UK Nuclear Activity

September 2016 Issue 39

In this issue,

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1. Nuclear Physics Publications for September*

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 94, 021602(R) https://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.021602
Evidence of strong dynamic core excitation in ^{19}C resonant break-up
J. A. Lay[1,2,*], R. de Diego[3], R. Crespo[3], A. M. Moro[4], J. M. Arias[4], and R. C. Johnson[5]
*Published 24 August 2016

Phys. Rev. C 94, 034302 (2016) http://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.034302
Measurement of picosecond lifetimes in neutron-rich Xe isotopes
S. Ilieva[1,*], Th. Kröll[1], J.-M. Régis[2], N. Saed-Samii[2], A. Blanc[3], A. M. Bruce[4], L. M. Fraile[5], G. de France[6], A.-L. Hartig[1], C. Henrich[1], A. Ignatov[1], M. Jentschel[3], J. Jolie[2], W. Korten[7], U. Köster[3], S. Lalkovski[4,8], R. Lozeva[9], H. Mach[5,†], N. Mărginean[10], P. Mutti[3], V. Paziy[5], P. H. Regan[11,12], G. S. Simpson[13,14], T. Soldner[3], M. Thürauf[1], C. A. Ur[10], W. Urban[15], and N. Warr[2]
Published 1 September 2016

EPJ Web of Conferences 123, 01001 (2016) http://dx.doi.org/10.1051/epjconf/201612301001
High-K isomers: some of the questions
P.M. Walker,
Published 5 September 2016

*Also including missed publications from previous months.

EPJ Web of Conferences 123, 01002 (2016) http://dx.doi.org/10.1051/epjconf/201612301002
Multi-quasiparticle high-K isomeric states in deformed nuclei
F. R. Xu[1,2], Y. Shi[1], H. L. Liu[1], W. Y. Liang[1], P. M. Walker[3] and G. D. Dracoulis[4]
Published 5 September 2016

EPJ Web of Conferences 123, 02002 (2016) http://dx.doi.org/10.1051/epjconf/201612302002
β-decay spectroscopy of neutron-rich ^{160,161,162}Sm isotopes
Z. Patel[1,2a], Zs. Podolyák[1], P. M. Walker[1], P. H. Regan[1,3], P.-A. Söderström[2], H. Watanabe[2,4,5], E. Ideguchi[6,7], G. S. Simpson[8], S. Nishimura[2], F. Browne[2,10], P. Doornenbal[2], G. Lorusso[2,3], S. Rice[1,2], L. Sinclair[2,11], T. Sumikama[12], J. Wu[2,9], Z. Y. Xu[13], N. Aoi[6,7], H. Baba[2], F. L. Bello Garrote[14], G. Benzoni[15], R. Daido[7], Zs. Dombrádi[22], Y. Fang[7], N. Fukuda[2], G. Gey[8], S. Go[16], A. Gottardo[17], N. Inabe[2], T. Isobe[2], D. Kameda[2], K. Kobayashi[18], M. Kobayashi[16], T. Komatsubara[19,20], I. Kojouharov[21], T. Kubo[2], N. Kurz[21], I. Kuti[22], Z. Li[23], H. L Liu[24], M. Matsushita[16], S. Michimasa[16], C.-B. Moon[25], H. Nishizuka[7], I. Nishizuka[12], A. Odahara[7], E. Şahin[14], H. Sakurai[2,13], H. Schaffner[21], H. Suzuki[2], H. Takeda[2], M. Tanaka[7], J. Taprogge[26], Zs. Vajta[22], F. R. Xu[9], A. Yagi[7]and R. Yokoyama[16]
Published 5 September 2016

EPJ Web of Conferences 123, 04003 (2016) http://dx.doi.org/10.1051/epjconf/201612304003
Search for bound-state electron+positron pair decay
F. Bosch[1], S. Hagmann[1], P.-M. Hillenbrand[1], G. J. Lane[2], Yu. A. Litvinov[1,3a], M. W. Reed[2b], M. S. Sanjari[1], Th. Stöhlker[1,4,5], S. Yu. Torilov[6], X. L. Tu[1,3,7] and P. M. Walke[8]
Published 5 September 2016

EPJ Web of Conferences 123, 04004 (2016) http://dx.doi.org/10.1051/epjconf/201612304004
Nuclear lifetime measurements from data with independently varying observation times
T. J. Gray[1], M. W. Reed[1a], G. J. Lane[1], A. Akber[1], Yu. A. Litvinov[2,3] and P. M. Walker[4]
Published 5 September 2016

