UK Nuclear Activity

October 2021 Issue 100

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

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1. Nuclear Physics Publications for October (also includes missed publications from previous months)

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. Lett. B, **822**, 136645
https://www.sciencedirect.com/science/article/pii/S0370269321005852?via%3Dihub
Evidence of oblate-prolate shape coexistence in the strongly-deformed nucleus ^{119}Cs
K.K.Zhenga, C.M.Petrache, Z.H.Zhang, P.W.Zhao, Y.K.Wang, A.Astier, B.F.Lv, P.T.Greenlees, T.Grahn, R.Julin, S.Juutinen, M.Luoma, J.Ojala, J.Pakarinen, J.Partanen, P.Rahkila, P.Ruotsalainen, M.Sandzelius, J.Sarén, H.Tanne, J.Uusitalo, G.Zimba, B.Cederwall, Ö.Aktas, A.Ertoprak, W.Zhang, S.Guo, M.L.Liu, I.Kuti, B.M.Nyakó, D.Sohler, J.Timár, C.Andreoiu, M.Doncel, D.T.Joss, R.D.Page
Published 10 November 2021

J. Phys. G: Nucl. and Part. Phys. **48** 125101
https://iopscience.iop.org/article/10.1088/1361-6471/ac2889
Single-particle and collective excitations in the transitional nucleus ^{166}Os
S Stolze8,1, T Grahn9,1, R Julin1, D T Joss2, K Andgren3, K Auranen1, S Bönig4, D Cox1, I G Darby2, M Doncel3, S Eeckhaudt1, P T Greenlees1, B Hadinia3, A Herzáň1,5, U Jakobsson1, P Jones1, S Juutinen1, S Ketelhut1, J Konki1, T Kröll4, A-P Leppänen1, M Nyman1, R D Page2, J

Pakarinen1, J Partanen1, C G McPeake2, D O'Donnell2, P Peura1, P Rahkila1, P Ruotsalainen1, M Sandzelius1, J Sarén1, B Saygı2, C Scholey1, J Simpson6, J Sorri1, M J Taylor7, A Thornthwaite2 and J Uusitalo1
Published 11 October 2021

Phys. Rev. C **104**, 044305
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.044305
Complete set of proton excitations in ^{119}Cs
K. K. Zheng1,2, C. M. Petrache1, Z. H. Zhang3, A. Astier1, B. F. Lv1,*, P. T. Greenlees4, T. Grahn4, R. Julin4, S. Juutinen4, M. Luoma4, J. Ojala4, J. Pakarinen4, J. Partanen4,†, P. Rahkila4, P. Ruotsalainen4, M. Sandzelius4, J. Sarén4, H. Tann4,5, J. Uusitalo4, G. Zimba4, B. Cederwall6, Ö. Aktas6, A. Ertoprak6, W. Zhang6, S. Guo2,7, M. L. Liu2,7, X. H. Zhou2,7, I. Kuti8, B. M. Nyakó8, D. Sohler8, J. Timár8, C. Andreoiu9, M. Doncel5, D. T. Joss5, and R. D. Page5
Published 5 October 2021

Phys. Rev. C **104**, 044325
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.044325
Rich band structure and multiple long-lived isomers in the odd-odd ^{118}Cs nucleus
K. K. Zheng1,2, C. M. Petrache1, Z. H. Zhang3, A. Astier1, B. F. Lv1,*, P. T. Greenlees4, T. Grahn4, R. Julin4, S. Juutinen4, M. Luoma4, J. Ojala4, J. Pakarinen4, J. Partanen4,†, P. Rahkila4, P. Ruotsalainen4, M. Sandzelius4, J. Sarén4, H. Tann4,5, J. Uusitalo4, G. Zimba4, B. Cederwall6, Ö. Aktas6, A. Ertoprak6, W. Zhang6, S. Guo2,7, M. L. Liu2,7, X. H. Zhou2,7, I. Kuti8, B. M. Nyakó8, D. Sohler8, J. Timár8, C. Andreoiu9, M. Doncel5, D. T. Joss5, and R. D. Page5
Published 21 October 2021

