highlight was the invited talk from Dr Shin Whan Kim, Section Head for Nuclear Power Engineering at the International Atomic Energy Agency (IAEA), on the global status and trends of nuclear power. His international vantage point on deployment trends and policy drivers sparked lively discussion among participants.

The programme also featured two presentations on Molten Salt Reactor (MSR) technology by Professor Sungyeol Choi (Seoul National University) on MSR research for SMR applications, and Dr Juhyeon Yoon (Saltfoss Energy ApS) on the seaMSR-100 design for near-term deployment reflecting the growing momentum behind advanced fission systems and encouraging cross-institutional dialogue between academic and industry perspectives.
As Session Chair, I also opened the session with a presentation on the overview of UK and EU civil nuclear energy developments in relation to rising energy consumption, framing the policy and technical landscape for the talks that followed.

The strong engagement throughout the session underscored the continued momentum of nuclear fission research and the value of international collaboration in addressing the world's future energy challenges.

Overall, NF3 was a highly successful forum for scientific dialogue, international collaboration, and the advancement of nuclear science and technology — a fitting contribution to EKC2026's broader theme of AI-driven progress in science and technology.

Contribution from David Lee, UKNNL

f. Reactor Physics Technical Forum open for registration

The Reactor Physics Technical Forum 2026, is open for registration (free to IoP members) 2-3 Sept, Derby:
https://iop-rptf-2026.eventsairsite.com/

During the Forum there will be an evening public talk on the Physics of Advanced Nuclear Reactors by Dr Tom Taylor.
https://www.iop.org/events/physics-advanced-nuclear-reactors-0

***g.* ALICE best PhD award goes to UK thesis**

One of the four 2026 best thesis prizes for the ALICE collaboration was awarded to a UK thesis. Dr. Gregor Hieronymus Eberwein (University of Oxford, UK) was awarded for the thesis on "Wafer-Scale Stitched CMOS Pixel Sensors: Characterisation and Detector Performance Studies for ALICE ITS3"

Further details can be found here.

Contribution from Lee Barnby, University of Derby

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3. Outreach Activity

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4. Media Interactions

UNITED KINGDOM NUCLEAR ACTIVITY