Phys. Rev. C 94, 034602 (2016) http://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.034602
Evidence for L-dependence generated by channel coupling: ^{16}O scattering from ^{12}C at 115.9 MeV
R. S. Mackintosh[*]
Published 6 September 2016

JHEP 09 (2016) 028 http://link.springer.com/article/10.1007/JHEP09%282016%29028
Elliptic flow of electrons from heavy-flavour hadron decays at mid-rapidity in Pb–Pb collisions at $\sqrt{s_{NN}}$ = 2.76 TeV
ALICE Collaboration, UK Authors: D. Alexandre, L.S. Barnby, M. Borri, M. Chartier, D. Evans, M.A.S. Figueredo, K.L. Graham, P.G. Jones, A. Jusko, M. Krivda, R.C. Lemmon, R. Lietava, J. Norman, O. Villalobos Baillie, N. Zardoshti
Published 6 September 2016

Phys. Rev. C 94, 034304 (2016) http://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.034304
Direct experimental evidence for a multiparticle-hole ground state configuration of deformed ^{33}Mg
Ushasi Datta[1,2,*], A. Rahaman[1], T. Aumann[2,3], S. Beceiro-Novo[4], K. Boretzky[2], C. Caesar[2], B. V. Carlson[5], W. N. Catford[6], S. Chakraborty[1], M. Chartier[7], D. Cortina-Gil[4], G. de Angelis[8], P. Diaz Fernandez[4], H. Emling[2], O. Ershova[2], L. M. Fraile[9], H. Geissel[2,10], D. Gonzalez-Diaz[2], B. Jonson[11],H. Johansson[11], N. Kalantar-Nayestanaki[12], T. Kröll[3], R. Krücken[13], J. Kurcewicz[2], C. Langer[2], T. Le Bleis[12], Y. Leifels[2], J. Marganiec[2,14], G. Münzenberg[2], M. A. Najafi[12], T. Nilsson[11], C. Nociforo[2], V. Panin[2], S. Paschalis[3], R. Plag[2], R. Reifarth[2], V. Ricciardi[2], D. Rossi[2], H. Scheit[3], C. Scheidenberger[2,10], H. Simon[2], J. T. Taylor[7], Y. Togano[2], S. Typel[2], V. Volkov[3], A. Wagner[15], F. Wamers[2], H. Weick[2], M. Weigand[2], J. S. Winfield[2], D. Yakorev[15], and M. Zoric[2]
Published 6 September 2016

Phys. Rev. C 94, 034308 (2016) http://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.034308
β-delayed fission and α decay of ^{196}At
V. L. Truesdale[1], A. N. Andreyev[1,2,3,*], L. Ghys[4,5], M. Huyse[4], P. Van Duppen[4], S. Sels[4], B. Andel[6], S. Antalic[6], A. Barzakh[7], L. Capponi[3], T. E. Cocolios[8,9], X. Derkx[3,10], H. De Witte[4], J. Elseviers[4], D. V. Fedorov[7], V. N. Fedosseev[11], F. P. Heßberger[12,13], Z. Kalaninová[6,14], U. Köster[15], J. F. W. Lane[3], V. Liberati[3], K. M. Lynch[9,16], B. A. Marsh[11], S. Mitsuoka[2], Y. Nagame[2], K. Nishio[2], S. Ota[2], D. Pauwels[5],L. Popescu[5], D. Radulov[4], E. Rapisarda[16], S. Rothe[11,17], K. Sandhu[3], M. D. Seliverstov[4,1,3,7], A. M. Sjödin[11], C. Van Beveren[4], P. Van den Bergh[4], and Y. Wakabayashi[2]
Published 8 September 2016

Phys. Rev. C 94, 034609 (2016) http://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.034609
Implications for (d,p) reaction theory from nonlocal dispersive optical model analysis of ^{40}Ca(d,p)^{41}Ca
S. J. Waldecker[1] and N. K. Timofeyuk[2]
Published 9 September 2016

