UK Nuclear Activity

November 2018 Issue 65

In this issue,

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

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1. Nuclear Physics Publications for November*

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. C 98, 044901 (2018) https://journals.aps.org/prc/abstract/10.1103/PhysRevC.98.044901
Neutral pion and η meson production at midrapidity 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, 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 4 October 2018

J. High Energy Phys. 10 (2018) 61 https://link.springer.com/article/10.1007/JHEP10(2018)061
Measurements of low-pT electrons from semileptonic heavy-flavour hadron decays at mid-rapidity in pp and 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, J.P. Iddon, O. Jevons, P. G. Jones, A. Jusko, M. Krivda, J. Kvapil, R. C. Lemmon, R. Lietava, S. W. Lindsay, O. Villalobos Baillie, E. Willsher, N. Zardoshti
*Published 9 October 2018

Physics Letters B 785, 320 (2018) https://www.sciencedirect.com/science/article/pii/S0370269318304982
Azimuthally-differential pion femtoscopy relative to the third harmonic event plane 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, 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 October 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

Physics Letters B 785, 419 (2018) https://www.sciencedirect.com/science/article/pii/S0370269318306622
Inclusive J/ψ production in Xe–Xe collisions at $\sqrt{s_{NN}}$ = 5.44 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, O. Jevons, P. G. Jones, A. Jusko, M. Krivda, J. Kvapil, R. C. Lemmon, R. Lietava, S. W. Lindsay, O. Villalobos Baillie, E. Willsher, N. Zardoshti
*Published 10 October 2018

J. High Energy Phys. 10 (2018) 139 https://link.springer.com/article/10.1007/JHEP10(2018)139
Medium modification of the shape of small-radius jets in central 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, J.P. Iddon, O. Jevons, P. G. Jones, A. Jusko, M. Krivda, J. Kvapil, R. C. Lemmon, R. Lietava, S. W. Lindsay, O. Villalobos Baillie, E. Willsher, N. Zardoshti
*Published 22 October 2018

J. High Energy Phys. 10 (2018) 174 https://link.springer.com/article/10.1007/JHEP10(2018)174
Measurement of D^0, D^+, D^{*+} and D_s^+ production in Pb-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 29 October 2018

Phys. Rev. Lett. 121, 182501 (2018) https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.121.182501
Superallowed α Decay to Doubly Magic ^{100}Sn
K. Auranen[1,*], D. Seweryniak[1], M. Albers[1], A. D. Ayangeakaa[1,†], S. Bottoni[1,‡], M. P. Carpenter[1], C. J. Chiara[1,2,§], P. Copp[1,3], H. M. David[1,‖], D. T. Doherty[4,¶], J. Harker[1,2], C. R. Hoffman[1], R. V. F. Janssens[5,6], T. L. Khoo[1], S. A. Kuvin[1,7], T. Lauritsen[1], G. Lotay[8], A. M. Rogers[1,**], J. Sethi[1,2], C. Scholey[9], R. Talwar[1], W. B. Walters[2], P. J. Woods[4], and S. Zhu[1]
*Published 30 October 2018

J. High Energy Phys. 11 (2018) 13 https://link.springer.com/article/10.1007/JHEP11(2018)013
Transverse momentum spectra and nuclear modification factors of charged particles in pp, p-Pb and Pb-Pb collisions at the LHC
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 6 November 2018

Phys. Rev. Lett. 121, 192502 (2018) https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.121.192502
Pseudospin Symmetry and Microscopic Origin of Shape Coexistence in the ^{78}Ni Region: A Hint from Lifetime Measurements
C. Delafosse[1], D. Verney[1,*], P. Marević[1,2], A. Gottardo[1], C. Michelagnoli[3], A. Lemasson[3], A. Goasduff[4], J. Ljungvall[5], E. Clément[3], A. Korichi[5], G. De Angelis[4], C. Andreoiu[6], M. Babo[3,1], A. Boso[7], F. Didierjean[8], J. Dudouet[9], S. Franchoo[1], A. Gadea[10], G. Georgiev[5], F. Ibrahim[1], B. Jacquot[3], T. Konstantinopoulos[5], S. M. Lenzi[7], G. Maquart[9], I. Matea[1], D. Mengoni[7], D. R. Napoli[4], T. Nikšić[11], L. Olivier[1], R. M. Pérez-Vidal[10], C. Portail[1], F. Recchia[7], N. Redon[9], M. Siciliano[4], I. Stefan[1], O. Stezowski[9], D. Vretenar[11], M. Zielinska[12], D. Barrientos[13], G. Benzoni[14], B. Birkenbach[15], A. J. Boston[16], H. C. Boston[16], B. Cederwall[17], L. Charles[8], M. Ciemala[18], J. Collado[19], D. M. Cullen[20], P. Désesquelles[5], G. de France[3], C. Domingo-Pardo[10], J. Eberth[15], V. González[19], L. J. Harkness-Brennan[16], H. Hess[15], D. S. Judson[16], A. Jungclaus[21], W. Korten[12], A. Lefevre[3], F. Legruel[3], R. Menegazzo[7], B. Million[14], J. Nyberg[22], B. Quintana[23], D. Ralet[5], P. Reiter[15], F. Saillant[3], E. Sanchis[19], Ch. Theisen[12], and J. J. Valiente Dobon[4]
Published 9 November 2018

