UK Nuclear Activity

June 2014 Issue 12

In this issue,

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

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

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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 let Wendy Ellison wendy.ellison@stfc.ac.uk , STFC Press Officer, know. 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 89, 051302(R) http://journals.aps.org/prc/abstract/10.1103/PhysRevC.89.051302
Coulomb displacement energies as a probe for nucleon pairing in the f7/2 shell
A. Kankainen[*], T. Eronen[†], D. Gorelov, J. Hakala, A. Jokinen, V. S. Kolhinen, M. Reponen, J. Rissanen[‡], A. Saastamoinen[§], V. Sonnenschein, and J. Äystö[‖]
*Published 30 May 2014

NIM A 748, 91 (2014) http://www.sciencedirect.com/science/article/pii/S0168900214002137
A $LaBr_3$: Ce fast-timing array for DESPEC at FAIR
Oliver J. Roberts[a,], Alison M. Bruce[a], Patrick H. Regan[b, e], Zsolt Podolyák[b], Christopher M. Townsley[b], John F. Smith[c], Kieran F. Mulholland[c], Andrew Smith[d]
Published 1 June 2014

Phys. Lett. B 733, 52 (2014) http://www.sciencedirect.com/science/article/pii/S0370269314002482
Collectivity in A ~ 70 nuclei studied via lifetime measurements in ^{70}Br and ^{68,70}Se
A.J. Nichols[a,], R. Wadsworth[a], H. Iwasaki[b], K. Kaneko[c], A. Lemasson[b, d], G. de Angelis[e], V.M. Bader[b], T. Baugher[b], D. Bazin[b], M.A. Bentley[a], J.S. Berryman[b], T. Braunroth[f], P.J. Davies[a], A. Dewald[f], C. Fransen[f], A. Gade[b], M. Hackstein[f], J. Henderson[a], D.G. Jenkins[a], D. Miller[g], C. Morse[b], I. Paterson[a], E.C. Simpson[a], S.R. Stroberg[b], D. Weisshaar[b], K. Whitmore[b], K. Wimmer[b]
Published 2 June 2014

Phys. Rev. Lett. 112, 222501 (2014) http://journals.aps.org/prl/abstract/10.1103/PhysRevLett.112.222501
Observation of the β-Delayed γ-Proton Decay of ^{56}Zn and its Impact on the Gamow-Teller Strength Evaluation
S. E. A. Orrigo[1,*], B. Rubio[1], Y. Fujita[2,3], B. Blank[4], W. Gelletly[5], J. Agramunt[1], A. Algora[1,6], P. Ascher[4], B. Bilgier[7],

*Also including missed publications from May.

L. Cáceres[8], R. B. Cakirli[7], H. Fujita[3], E. Ganioğlu[7], M. Gerbaux[4], J. Giovinazzo[4], S. Grévy[4], O. Kamalou[8], H. C. Kozer[7], L. Kucuk[7], T. Kurtukian-Nieto[4], F. Molina[1,9], L. Popescu[10], A. M. Rogers[11], G. Susoy[7], C. Stodel[8], T. Suzuki[3], A. Tamii[3], and J. C. Thomas[8]
Published 3 June 2014

Phys. Rev. C 89, 061301(R) http://journals.aps.org/prc/abstract/10.1103/PhysRevC.89.061301
Chiral two- and three-nucleon forces along medium-mass isotope chains
V. Somà[1,2,3,*], A. Cipollone[4], C. Barbieri[4,†], P. Navrátil[5], and T. Duguet[3,6,‡]
Published 5 June 2014

Phys. Rev. C 89, 064307 http://journals.aps.org/prc/abstract/10.1103/PhysRevC.89.064307
Upper limit on the two-photon emission branch for the $0_2^+ \rightarrow 0_1^+$ transition in ^{98}Mo
J. Henderson[1], D. G. Jenkins[1,2], P. J. Davies[1], M. Alcorta[3,*], M. P. Carpenter[3], B. P. Kay[3], C. J. Lister[3,†], and S. Zhu[3]
Published 10 June 2014