Phys Lett B 760, 273 (2016) http://www.sciencedirect.com/science/article/pii/S0370269316303252
The mutable nature of particle-core excitations with spin in the one-valence-proton nucleus ^{133}Sb
G. Bocchi[a, b], S. Leoni[a, b, *], B. Fornal[c], G. Colò[a, b], P.F. Bortignon[a, b], S. Bottoni[a, b], A. Bracco[a, b], C. Michelagnoli[d], D. Bazzacco[e], A. Blanc[f], G. de France[d], M. Jentschel[f], U. Köster[f], P. Mutti[f], J.-M. Régis[g], G. Simpson[h], T. Soldner[f], C.A. Ur[e, i], W. Urban[j], L.M. Fraile[k], R. Lozeva[l], B. Belvito[a, b], G. Benzoni[b], A. Bruce[m], R. Carroll[n], N. Cieplicka-Oryńczak[b, c], F.C.L. Crespi[a, b], F. Didierjean[l], J. Jolie[g], W. Korten[o], T. Kröll[p], S. Lalkovski[n, q], H. Mach[k], N. Mărginean[r], B. Melon[s], D. Mengoni[e, t], B. Million[b], A. Nannini[s], D. Napoli[u], B. Olaizola[k], V. Paziy[k], Zs. Podolyák[n], P.H. Regan[n, v], N. Saed-Samii[g], B. Szpak[c], V. Vedia[k]
Published 10 September 2016

Phys. Lett. B 760, 387 (2016) http://www.sciencedirect.com/science/article/pii/S0370269316303574
Quadrupole moments of odd-A $^{53-63}$Mn: Onset of collectivity towards $N = 40$
C. Babcock[a, b], H. Heylen[c, *], M.L. Bissell[d], K. Blaum[e], P. Campbell[d], B. Cheal[a], D. Fedorov[k], R.F. Garcia Ruiz[c], W. Geithner[g], W. Gins[c], T. Day Goodacre[d, b], L.K. Grob[i, d], M. Kowalska[b], S.M. Lenzi[h], B. Maass[i], S. Malbrunot-Ettenauer[b], B. Marsh[b], R. Neugart[e, j], G. Neyens[c], W. Nörtershäuser[i], T. Otsuka[f], R. Rossel[b], S. Rothe[b], R. Sánchez[g], Y. Tsunoda[l], C. Wraith[a], L. Xie[d], X.F. Yang[c]
Published 10 September 2016

Phys. Lett. B 760, 641 (2016) http://www.sciencedirect.com/science/article/pii/S0370269316303987
Long-lived K isomer and enhanced γ vibration in the neutron-rich nucleus ^{172}Dy: Collectivity beyond double midshell
H. Watanabe[a, b, c, *], G.X. Zhang[a, b], K. Yoshida[d, e], P.M. Walker[f], J.J. Liu[g], J. Wu[c, h], P.H. Regan[f, i], P.-A. Söderström[c], H. Kanaoka[j], Z. Korkulu[k], P.S. Lee[l], S. Nishimura[c], A. Yagi[j], D.S. Ahn[c], T. Alharbi[m], H. Baba[c], F. Browne[n], A.M. Bruce[n], R.J. Carroll[f], K.Y. Chae[o], Zs. Dombradi[k], P. Doornenbal[c], A. Estrade[p], N. Fukuda[c], C. Griffin[p], E. Ideguchi[q], N. Inabe[c], T. Isobe[c], S. Kanaya[j], I. Kojouharov[r], F.G. Kondev[s], T. Kubo[c], S. Kubono[c], N. Kurz[r], I. Kuti[k], S. Lalkovski[f], G.J. Lane[t], C.S. Lee[l], E.J. Lee[o], G. Lorusso[c, f, i], G. Lotay[f], C.-B. Moon[u], I. Nishizuka[v], C.R. Nita[n, w], A. Odahara[j], Z. Patel[f], V.H. Phong[c, x], Zs. Podolyák[f], O.J. Roberts[y], H. Sakurai[c], H. Schaffner[r], C.M. Shand[f], Y. Shimizu[c], T. Sumikama[v], H. Suzuki[c], H. Takeda[c], S. Terashima[a, b], Zs. Vajta[k], J.J. Valiente-Dóbon[z], Z.Y. Xu[g]
Published 10 September 2016

Phys. Lett. B 760, 720 (2016) http://www.sciencedirect.com/science/article/pii/S0370269316303914
Multiplicity dependence of charged pion, kaon, and (anti)proton production at large transverse momentum in p–Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV
ALICE Collaboration, UK Authors: D. Alexandre, L.S. Barnby, M. Borri, M. Chartier, D. Evans, M.A.S. Figueredo, K.L. Graham, P.G. Jones, A. Jusko, M. Krivda, G.R. Lee, R.C. Lemmon, R. Lietava, J. Norman, R. Romita, O. Villalobos Baillie, N. Zardoshti
Published 10 September 2016

