UK Nuclear Activity

June 2018 Issue 60

In this issue,

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

Nuclear Physics Public Engagement Website: www.stfc.ac.uk/NuclearPhysicsForYou

Nuclear Physics Outreach Poster – order hardcopies from STFC free of charge here

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1. Nuclear Physics Publications for June*

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.

J. High Energy Phys. 2018:108 (2018) https://link.springer.com/article/10.1007/JHEP04%282018%29108
Λ_c^+ production pp collisions at $\sqrt{s}$ = 7 TeV and in p-Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV
ALICE Collaboration, UK Authors: H. A. Andrews, L. S. Barnby, M. Borri, M. Chartier, D. Evans, K. L. Graham, C. Hills, J.P. Iddon, P. G. Jones, A. Jusko, M. Krivda, R. C. Lemmon, R. Lietava, S. W. Lindsay, J. Norman, O. Villalobos Baillie, E. Willsher, N. Zardoshti
*Published 18 April 2018

NIM A 892, 84 (2018) https://www.sciencedirect.com/science/article/pii/S0168900218302948
Position resolution simulations for the inverted-coaxial germanium detector, SIGMA
J.P.Wright[a], L.J.Harkness-Brennan[a], A.J.Boston[a], D.S.Judson[a], M.Labiche[b], P.J.Nolan[a], R.D.Page[a], F.Pearce[a], D.C.Radford[c], J.Simpson[b], C.Unsworth[a]
1 June 2018

Phys. Rev. Lett. 120, 232503 (2018) https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.120.232503
Probing Sizes and Shapes of Nobelium Isotopes by Laser Spectroscopy
S. Raeder[1,2,*], D. Ackermann[3,2], H. Backe[4], R. Beerwerth[5,6], J. C. Berengut[7], M. Block[1,2,8], A. Borschevsky[9], B. Cheal[10], P. Chhetri[2,11], Ch. E. Düllmann[1,2,8], V. A. Dzuba[7], E. Eliav[12], J. Even[13], R. Ferrer[14], V. V. Flambaum[1,7], S. Fritzsche[5,6], F. Giacoppo[1,2], S. Götz[1,8], F. P. Heßberger[1,2], M. Huyse[14], U. Kaldor[12], O. Kaleja[2,15,†], J. Khuyagbaatar[1,2], P. Kunz[16], M. Laatiaoui[1,2], F. Lautenschläger[2,11], W. Lauth[4], A. K. Mistry[1,2], E. Minaya Ramirez[17], W. Nazarewicz[18], S. G. Porsev[19,20], M. S. Safronova[19,21], U. I. Safronova[22], B. Schuetrumpf[15,2], P. Van Duppen[14], T. Walther[11], C. Wraith[10], and A. Yakushev[1,2]
Published 8 June 2018

*Also including missed publications from previous months.

Edited by Elizabeth Cunningham, STFC Particle and Nuclear Physics Outreach Officer.
Elizabeth.Cunningham@stfc.ac.uk or E.Cunningham@surrey.ac.uk

Eur. Phys. J. C 78:466 (2018) https://link.springer.com/article/10.1140/epjc/s10052-018-5881-2
Prompt and non-prompt J/ψ production and nuclear modification at mid-rapidity in p-Pb collisions at $\sqrt{s_{NN}}$ = 5.02
ALICE Collaboration, UK Authors: H. A. Andrews, L. S. Barnby, M. Borri, M. Chartier, D. Evans, K. L. Graham, C. Hills, J.P. Iddon, P. G. Jones, A. Jusko, M. Krivda, R. C. Lemmon, R. Lietava, S. W. Lindsay, J. Norman, O. Villalobos Baillie, E. Willsher, N. Zardoshti
Published online 8 June 2018

Phys. Lett. B 781, 8 (2018) https://www.sciencedirect.com/science/article/pii/S0370269318302570
First measurement of Ξ_c production in pp collisions at $\sqrt{s}$ = 7 TeV
ALICE Collaboration, UK Authors: H. A. Andrews, L. S. Barnby, M. Borri, M. Chartier, D. Evans, K. L. Graham, C. Hills, J.P. Iddon, P. G. Jones, A. Jusko, M. Krivda, R. C. Lemmon, R. Lietava, S. W. Lindsay, J. Norman, O. Villalobos Baillie, E. Willsher, N. Zardoshti
Published 10 June 2018

Phys. Lett. B 781, 112 (2018) https://www.sciencedirect.com/science/article/pii/S037026931830248X
The $d^*(2380)$ in Neutron Stars — A New Degree of Freedom?
I.Vidaña[a], M.Bashkanov[b], D.P.Watts[b], A.Pastore[c]
Published 10 June 2018

Phys. Lett. B 781, 20 (2018) https://www.sciencedirect.com/science/article/pii/S0370269318302478
Longitudinal asymmetry and its effect on pseudorapidity distributions in Pb–Pb collisions at $\sqrt{s_{NN}}$ = 2.76 TeV
ALICE Collaboration, UK Authors: H. A. Andrews, L. S. Barnby, M. Borri, M. Chartier, D. Evans, K. L. Graham, C. Hills, P. G. Jones, A. Jusko, M. Krivda, R. C. Lemmon, R. Lietava, S. W. Lindsay, J. Norman, O. Villalobos Baillie, E. Willsher, N. Zardoshti
Published 10 June 2018

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2. News to Report

a. Surrey to host UK-Russia Researcher's Link Workshop

University of Surrey has won a grant from British Council to support a workshop entitled "Nuclear Theory for Nuclear Experiments". The workshop will bring together early career researchers (postdocs, lecturers) from the UK and Russia. It will take place on 18-21 December, the week before Christmas.