Phys. Rev. C **104**, 044328
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.044328
First β-decay spectroscopy of ^{135}In and new β-decay branches of ^{134}In
M. Piersa-Siłkowska1,*, A. Korgul1,†, J. Benito2, L. M. Fraile2,3, E. Adamska1, A. N. Andreyev4, R. Álvarez-Rodríguez5, A. E. Barzakh6, G. Benzoni7, T. Berry8, M. J. G. Borge3,9, M. Carmona2, K. Chrysalidis3, J. G. Correia3,10, C. Costache11, J. G. Cubiss3,4, T. Day Goodacre3,12, H. De Witte13, D. V. Fedorov6, V. N. Fedosseev3, G. Fernández-Martínez14, A. Fijałkowska1, H. Fynbo15, D. Galaviz16, P. Galve2, M. García-Díez2, P. T. Greenlees17,18, R. Grzywacz19,20, L. J. Harkness-Brennan21, C. Henrich22, M. Huyse13, P. Ibáñez2, A. Illana13,23, Z. Janas1, K. Johnston3, J. Jolie24, D. S. Judson21, V. Karanyonchev24, M. Kicińska-Habior1, J. Konki17,18, Ł. Koszuk1, J. Kurcewicz3, I. Lazarus25, R. Lică3,11, A. López-Montes2, H. Mach26, M. Madurga3,19, I. Marroquín9, B. Marsh3, M. C. Martínez2, C. Mazzocchi1, K. Miernik1, C. Mihai11, N. Mărginean11, R. Mărginean11, A. Negret11, E. Nácher27, J. Ojala17, B. Olaizola28,29,3, R. D. Page21, J. Pakarinen17, S. Pascu11, S. V. Paulauskas19, A. Perea9, V. Pucknell25, P. Rahkila17,18, C. Raison4, E. Rapisarda3, K. Rezynkina13, F. Rotaru11, S. Rothe3, K. P. Rykaczewski20, J.-M. Régis24, K. Schomacker24, M. Siłkowski1, G. Simpson30, C. Sotty11,13, L. Stan11, M. Stănoiu11, M. Stryjczyk1,13,17, D. Sánchez-Parcerisa2, V. Sánchez-Tembleque2, O. Tengblad9, A. Turturică11, J. M. Udías2, P. Van Duppen13, V. Vedia2, A. Villa2, S. Viñals9, R. Wadsworth4, W. B. Walters31, N. Warr24, and S. G. Wilkins3 (IDS Collaboration)
Published 26 October 2021

Phys. Rev. C **104**, L042501
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.L042501
Testing the inverted neutrino mass ordering with neutrino-less double-β decay
Matteo Agostini, Giovanni Benato, Jason A. Detwiler, Javier Menéndez, and Francesco Vissani
Published 11 October 2021

Phys. Rev. C **104**, 044313
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.044313
Coulomb excitation of ^{80,82}Kr and a change in structure approaching N=Z=40
S. A. Gillespie1,*, J. Henderson2,3,†, K. Abrahams4, F. A. Ali5,6, L. Atar5, G. C. Ball1, N. Bernier1,7,‡, S. S. Bhattcharjee1,§, R. Caballero-Folch1, M. Bowry1, A. Chester1,‖, R. Coleman5, T. Drake8, E. Dunling1,9, A. B. Garnsworthy1, B. Greaves5, G. F. Grinyer10, G. Hackman1, E. Kasanda5, R. LaFleur1, S. Masango4, D. Muecher5, C. Ngwetsheni4, S. S. Ntshangase11, B. Olaizola1,¶, J. N. Orce4, T. Rockman5, Y. Saito1,7, L. Sexton1,2, P. Šiurytė1,2, J. Smallcombe1,#, J. K. Smith12,**, C. E. Svensson5, E. Timakova1, R. Wadsworth9, J. Williams13,††, M. S. C. Winokan1, C. Y. Wu3, and T. Zidar5
Published 12 October 2021

Phys. Rev. C **104**, 044314
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.044314
Experimental and shell-model study of excited states in $^{55}_{26}Fe_{29}$ and related notes on $^{55}_{29}Cu_{26}$
D. Rudolph, C. Andreoiu, M. A. Bentley, M. P. Carpenter, R. J. Charity, R. M. Clark, J. Ekman, C. Fahlander, P. Fallon, W. Reviol, D. G. Sarantites, and D. Seweryniak
Published 13 October 2021

