



UK Nuclear Activity

May 2023 Issue 118

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

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

1. Nuclear Physics Publications for May*

Phys. Rev. Lett. **130** 202501 (2023) (<https://doi.org/10.1103/PhysRevLett.130.202501>)
Direct Determination of Fission-Barrier Heights Using Light-Ion Transfer in Inverse Kinematics
S. A. Bennett *et al.*
Published 19 May 2023

Phys. Rev. C **107** L051901 (2023) (<https://doi.org/10.1103/PhysRevC.107.L051901>)
Observation of flow angle and flow magnitude fluctuations in Pb-Pb collisions at $\sqrt{s_{NN}}=5.02\text{TeV}$ at the
CERN Large Hadron Collider
ALICE Collaboration
Published 24 May 2023

Phys. Rev. C **107** 054305 (2023) (<https://doi.org/10.1103/PhysRevC.107.054305>)
Evolution of structure and shapes in ^{158}Er to ultrahigh spin
J. Simpson *et al.*
Published 10 May 2023

Phys. Rev. C **107** 054609 (2023) (<https://doi.org/10.1103/PhysRevC.107.054609>)
Thermal and atomic effects on coupled-channels heavy-ion fusion
I. Lee, G. Gosselin, and A. Diaz-Torres
Published 17 May 2023

Phys. Rev. C **107** 054617 (2023) (<https://doi.org/10.1103/PhysRevC.107.054617>)
Two-particle transverse momentum correlations in pp and p-Pb collisions at energies available at the
CERN Large Hadron Collider
ALICE Collaboration
Published 30 May 2023

Phys. Rev. C **107** 055201 (2023) (<https://doi.org/10.1103/PhysRevC.107.055201>)
K*(892)⁰ and $\phi(1020)$ production in p–Pb collisions at $\sqrt{s_{NN}}=8.16$ TeV
ALICE Collaboration
Published 9 May 2023

Eur. Phys. J. A **59** 117 (2023) (<https://doi.org/10.1140/epja/s10050-023-01026-3>)
Advances in nuclear structure via charged particle reactions with AGATA
D. Mengoni *et al.*
Published 26 May 2023

Universe **9** 274 (2023) (<https://doi.org/10.3390/universe9060274>)
A Novel, Low-Cost, Position-Sensitive Neutron Detector to Support Thick-Target Inverse Kinematics Experiments for Nuclear Data Measurements
R. Smith *et al.*
Published 6 June 2023

15th International Conference on Nuclear Data for Science and Technology (ND2022) - Compiled by Paul Stevenson:

EPJ Web of Conf. **284** 01001 (2023) (<https://doi.org/10.1051/epjconf/202328401001>)
High resolution ⁸⁰Se(n, γ) cross section measurement at CERN n_TOF
V. Babiano-Suarez *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 01003 (2023) (<https://doi.org/10.1051/epjconf/202328401003>)
Cross Section Measurements of (n,x) Reactions at 17.9 and 18.9 MeV Using Highly Enriched Ge Isotopes
S. Chasapoglou *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 01009 (2023) (<https://doi.org/10.1051/epjconf/202328401009>)
Results of the ²⁴⁴Cm, ²⁴⁶Cm and ²⁴⁸Cm neutron-induced capture cross sections measurements at EAR1 and EAR2 of the n_TOF facility
V. Alcayne *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 01017 (2023) (<https://doi.org/10.1051/epjconf/202328401017>)
The Stellar ⁷²Ge(n, γ) Cross Section for weak s-process: A First Measurement at n_TOF
M. Dietz *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 01018 (2023) (<https://doi.org/10.1051/epjconf/202328401018>)
Compton imaging for enhanced sensitivity (n, γ) cross section TOF experiments: Status and prospects
C. Domingo-Pardo *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 01028 (2023) (<https://doi.org/10.1051/epjconf/202328401028>)
New perspectives for neutron capture measurements in the upgraded CERN-n_TOF Facility
J. Lerendegui-Marco *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 01030 (2023) (<https://doi.org/10.1051/epjconf/202328401030>)
Measurement of the ²³⁵U(n,f) cross section relative to the ¹⁰B(n, α) reaction with Micromegas detectors at the CERN n_TOF facility: First results
Veatriki Michalopoulou *et al.*