NIM A 830, 510 (2016) http://www.sciencedirect.com/science/article/pii/S0168900215012784
Laser resonance ionization scheme development for tellurium and germanium at the dual Ti:Sa–Dye ISOLDE RILIS
T. Day Goodacre[a, b], D. Fedorov[c], V.N. Fedosseev[a], L. Forster[a], B.A. Marsh[a], R.E. Rossel[a, d, e], S. Rothe[a], M. Veinhard[a]
Published 11 September 2016

NIM A 830, 197 (2016) http://www.sciencedirect.com/science/article/pii/S016890021630482X
Experimental setup and procedure for the measurement of the ^{7}Be(n,α)α reaction at n_TOF
L. Cosentino[a], et al. n_TOF Collaboration[1],
Published 11 September 2016

Eur. Phys. J. Special Topics, 225 5 (2016) 797-882
http://epjst.epj.org/articles/epjst/abs/2016/05/contents/contents.html
Physics book: CRYRING@ESR
M. Lestinsky, V. Andrianov, B. Aurand, V. Bagnoud, D. Bernhardt, H. Beyer, S. Bishop, K. Blaum, A. Bleile,

At. Borovik Jr., F. Bosch, C.J. Bostock, C. Brandau, A. Bräuning-Demian, I. Bray, T. Davinson, B. Ebinger, A. Echler, P. Egelhof, A. Ehresmann, M. Engström, C. Enss, N. Ferreira, D. Fischer, A. Fleischmann, E. Förster,S. Fritzsche, R. Geithner, S. Geyer, J. Glorius, K. Göbel, O. Gorda, J. Goullon, P. Grabitz, R. Grisenti, A. Gumberidze, S. Hagmann, M. Heil, A. Heinz, F. Herfurth, R. Heß, P.-M. Hillenbrand, R. Hubele, P. Indelicato, A. Källberg, O. Kester, O. Kiselev, A. Knie, C. Kozhuharov, S. Kraft-Bermuth, T. Kühl, G. Lane, Yu.A. Litvinov, D. Liesen, X.W. Ma, R. Märtin, R. Moshammer, A. Müller, S. Namba, P. Neumeyer, T. Nilsson, W. Nörtershäuser,G. Paulus, N. Petridis, M. Reed, R. Reifarth, P. Reiß, J. Rothhardt, R. Sanchez, M.S. Sanjari, S. Schippers,H.T. Schmidt, D. Schneider, P. Scholz, R. Schuch, M. Schulz, V. Shabaev, A. Simonsson, J. Sjöholm, Ö Skeppstedt, K. Sonnabend, U. Spillmann, K. Stiebing, M. Steck, T. Stöhlker, A. Surzhykov, S. Torilov, E. Träbert, M. Trassinelli, S. Trotsenko, X.L. Tu, I. Uschmann, P.M. Walker, G. Weber, D.F.A. Winters, P.J. Woods,H.Y. Zhao and Y.H. Zhang
Published 12 September 2016

Phys. Rev. C 94, 034313 (2016) http://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.034313
^{8}Be+^{8}Be and ^{12}C+α breakup states in ^{16}O populated via the ^{13}C(^{4}He,4α)n reaction
N. Curtis[1,*], S. Almaraz-Calderon[2], A. Aprahamian[2], N. I. Ashwood[1], M. Barr[1], B. Bucher[2], P. Copp[3],M. Couder[2], X. Fang[2], M. Freer[1], G. Goldring[4], F. Jung[2], S. R. Lesher[3], W. Lu[2], J. D. Malcolm[1], A. Roberts[2], W. P. Tan[2], C. Wheldon[1], and V. A. Ziman[1]
Published 13 September 2016

Phys. Rev. C 94, 034903 (2016) https://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.034903
Measurement of transverse energy at midrapidity in Pb-Pb collisions at $\sqrt{s_{NN}}$ = 2.76 TeV
ALICE Collaboration, UK Authors: D. Alexandre, L.S. Barnby, M. Borri, M. Chartier, D. Evans, M.A.S. Figueredo, K.L. Graham, P.G. Jones, A. Jusko, M. Krivda, G.R. Lee, R.C. Lemmon, R. Lietava, J. Norman, O. Villalobos Baillie, N. Zardoshti
Published 15 September 2016