The main focus of the workshop will be on modern **experiments in nuclear physics** and **nuclear theories** that can help interpret them, including discussions on how they can contribute to generate knowledge beyond their immediate areas. A key topic will be new horizons for few-body physics, nuclear structure, fusion and fission reaction research in connection with recent upgrade of radioactive beams facilities at JINR in Dubna and future plans to build there a $250M radioactive isotope factory. The emphasis will be centred on microscopic approaches to nuclear reactions that will inform design of experiments at these facilities aimed to explore the limit of nuclear existence. In conjunction, there will be discussions of fundamental interactions in nuclear physics, and their application to relevant astrophysical problems, such as the equation of state of infinite matter with implications to neutron star structure and supernovae explosions.

In addition to scientific session, the workshop will also discuss nuclear data needs for industry and outreach activities in both countries. A careers session will be organized as well, presenting funding opportunities for early career researchers, including support for collaborations.

Participations of 24 researchers (with no more than 10 years of post-doctoral experience prior to the workshop but with allowances made for career break) from the UK and Russia (12 from each country) will be supported by the British Council Researchers Link Grant (5 nights in a hotel, travel and local expenses, visa fees for Russian participants). Those interested are encouraged to submit an abstract. The **deadline** for abstract submission for the UK participants is **16 November 2018**. Any enquiries should be send to Natasha Timofeyuk (n.timofeyuk@surrey.ac.uk) and Arnau Rios (a.rios@surrey.ac.uk).

Contribution by Natasha Timofeyuk n.timofeyuk@surrey.ac.uk (Surrey)

b. STFC Public Engagement Early-Career Researcher Forum

Call for Applications

Closing date: 16:00, Friday 20 July 2018

The STFC Public Engagement Early-Career Researcher Forum (the 'PEER Forum') will support talented scientists and engineers in the early stages of their career to develop their public engagement and outreach goals, to ensure the next generation of STFC scientists and engineers continue to deliver the highest quality of purposeful, audience-driven public engagement.

PEER Forum aims

- To foster peer learning and peer support between early career scientists and engineers with a passion for public engagement and outreach.
- To improve understanding of the support STFC provides for public engagement and outreach (including funding mechanisms, evaluation, and reporting) and how to successfully utilise this support.
- To stimulate discussions that help to develop and influence STFC's approaches to public engagement.

What will participation in the Forum involve?

Participants in the PEER Forum will meet face-to-face at least twice per year to share learning and to participate in session that will strengthen the depth and breadth of their understanding of public engagement and outreach.

Who can apply to join the Forum?

The PEER Forum is for practising early-career scientists and engineers who have an ambition to carry out excellent public engagement alongside, and complimentary to, their career in science or engineering. We are seeking Forum members from across the breadth of STFC's pure and applied science and technology remit.

The specific personal requirements of PEER Forum membership are that members:

- Have completed their highest level of academic qualification within the last ten years (not including any career breaks)
- Are employed at a Higher Education Institute, or a research-intensive Public Sector Research Organisation or Research Laboratory (including STFC's own national laboratories)
- Work within a science and technology field in STFC's remit, or with a strong inter-disciplinary connection to STFC's remit, or use an STFC facility to enable their own research
- Demonstrate a highly credible track record of experience in their field, corresponding to the length of their career to date
- Demonstrate a highly credible track record of leading and delivering public engagement or outreach
- Are keen communicators with a willingness to contribute to the success of a UK-wide network

Further information

For details on how to apply please go to our website or contact Dr Elizabeth Cunningham elizabeth.cunningham@stfc.ac.uk.

Contribution by Elizabeth Cunningham elizabeth.cunningham@stfc.ac.uk (STFC/Surrey)

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3. Outreach Activity

Café Scientifique

On 12th June Dr Daria Sokhan from the University of Glasgow performed in the French-speaking Café Scientifique at the Glasgow Science Festival. Engaging the audience with the "Inner life of protons / La vie privée des protons".

Contribution by Daria Sokhan Daria.Sokhan@glasgow.ac.uk (Glasgow)

Public Talks

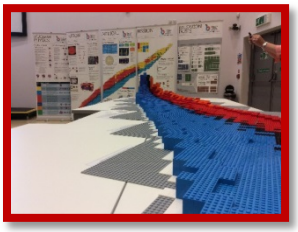
In the last month Marina Petri from the University of York has given two public talks, both titled: Exotic Nuclei: on the edge of existence. The first was at St Peter's School in York to over 100 students and the second was at Northumbria University for the North East Branch of the Institute of Physics.

Contribution by Marina Petri marina.petri@york.ac.uk (York)

Binding Blocks CERN day at the National Science Learning Centre

On Friday 15th June, CERN day was held at York's NSLC. This demonstrated various different teaching methods for Nuclear Physics to 40 teachers from across the country representing all the key stages of school. The full event ran from 9am to 4pm.

During this event the teacher's built the Binding Blocks chart. They also attended workshops on Proton Therapy as well as cycling the hot CNO, Scattering reactions, incorporating Binding Blocks with Minecraft and a reading session of "The Stuff Stars Are Made Of" written by Dr Adam Tuff.



Of these events all of the teachers attended the Binding Blocks workshop as well as the Hot CNO Cycle, Binding Blocks with Minecraft and the Scattering Reactions workshop. The Proton Treatment workshop was aimed at College teachers, additionally the reading session was aimed towards primary school teachers.

The day was extremely well received and the teachers engaged with all the activities very well. Additionally, due to the popularity of the reading session it had to be read several times to the teachers during the event.

Contribution by James Quine
jaq504@york.ac.uk (York)

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4. Media Interactions

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