Phys. Lett. B 786, 94 (2018) https://www.sciencedirect.com/science/article/pii/S0370269318307329
Shape coexistence and mixing of low-lying 0^+ states in ^{96}Sr
S.Cruz[ab], P.C.Bender[b], R.Krücken[ab], K.Wimmer[cd], F.Ames[b], C.Andreoiu[e], R.A.E.Austin[f], C.S.Bancroft[d], R.Braid[d], T.Bruhn[b], W.N.Catford[g], A.Cheeseman[b], A.Chester[e], D.S.Cross[e], C.Aa.Diget[h], T.Drake[i], A.B.Garnsworthy[b], G.Hackman[b], R.Kanungo[fb], A.Knapton[g], W.Korten[jb], K.Kuhn[d], J.Lassen[b], R.Laxdal[b], M.Marchetto[b], A.Matta[gk], D.Miller[b], M.Moukaddam[b], N.A.Orr[k], N.Sachmpazidi[d], A.Sanetullaev[fb], C.E.Svensson[l], N.Terpstra[d], C.Unsworth[b], P.J.Voss[e]
Published 10 November 2018

Phys. Lett. B 786, 355 (2018) https://www.sciencedirect.com/science/article/pii/S0370269318307627
Change in structure between the $I = 1/2$ states in ^{181}Tl and ^{177,179}Au
J.G.Cubiss[ab], A.E.Barzakh[c], A.N.Andreyev[adb], M.Al Monthery[a], N.Althubiti[e], B.Andel[f], S.Antalic[f], D.Atanasov[g], K.Blaum[g], T.E.Cocolios[heb], T.Day Goodacre[be], R.P.de Groote[h], A.de Roubin[g], G.J.Farooq-Smith[eh], D.V.Fedorov[c], V.N.Fedosseev[b], R.Ferrer[h], D.A.Fink[bi], L.P.Gaffney[h], L.Ghys[hj], A.Gredley[k], R.D.Harding[ab], F.Herfurth[l], M.Huyse[h], N.Imai[m], D.T.Joss[k], U.Köster[n], S.Kreim[bg], V.Liberati[o], D.Lunney[p], K.M.Lynch[be], V.Manea[bp], B.A.Marsh[b], Y.Martinez Palenzuela[h], P.L.Molkanov[c], P.Mosat[f], D.Neidherr[l], G.G.O'Neill[k], R.D.Page[k], T.J.Procter[be], E.Rapisarda[hb], M.Rosenbusch[q], S.Rothe[br], K.Sandhu[o], L.Schweikhard[q], M.D.Seliverstov[c], S.Sels[h], P.Spagnoletti[o], V.L.Truesdale[a], C.Van Beveren[h], P.Van Duppen[h], M.Veinhard[b], M.Venhart[s], M.Veselský[s], F.Wearing[k], A.Welker[bt], F.Wienholtz[bq], R.N.Wolf[qg], S.G.Zemlyanoy[u], K.Zuber[t]
Published 10 November 2018

NIM A 908, 148 (2018) https://www.sciencedirect.com/science/article/pii/S016890021831012X
Comparison of the pulse shape discrimination performance of plastic scintillators coupled to a SiPM
M.P.Taggart, P.J.Sellin
Published 11 November 2018