Phys. Rev. C 94, 034004 (2016) http://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.034004
Di-neutrons in neutron matter within a Brueckner-Hartree-Fock approach
Felipe Isaule[1], H. F. Arellano[1,2], and Arnau Rios[3]
Published 21 September 2016

Phys. Rev. C 94, 034321 http://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.034321
Deformation of the proton emitter ^{113}Cs from electromagnetic transition and proton-emission rates
D. Hodge[1], D. M. Cullen[1], M. J. Taylor[1,*], B. S. Nara Singh[1], L. S. Ferreira[2], E. Maglione[3], J. F. Smith[4], C. Scholey[5], P. Rahkila[5], T. Grahn[5], T. Braunroth[6], H. Badran[5], L. Capponi[4], A. Girka[5], P. T. Greenlees[5], R. Julin[5], J. Konki[5], M. Mallaburn[1], O. Nefodov[5], G. G. O'Neill[7], J. Pakarinen[5], P. Papadakis[5], J. Partanen[5], P. Ruotsalainen[5], M. Sandzelius[5], J. Sarén[5], M. Smolen[4], J. Sorri[5], S. Stolze[5], and J. Uusitalo[5]
Published 21 September 2016

Phys. Rev. Lett. 117, 142502 (2016) http://journals.aps.org/prl/abstract/10.1103/PhysRevLett.117.142502
Improved Direct Measurement of the 64.5 keV Resonance Strength in the ^{17}O(p,α)^{14}N Reaction at LUNA
C. G. Bruno[1,*], D. A. Scott[1], M. Aliotta[1,†], A. Formicola[2], A. Best[3], A. Boeltzig[4], D. Bemmerer[5], C. Broggini[6], A. Caciolli[7], F. Cavanna[8], G. F. Ciani[4], P. Corvisiero[8], T. Davinson[1], R. Depalo[7], A. Di Leva[3], Z. Elekes[9], F. Ferraro[8], Zs. Fülöp[9], G. Gervino[10], A. Guglielmetti[11], C. Gustavino[12], Gy. Gyürky[9], G. Imbriani[3], M. Junker[2], R. Menegazzo[6], V. Mossa[13], F. R. Pantaleo[13], D. Piatti[7], P. Prati[8],E. Somorjai[9], O. Straniero[14], F. Strieder[15], T. Szücs[5], M. P. Takács[5], and D. Trezzi[11] (LUNA Collaboration)
Published 27 September 2016

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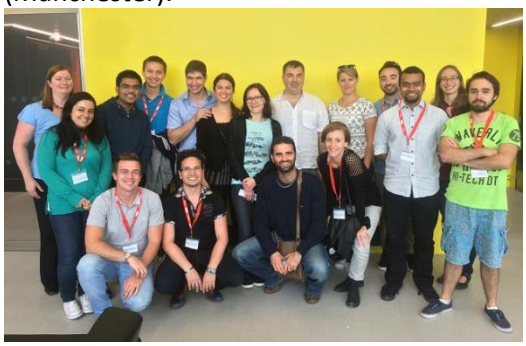
2. News to Report

a. Training a new generation of nuclear medicine experts: MEDICIS-PROMED General Training - at the National Graphene Institute in Manchester

Earlier this month, the National Graphene Institute hosted a group of unexpected characters: nuclear physicists, engineers, chemists, molecular biologists, and medical doctors were all gathered under one roof to follow the first MEDICIS-PROMED General Training.

MEDICIS-PROMED is a Horizon2020 Marie Skłodowska-Curie Action, Innovative Training Network, with the aim of researching the use of novel radioisotopes for medical applications, especially in the fight against

ovarian cancer [https://medicis-promed.web.cern.ch]. The network is built around a core of research institutions near CERN, as well as broader European partners such as the National Graphene Institute at The University of Manchester. 13 PhD students from the network attended the meeting, together with a few others intrigued minds from, e.g., Manchester and Huddersfield.
Lectures on advanced materials were given by Nobel Prize winner Prof Kostya Novozelov and his research team (Manchester), nuclear radiation detection by Dr Kieran Flanagan (Manchester), and transferrable skills such as innovation, institutional policies, and creating impact by Fiona Reed (University College London Consultants), Dr Alick Deacon, Dr Emma Nichols and Dee-Ann Johnson (Manchester).