Published 26 May 2023

EPJ Web of Conf. **284** 01031 (2023) (<https://doi.org/10.1051/epjconf/202328401031>)
Neutron capture and total cross-section measurements on $^{94,95,96}\text{Mo}$ at n_TOF and GELINA
R. Mucciola *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 01036 (2023) (<https://doi.org/10.1051/epjconf/202328401036>)
Measurement of the $^{241}\text{Am}(n,\gamma)$ cross section at the n_TOF facility at CERN
A. Oprea *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 01043 (2023) (<https://doi.org/10.1051/epjconf/202328401043>)
A segmented total energy detector (sTED) for (n, γ) cross section measurements at n_TOF EAR2
V. Alcayne *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 02001 (2023) (<https://doi.org/10.1051/epjconf/202328402001>)
Total Absorption Spectroscopy of Fission Fragments Relevant for Reactor Physics and Nuclear Structure and Astrophysics
Magali Estienne *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 02004 (2023) (<https://doi.org/10.1051/epjconf/202328402004>)
Evolution of collectivity in $^{126,128}\text{Xe}$ studied in Coulomb excitation measurements
S. Kisyov *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 02005 (2023) (<https://doi.org/10.1051/epjconf/202328402005>)
Study of decay properties of Ba to Nd nuclei ($A\sim 160$) relevant to the formation of the r-process rare-earth peak
M. Pallàs *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 03007 (2023) (<https://doi.org/10.1051/epjconf/202328403007>)
An assessment of neutron resonance data for mid-mass isotopes
James Benstead, Will McClymont and Paul Stevenson
Published 26 May 2023

EPJ Web of Conf. **284** 04003 (2023) (<https://doi.org/10.1051/epjconf/202328404003>)
New measurement of the $^{235}\text{U}(n_{\text{th}},f)$ fission yields and development of a Time of Flight line at the LOHENGRIN spectrometer
M. Houdouin-Quenault *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 04012 (2023) (<https://doi.org/10.1051/epjconf/202328404012>)
Determination of the Plasma Delay Time in PIPS detectors for fission fragments at the LOHENGRIN spectrometer
Ana M. Gómez *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 04016 (2023) (<https://doi.org/10.1051/epjconf/202328404016>)
Characterization of a detector setup for the measurement of the $^{235}\text{U}(n,f)$ cross section relative to n-p scattering up to 500 MeV at the n_TOF facility at CERN
A. Manna *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 04019 (2023) (<https://doi.org/10.1051/epjconf/202328404019>)
Detector set up for the measurements of the neutron-induced fission cross section of ^{235}U relative to n-p scattering up to 150 MeV at CERN-n_TOF
E. Pirovano *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 04020 (2023) (<https://doi.org/10.1051/epjconf/202328404020>)
Comprehensive investigation of fission yields by using spallation- and (p,2p)- induced fission reactions in inverse kinematics
J. L. Rodríguez-Sánchez *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 06006 (2023) (<https://doi.org/10.1051/epjconf/202328406006>)
Characterisation of the n_TOF 20 m beam line at CERN with the new spallation target
J. A. Pavón-Rodríguez *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 06009 (2023) (<https://doi.org/10.1051/epjconf/202328406009>)
The n_TOF NEAR Station Commissioning and first physics case
M. E. Stamati *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 09001 (2023) (<https://doi.org/10.1051/epjconf/202328409001>)
First high resolution measurement of neutron capture resonances in ^{176}Yb at the n_TOF CERN facility
F. García-Infantes *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 09002 (2023) (<https://doi.org/10.1051/epjconf/202328409002>)
Measurement of the $^{160}\text{Gd}(n, \gamma)$ cross section at n_TOF and its medical implications
M. Mastromarco *et al.*
Published 26 May 2023

EPJ Web of Conf. **284** 16002 (2023) (<https://doi.org/10.1051/epjconf/202328416002>)
Variance minimisation on a quantum computer of the Lipkin-Meshkov-Glick model with three particles
Isaac Hobday, Paul Stevenson and James Benstead
Published 26 May 2023

EPJ Web of Conf. **284** 18001 (2023) (<https://doi.org/10.1051/epjconf/202328418001>)
Overview of the dissemination of n_TOF experimental data and resonance parameters
E. Dupont *et al.*
Published 26 May 2023

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

2. News to Report

a. UK hosts the first HIE-ISOLDE Physics Workshop



The permanent experimental collaborations that occupy each of the three HIE-ISOLDE beam lines, Miniball, ISOLDE Solenoidal Spectrometer (ISS) and Scattering Experiments Chamber (SEC), came together to host the first joint HIE-ISOLDE physics workshop last month at the IOP Headquarters in London. Throughout the 3 days, 50 people joined the in-person event, with presentations on recent results and the status of fresh experimental data since the restart of physics in 2021.

The workshop was supported by the IOP Nuclear Physics Group, Micron Semiconductors, and STFC, which allowed a fee waiver for PhD students who could present their work and have the opportunity to integrate with the wider community at HIE-ISOLDE. The success of the event resulted in discussions about continuing this

collaborative format in the future on a biennial basis, with the next host country yet to be decided.

The talks from the workshop can be found on the Indico page:

<https://indico.cern.ch/event/1263114/>

Contribution from Liam Gaffney (University of Liverpool) and David Sharp (University of Manchester)

b. York NPG interviewed about research impact

The University of York's Nuclear Physics Group was recently interviewed by STFC to talk about research impact. Dr Stefanos Paschalis (pictured), Prof David Jenkins, and Dr Pankaj Joshi spoke about the success they had partnering with Kromek to create handheld gamma ray detectors for nuclear security.



Contribution from Dr. Adam Featherstone, University of York

3. Outreach Activity

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4. Media Interactions

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