Phys. Rev. C 89, 064309 http://journals.aps.org/prc/abstract/10.1103/PhysRevC.89.064309
α decay of the $\pi h_{11/2}$ isomer in ^{164}Ir
M. C. Drummond[1], D. O'Donnell[1,*], R. D. Page[1,†], D. T. Joss[1], L. Capponi[2], D. M. Cox[1], I. G. Darby[3,‡], L. Donosa[1], F. Filmer[1], T. Grahn[3], P. T. Greenlees[3], K. Hauschild[3,4], A. Herzan[3], U. Jakobsson[3], P. M. Jones[3,§], R. Julin[3], S. Juutinen[3], S. Ketelhut[3,‖], M. Leino[3], A. Lopez-Martens[3,4], A. K. Mistry[1], P. Nieminen[3], P. Peura[3], P. Rahkila[3], S. Rinta-Antila[3], P. Ruotsalainen[3], M. Sandzelius[3], J. Sarén[3], B. Sayğı[1], C. Scholey[3], J. Simpson[5], J. Sorri[3], A. Thornthwaite[1], and J. Uusitalo[3]
Published 16 June 2014

Phys. Rev. Lett. 112, 242502 (2014) https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.112.242502
Neutron Skin of ^{208}Pb from Coherent Pion Photoproduction
C. M. Tarbert[1], D. P. Watts[1,*], D. I. Glazier[1], P. Aguar[2], J. Ahrens[2], J. R. M. Annand[3], H. J. Arends[2], R. Beck[2,4], V. Bekrenev[5], B. Boillat[6], A. Braghieri[7], D. Branford[1], W. J. Briscoe[8], J. Brudvik[9], S. Cherepnya[10], R. Codling[3], E. J. Downie[3], K. Foehl[1], P. Grabmayr[11], R. Gregor[12], E. Heid[2], D. Hornidge[13], O. Jahn[2], V. L. Kashevarov[10], A. Knezevic[14], R. Kondratiev[15], M. Korolija[14], M. Kotulla[6], D. Krambrich[2,4], B. Krusche[6], M. Lang[2,4], V. Lisin[15], K. Livingston[3], S. Lugert[12], I. J. D. MacGregor[3], D. M. Manley[16], M. Martinez[2], J. C. McGeorge[3], D. Mekterovic[14], V. Metag[12], B. M. K. Nefkens[9], A. Nikolaev[2,4], R. Novotny[12], R. O. Owens[3], P. Pedroni[7], A. Polonski[15], S. N. Prakhov[9], J. W. Price[9], G. Rosner[3], M. Rost[2], T. Rostomyan[7], S. Schadmand[12], S. Schumann[2,4], D. Sober[17], A. Starostin[9], I. Supek[14], A. Thomas[2], M. Unverzagt[2,4], Th. Walcher[2], L. Zana[1], and F. Zehr[6] ((Crystal Ball at MAMI and A2 Collaboration))
Published 18 June 2014

Phys. Lett. B 734, 216 (2014) http://www.sciencedirect.com/science/article/pii/S0370269314003748
Centrality, rapidity and transverse momentum dependence of J/ψ suppression in Pb–Pb collisions at $\sqrt{s_{NN}}$ = 2.76 TeV
B. Abelev et al., ALICE Collaboration, UK Authors: D. Alexandre, L.S. Barnby, D. Evans, M. A. S. Figueredo, L.D. Hanratty, P.G. Jones, A. Jusko, M. Krivda, G.R. Lee, R.C. Lemmon, R. Lietava, R. Romita, P.A. Scott, O. Villalobos-Baillie
Published 27 June 2014