More events are planned in the coming years, such as a summer school on hadron therapy in Pavia (Italy) or a specialised training on mass separators in Leuven (Belgium). Feel free to visit our website or follow us on social media for more information!
Contribution by Thomas Cocolios thomas.cocolios@kuleuven.be (KU Leuven)

b. New member of the Editorial board of Proceedings of the Royal Society A
Andrea Idini of the University of Surrey has been appointed a member of the Editorial board of Proceedings of the Royal Society A. Proceedings A is a multidisciplinary journal focused on physical, engineering and mathematical sciences, publishing research articles, reviews and comments, and invited perspectives and replies.
Proceedings A has hosted the very best contributions in the forefront of nuclear physics research, like the discovery of the nature of the alpha particle by E. Rutherford and H. Geiger (1908), the discovery of the neutron by J. Chadwick (1932), and the collectivity in the nuclear shell model by J.P. Elliott (1958). The editorial board invites contributions from the UK community in all the branches of nuclear physics, to renew the excellent tradition of nuclear physics at Royal Society's publishing.
For more information follow the link: http://rspa.royalsocietypublishing.org/content/author-information, reminding also the policies in terms of open access and open peer review.
For any queries don't hesitate to write to a.idini@surrey.ac.uk.
Contribution by Andrea Idini a.idini@surrey.ac.uk (Surrey)

c. Conference Success for UK Nuclear Physics
The 2019 International Nuclear Physics Conference (INPC) will be held in Glasgow. Prof David Ireland of the University of Glasgow presented a bid for the conference as part of the competitive bid process at the INPC2016 in Adelaide, on behalf of a local committee of representatives from all the UK's nuclear physics research groups. The 2019 conference was awarded to the Glasgow by the C12 committee of the International Union of Pure and Applied Physics (IUPAP), recognising the strength and diversity of UK nuclear physics research as well as the merits of Glasgow as a conference location.
INPC is the biggest conference in the world for fundamental nuclear physics research, and is held every three years. The last time INPC was held in the UK was 1986, and has most recently been held in Vancouver (2010) and Florence (2013), as well as Adelaide this year.
David Ireland David.Ireland@glasgow.ac.uk (Glasgow)

d. IUPAP young scientist of the year
The International Union of Pure and Applied Physics (IUPAP) Young Scientist award 2016 this year went to Dr Kara Lynch, a CERN research fellow based at ISOLDE and previously a PhD student at the University of Manchester. Kara was awarded the prize at the INPC 2016 conference in Adelaide for her work on “the development and realization of the collinear resonance ionization spectroscopy (CRIS) method for sensitive laser spectroscopy measurements of exotic atomic nuclei and its possible use to separate short-lived isomeric states.” The prize, awarded every 3 years was established by IUPAP in 2005 at the time of the General Assembly in Cape Town, South Africa. The purpose of this

prize, which consists of €1,000, a medal, and a certificate citing the recipient's contributions, is: To recognize and encourage very promising experimental or theoretical research in nuclear physics, including the advancement of a method, a procedure, a technique, or a device that contributes in a significant way to nuclear physics research. Candidates for the prize must have a maximum of eight years of research experience (excluding career interruptions) following the Ph.D. (or equivalent) degree. In her own words "I'm delighted to have won this award for the work that I'm involved in at the CRIS experiment. It would not have been possible without the support and encouragement of my PhD supervisor, Kieran Flanagan, and the enthusiasm and dedication of the CRIS collaboration. ISOLDE provides an inspirational place to carry out your research, and I feel very lucky to work there."
Contribution by Kieran Flanagan kieran.flanagan-2@manchester.ac.uk (Manchester)