NIM A 908, 401 (2018) https://www.sciencedirect.com/science/article/pii/S0168900218309434
LUX trigger efficiency
D.S.Akerib[123], S.Alsum[4], H.M.Araújo[5], X.Bai[6], J.Balajthy[7], P.Beltrame[8], E.P.Bernard[9], A.Bernstein[10], T.P.Biesiadzinski[123], E.M.Boulton[91112], B. Boxer[13], P.Brás[14], S. Burdin[13], D.Byram[1516], M.C.Carmona-Benitez[17], C.Chan[18], J.E.Cutter[7], T.J.R.Davison[8], E.Druszkiewicz[19], S.R.Fallon[20], A.Fan[23], S.Fiorucci[1118], R.J.Gaitskell[18], J.Genovesi[20], C.Ghag[21], M.G.D.Gilchriese[11], E. Grace[17], C. Gwilliam[13], C.R.Hall[22], S.J.Haselschwardt[23], S.A.Hertel[2411], D.P.Hogan[9], M.Horn[169], D.Q.Huang[18], C.M.Ignarra[23], R.G.Jacobsen[9], W.Ji[123], K.Kamdin[911], K.Kazkaz[10], D.Khaitan[19], R.Knoche[22], E.V. Korolkova[25], S. Kravitz[11], V.A. Kudryavtsev[25], B.G.Lenardo[710], K.T.Lesko[11], J.Liao[18], J. Lin[9], A.Lindote[14], M.I.Lopes[14], A.Manalaysay[7], R.L.Mannino[264], N.Marangou[5], M.F.Marzioni[8], D.N.McKinsey[911], D.-M.Mei[15], M.Moongweluwan[19], J.A.Morad[7], A.St.J.Murphy[8], C.Nehrkorn[23], H.N.Nelson[23], F.Neves[14], K.C.Oliver-Mallory[911], K.J.Palladino[4], E.K.Pease[911], G. Rischbieter[20], C.Rhyne[18], P. Rossiter[25], S.Shaw[2321], T.A.Shutt[123], C.Silva[14], M.Solmaz[23], V.N.Solovov[14], P.Sorensen[11], T.J.Sumner[5], M.Szydagis[20], D.J.Taylor[16], W.C.Taylor[18], B.P.Tennyson[12], P.A.Terman[26], D.R.Tiedt[6], W.H.To[27], M.Tripathi[7], L.Tvrznikova[91112], U.Utku[21], S.Uvarov[7], V.Velan[9], J.R.Verbus[18], R.C.Webb[26], J.T.White[26a], T.J.Whitis[123], M.S.Witherell[11], F.L.H.Wolfs[19], D. Woodward[17], J.Xu[10], K.Yazdani[5], C.Zhang[15]
Published 11 November 2018

Phys. Rev. C 98, 054312 (2018) https://journals.aps.org/prc/abstract/10.1103/PhysRevC.98.054312
Millisecond $23/2^+$ isomers in the N=79 isotones ^{133}Xe and ^{135}Ba
L. Kaya[1,*], A. Vogt[1], P. Reiter[1], C. Müller-Gatermann[1], M. Siciliano[2,3], L. Coraggio[4], N. Itaco[4,5], A. Gargano[4], K. Arnswald[1], D. Bazzacco[6], B. Birkenbach[1], A. Blazhev[1], A. Bracco[7], B. Bruyneel[8], L. Corradi[3], F. C. L. Crespi[7], G. de Angelis[3], M. Droste[1], J. Eberth[1], E. Farnea[6,†], E. Fioretto[3], C. Fransen[1], A. Gadea[9], A. Giaz[7], A. Görgen[10,11,12], A. Gottardo[3], K. Hadyńska-Klęk[3], H. Hess[1], R. Hetzenegger[1], R. Hirsch[1], P. R. John[13], J. Jolie[1], A. Jungclaus[14], W. Korten[11], S. Leoni[7], L. Lewandowski[1], S. Lunardi[2,6], R. Menegazzo[6], D. Mengoni[15,2,6], C. Michelagnoli[16], T. Mijatović[17], G. Montagnoli[2,6], D. Montanari[18], D. Napoli[3], Zs. Podolyák[19], G. Pollarolo[20], F. Recchia[2,6], D. Rosiak[1], N. Saed-Samii[1], E. Şahin[10], F. Scarlassara[2,6], M. Seidlitz[1], P.-A. Söderström[13], A. M. Stefanini[3], O. Stezowski[21], S. Szilner[17], B. Szpak[22], C. Ur[6], J. J. Valiente-Dobón[3], M. Weinert[1], K. Wolf[1], and K. O. Zell[1]
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2. News to Report

a. Global Challenges Research Fund – African Workshop

Philippos Papadakis from the University of Liverpool and Carl Unsworth from STFC Daresbury Laboratory joined Tanya Hutton from the University of Cape Town at iThemba LABS in South Africa to teach at a workshop for African post-graduate students on analysis techniques used in nuclear physics. The trip was funded by an STFC Global Challenges Research Fund grant held by Alison Bruce at the University of Brighton.