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2. News to Report

a. Ten Years of GAMMAPOOL. In 2013 we celebrate the first ten years of the Gamma-Ray Spectroscopy Pool (GAMMAPOOL) – the European collaboration for γ-ray spectroscopy research. During these years the experimental resources of GAMMAPOOL have been distributed to several large-scale facilities and infrastructures to allow spectroscopy campaigns, producing a large amount of excellent physics results. The resulting experiments and publications are a testimony to the diligence of the researchers, the drive and focus of the community and the commitment of the host laboratories to the campaigns.
With this brochure we celebrate this outstandingly successful endeavour. None of it would have been possible without a strong will in the community to pool resources, use them in innovative new ways in large campaigns and invite the whole community in to contribute scientifically to these campaigns. The success of GAMMAPOOL is mostly down to the user communities formed

around the different campaigns, and they deserve our thanks and appreciation. May this spirit of scientific partnership continue for many more years.
The brochure is available online at http://gammapool.lnl.infn.it/index/home/Gammapool_10_years_celebration.htm
Contribution by Rolf-Dietmar Herzberg, r.herzberg@liverpool.ac.uk (Liverpool)

b. Prize at ARIS2014. The 2nd Conference on "Advances in Radioactive Isotope Science" (ARIS2014) took place in Tokyo, Japan from June 1 to 6, 2014. Thomas Henry (York) was one of the seven winners (out of about 200) of a prize for his poster entitled 'Mirror spectroscopy in the upper *fp*-shell with GRETINA', which discussed some results from the NSCL experiment investigating mirror energy differences in that region.
Contribution by Gemma Wilson gemma.wilson@york.ac.uk and Thomas Henry twh509@york.ac.uk (York)

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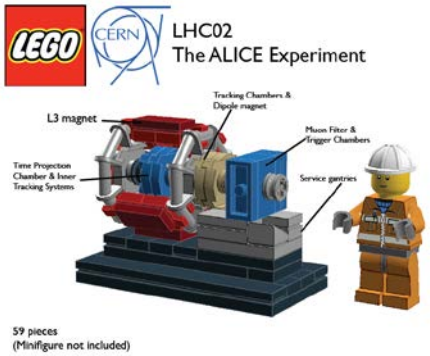
3. Outreach Activity

Glasgow's public 'Meets the Experts'. Physicists from the University of Glasgow's nuclear physics group upped the ante of their outreach activities. Following a series of very well received school visits in local primary and secondary schools in the greater Glasgow area by Drs Hamilton, McKinnon and Seitz in the recent month, the group's outreach team engaged with a wider audience at Glasgow's Science Centre (http://www.glasgowsciencecenter.org) in several of their 'Meet the Expert' events.

Several hundred visitors took the opportunity to engage with the nuclear physicists from the University of Glasgow and learn about fundamental research, applications of nuclear physics technology in medicine and the role of radioactivity in the environment. The topics were brought to life with some hands-on measurements using Geiger-counter and NaI spectrometers analysing old watches and mineral samples as well as displaying radiometric maps of the University of Glasgow and the Royal Mile in Edinburgh.
The Nuclear Physics group was also well represented at the Glasgow Science Festival 'Science Sunday', held on Father's Day on the campus of the University of Glasgow, with hundreds of visitors of all ages cherishing the opportunity, including Prof Namba from the Fukushima University's Institute for Environmental Radioactivity, who most probably claims the prize for furthest travel.
Contribution by Bjoern Seitz bjoern.seitz@glasgow.ac.uk (Glasgow)

Experiments with Lego. Marielle Chartier's 7-year old son enjoyed being the first child in the world to put together a very special Lego set: the micro model of the ALICE experiment at the LHC!



It went some way in explaining to him what Mum and Dad do when they go to Geneva... The Lego model was designed by Liverpool Physics PhD student and Lego enthusiast Nathan Readioff from the HEP group for the new Liverpool ALICE team who joined the experiment last year. Nathan's design will now be publicised to the ~1300 ALICE collaborators worldwide and it is expected it to be very popular!

Contribution by Marielle Chartier m.chartier@liverpool.ac.uk (Liverpool)

4. Media Interactions

Neutron skin turns out to be soft.
Read more: APS Synopsis