e. UK Nuclear Academics discussion meeting
The 2016 Nuclear Academics Discussion meeting was held at the University of Bristol in early September. The academics attending the two-day meeting heard a wide range of presentations that provided updates on existing EPSRC funded research consortia and Centres for Doctoral Training, opportunities for international and industrial cooperation plus updates on the new build and decommissioning programmes from industry. The new build section was particularly relevant as the EDF update was delivered just a few hours after the Government had announced its final approval for Hinkley Point C!
During facilitated breakout sessions the academics had the opportunity to provide feedback to the EPSRC on how a coordinated academic community can continue to grow and provide support for the UK nuclear industry. Views expressed included the desire for the UK to become a major UK nuclear manufacturer again rather than the current situation where the focus is on procurement. Those present believe Universities can be the engine that provides the innovation and research capability that could propel the UK to the forefront of the next generation of nuclear technologies.
Professor Steve Cowley, Chair of the Culham Centre or Fusion Energy, provided the after dinner speech at the conference dinner and he highlighted the similarities between the fusion and fission research programmes and the benefits of the two communities working together. This has been very much a success of the Nuclear Universities Consortium for Learning, Engagement and Research (NUCLEAR) with CCFE being a founding partner of the National Nuclear User Facility (NNUF – www.nnuf.ac.uk).
The next Nuclear Academics Discussion Meeting will be held at the University of Lancaster in early September 2017 with the Universities of Liverpool and Cambridge already lined up for 2018 and 2019 reflecting the continual growth of the nuclear academic sector and desire for closer working.
For further details on the NUCLEAR programme please go to the Nuclear Universities website at www.nuclearuniversities.ac.uk where all the presentations from the two-day meeting are available to download.
Contribution by John Roberts j.w.roberts@manchester.ac.uk (Manchester) and Robin Grimes r.grimes@imperial.ac.uk (Imperial)

f. UKNDN Call For Nuclear-Data Proposals
The UK Nuclear Data Network (UKNDN) is now accepting proposals for financial support for small-scale scoping studies (up to £10k), proof-of-concept studies (up to £50k) as well as travel (up to £2k) and opportunities for secondments for students and early-career researchers in the research area of Industrial Nuclear Data. UKNDN exists to build a strong connection between academia, industrial partners, national labs, regulators and UK representatives on international nuclear data committees (IAEA, NEA, etc.). Applications for funding must show direct relevance to the needs of the industrial nuclear-energy sector and must be led by an institution that is eligible for RCUK funding. Industrial collaboration is strongly encouraged. The proposals (1 page of description, ½ page relevance to nuclear energy needs and ½ page on potential impact) will be reviewed by the UKNDN Leadership Team together with an external international expert in nuclear data and the decisions ratified by the UKNSF, which acts as the Board of Governance for UKNDN.

Proposal forms and information on how to submit an application may be found on the UKNDN Website: http://www.ukndn.ac.uk/
Contact: gavin.smith@manchester.ac.uk
Contribution by Gavin Smith gavin.smith@manchester.ac.uk (Manchester)

Manchester contributions collected by Tobias Wright tobias.wright@manchester.ac.uk (Manchester)

g. 3rd UK Nuclear Theory Meeting — call for contributions
The next UK nuclear theory meeting will be held at the University of Surrey in Guildford on November 1-2, 2016.
This will be the third in a series of meetings organised under the STFC "Nuclear.Theory.Vision@UK" initiative which is meant to discuss novel advances in nuclear theory as well as to foster interactions and collaboration with the other Nuclear physics groups in the country. Focus will be on novel advances in nuclear theory.
Participation from UK experimentalists is strongly welcomed and we envisage talks from local participants.
Information on the meeting and venue can be found at the "Nuclear.Theory.Vision@UK" website, http://personal.ph.surrey.ac.uk/~cb0023/ukthеory/
Anyone interested to speak, please email C.Barbieri@surrey.ac.uk with a title.
Contribution by Carlo Barbieri C.Barbieri@surrey.ac.uk (Surrey)

h. Lattice QCD applied to nuclei
Tetsuo Hatsuda, from RIKEN Laboratory of Japan, will be visiting several UK institutions from Oct. 5th to Oct. 14th and will give colloquia titled "From Quarks to Neutron Stars" at Surrey, Manchester and York.
Prof. Hatsuda is one of the leaders of the "Hadron to Nuclei on Lattice QCD" (HALQCD) collaboration that aims at studying the strong nuclear force directly from LQCD simulations. He holds and Royal Society's International Exchange Grant together with Surrey that is aimed to apply the HLAQCD hyperon-nucleon forces directly to ab-initio calculations.
The visit of Hatsuda to UK institutions will be supported by the "Nuclear.Theory.Vision@UK" initiative.
Contribution by Carlo Barbieri C.Barbieri@surrey.ac.uk (Surrey)

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3. Outreach Activity

Outreach Funding
The STFC Public Engagement Small Awards 2016B call is now open. Applications may be submitted until 4.00pm on Thursday 27th October 2016.
The scheme provides funds for small, local or 'pilot' projects promoting STFC science and technology. Almost anyone can apply, including grant-funded research groups, STFC research facility users, schools, museums, etc. Awards range from £500 to £10,000 and the expenditure can go towards materials, salaries and travel & subsistence.