The workshop, which was attended by students from seven African nations, was arranged by the South African Institute for Nuclear Technology and Science (SAINTS) and covered a range of topics including how to read and process experimental data, fitting functions to data, performing simulations with GEANT4, and producing publication quality plots. There was excellent feedback from

students attending the workshop and the aim is to run it again in future.

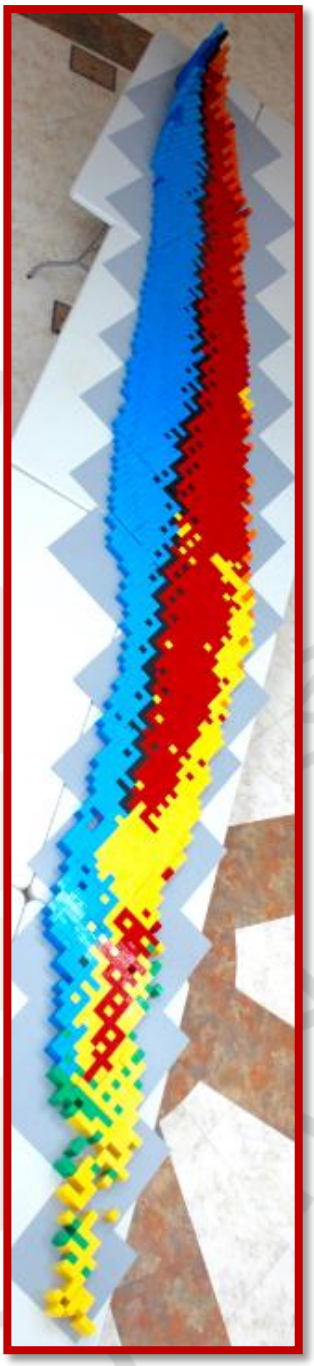
Contribution by Carl Unsworth carl.unsworth@stfc.ac.uk (STFC Daresbury Laboratory)

b. Nuclear theory for nuclear experiments: last-minute call for contributions

The British Council is sponsoring a UK-Russia researchers link workshop at the University of Surrey from 18 to 21 December. The aim is to bring together early career researchers from the two countries to actively engage in research discussions for future projects. By engaging postdoctoral researchers, we want to look at future directions in the field where UK and Russian mixed input could lead to ground-breaking new research ideas.
There is still space in the program to accommodate more UK participants, which would benefit from international exposure in a UK-run workshop. As a reminder, the British Council funding will provide full travel and accommodation expenses for all UK participants.
The workshop will discuss a mix of state-of-the-art theoretical and experimental techniques in nuclear physics. An outreach as well as a careers session will run alongside the scientific program. More information can be found here:
https://www.surrey.ac.uk/events/20181218-nuclear-theory-nuclear-experiments
Contribution by Natasha Timofeyuk n.timofeyuk@surrey.ac.uk (Surrey)

c. KICK-START PhD Internships for Public Engagement

The first of a series of KICK-START Internships for Public Engagement in nuclear physics is now available for PhD students from across the UK as part of the Binding Blocks programme at University of York. These internships will support talented PhD students to develop their own public engagement, educational -, and/or outreach programmes. The majority of the internship project should be hosted at one or more institutions away from the PhD student's home institution to ensure a broad impact across the UK Nuclear Physics Community.



The internship is fully funded and is supported through training and mentoring at University of York and through peer learning and feedback across the Binding Blocks team. The application deadline is 17th Jan 2019, and interested applicants are encouraged to contact Christian Diget as soon as possible to discuss their application further. Additional details about the KICK-START internships can be found here:
https://www.york.ac.uk/physics/public-and-schools/secondary/binding-blocks/kick-start-internship/
Contribution by Christian Aaen Diget christian.diget@york.ac.uk (York)

3. Outreach Activity

IOP Public Lecture

On 13th November Bill Gelletly and Annika Lohstroh from the Physics Department at the University of Surrey gave an IOP South Central Branch lecture on 'Accelerators - A gift from Nuclear Physics or What have particle accelerators ever done for us?' to an audience of 75 people. The talk detailed current and future applications of particle accelerators and ended with the recent development of accelerator systems. The talk was followed by a tour of the Surrey Ion Beam Centre.

Contribution by Elizabeth Cunningham e.cunningham@surrey.ac.uk (Surrey)

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4. Media Interactions

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