The 2016 round of the Public Engagement Large Awards Scheme is now open for applications to Stage 1. Applications can be accepted up to 4.00pm on Thursday 3rd November 2016.
The Large Awards Scheme provides funds for projects which are expected to have a significant regional or national impact. We offer awards from £10,000 up to £100,000. Almost anyone can apply but project teams must have strong links with STFC's scientific research community. We also encourage partnerships that may positively impact on the success of the project e.g. universities with science centres.

Projects must be relevant to publicising engagement or teaching about the STFC science and technology areas, namely:
- particle physics
- nuclear physics
- space, solar and planetary science
- astronomy
- astrophysics
- cosmology
- studying materials with muon and neutron sources
- studying materials with synchrotron light sources
- research using laser facilities

Applicants are advised to consult the STFC Public Engagement Strategy in advance of submitting a proposal. Applicants are also encouraged (if applicable) to consider working with under-represented audiences such as

girls and young women in engineering and physics, groups in areas geographically remote from STEM activity and underperforming schools.
Please see the SA: notes for guidance and LA: notes for guidance for further information.
All applications must be submitted through the RCUK Joint electronic submission (Je-S) system. E-mailed or hard copy applications will not be accepted. Please be aware that it may take up to four weeks for organisations to fully register for the first time on the Je-S system. However, for the small awards applicants may use the Je-S self-registration facility and then fully register if their application is successful.
For further information and advice please contact the STFC Public Engagement Team or Tel: 01793 442098.

Binding Blocks at the University of York Open Day and Neon chart excursions.
On the 17th and 18th of September, Binding Blocks exhibited for the Department of Physics Open Day, as well as sending Neon charts to Kent, South Africa and Australia.
The purpose of the Binding Blocks chart is to explain nuclear phenomena to the general public and schools, for all age ranges and anyone with an enthusiasm for LEGO. On the chart, black blocks represent stable nuclei, yellow alpha decay, red beta+ decay, orange proton decay, light blue beta- decay and dark blue neutron decay. The height represents the available energy per kg material (in units of 25TJ/kg). The chart is a full 8m, ~27000 brick chart of the nuclides, with two smaller portions being built up to Yttrium (our Iron+ chart) and up to Neon (our Neon chart).
Prospective students at the University of York had the chance to engage with the Binding Blocks chart. We recorded a time-lapse video of everyone building the chart to send to the prospective students. The Iron+ chart was built twice by our Binding Blocks ambassadors and enthusiastic prospective students, as well as children attending with the families of the students. We unveiled our new branded bags for the first time. The bags are colour coded to the bricks for easy location of each colour brick.
We have also sent out our Neon chart to a very enthusiastic team at iThemba and Stellenbosch University, where it was built at an Open Day for iThemba Labs.

Around 150 visitors, including school groups and members of the public, saw the chart and were intrigued by LEGO. Another Neon chart was taken to the Second Geometric Models of Nuclear Matter Conference at the University of Kent.39 people attended the conference, with 26 speakers. The chart was built as an activity after the conference, where it was well received. Finally, a further Neon chart and poster went to the INPC 2016 conference in Adelaide Australia, where 392 delegates attended.

We are in the process of organising several large events around the Yorkshire region, including a GCSE multi-school event and an A-Level multi-school event. A training event is being organised in collaboration with the University of Hull to train both undergraduates and postgraduates who would like to work on the project.
The project has its own website: http://www.york.ac.uk/physics/public-and-schools/schools/secondary/binding-blocks/ as well as our own YouTube channel with 4 newly uploaded videos of 3D visualisations: https://www.youtube.com/channel/UCvIXlFgJyGh4Jle_4_KE2aA, Twitter account: https://twitter.com/BindingBlocks and Facebook page: https://www.facebook.com/bindingblocks/
Contribution by Thomas Sanders tjs529@york.ac.uk and Thoryn Haylett th637@york.ac.uk (York)

Outreach Talk
On the 29th September, Marialuisa Aliotta will be giving a talk at Roseburn Primary School in Edinburgh on: What makes the Sun shine? Exploring the inner working of stars.
Contribution by Marialuisa Aliotta maliotta@staffmail.ed.ac.uk (Edinburgh)

4. Media Interactions

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