Phys. Rev. C 104, 044318
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.044318
Shapes, softness, and non-yrast collectivity in ^{186}W
V. S. Prasher1, A. J. Mitchell1,2,*, C. J. Lister1, P. Chowdhury1, L. Afanasieva3, M. Albers4, C. J. Chiara4,5,†, M. P. Carpenter4, D. Cline6, N. D'Olympia1,‡, C. J. Guess1,§, A. B. Hayes7, C. R. Hoffman4, R. V. F. Janssens8,9, B. P. Kay4, T. L. Khoo4, A. Korichi4,10, T. Lauritsen4, E. Merchan1,‖, Y. Qiu1,¶, D. Seweryniak4, R. Shearman1,11,12, S. K. Tandel1,#, A. Verras1,**, C. Y. Wu13, and S. Zhu4,7
Published 15 October 2021

Phys. Rev. C **104**, 044331
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.044331
Investigation of the ground-state spin inversion in the neutron-rich ^{47,49}Cl isotopes
B. D. Linh1, A. Corsi2, A. Gillibert2,*, A. Obertelli2,3,4, P. Doornenbal3, C. Barbieri5,6,7, S. Chen8,3,9, L. X. Chung1, T. Duguet2,10, M. Gómez-Ramos4,11, J. D. Holt12,13, A. Moro11, P. Navrátil12, K. Ogata14,15, N. T. T. Phuc16,17, N. Shimizu18, V. Somà2, Y. Utsuno18,19, N. L. Achouri20, H. Baba3, F. Browne3, D. Calvet2, F. Château2, N. Chiga3, M. L. Cortés3, A. Delbart2, J.-M. Gheller2, A. Giganon2, C. Hilaire2, T. Isobe3, T. Kobayashi21, Y. Kubota3,18, V. Lapoux2, H. N. Liu2,4,22, T. Motobayashi3, I. Murray23,3, H. Otsu3, V. Panin3, N. Paul2,24, W. Rodriguez3,25,26, H. Sakurai3,27, M. Sasano3, D. Steppenbeck3, L. Stuhl18,28,29, Y. L. Sun2,4, Y. Togano30, T. Uesaka3, K. Wimmer27,3, K. Yoneda3, O. Aktas22, T. Aumann4,31, F. Flavigny23,20, S. Franchoo23, I. Gašparić32,4,3, R.-B. Gerst33, J. Gibelin20, K. I. Hahn34,29, N. T. Khai35, D. Kim34,3,29, T. Koiwai27, Y. Kondo36, P. Koseoglou4,31, J. Lee8, C. Lehr4, T. Lokotko8, M. MacCormick23, K. Moschner33, T. Nakamura36, S. Y. Park34,29, D. Rossi4, E. Sahin37, D. Sohler28, P.-A. Söderström4, S. Takeuchi36, N. D. Ton1, H. Törnqvist4,31, V.

Vaquero38, V. Wagner4, H. Wang39, V. Werner4, X. Xu8, Y. Yamada36, D. Yan39, Z. Yang3, M. Yasuda36, and L. Zanetti4
Published 29 October 2021

Phys. Rev. C **104**, 044610
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.044610
Measurement of the ^{76}Ge(n,γ) cross section at the n_TOF facility at CERN
A. Gawlik-Ramięga1,*, C. Lederer-Woods2, M. Krtička3, S. Valenta3, U. Battino2, J. Andrzejewski1, J. Perkowski1, O. Aberle4, L. Audouin5, M. Bacak6, J. Balibrea7, M. Barbagallo8, S. Barros9, V. Bécares7, F. Bečvář3, C. Beinrucker10, E. Berthoumieux11, J. Billowes12, D. Bosnar13, M. Brugger4, M. Caamaño14, F. Calviño15, M. Calviani4, D. Cano-Ott7, R. Cardella4, A. Casanovas15, D. M. Castelluccio16,17, F. Cerutti4, Y. H. Chen5, E. Chiaveri4, N. Colonna8, G. Cortés15, M. A. Cortés-Giraldo18, L. Cosentino19, L. A. Damone8,20, M. Diakaki11, M. Dietz2, C. Domingo-Pardo21, R. Dressler22, E. Dupont11, I. Durán14, B. Fernández-Domínguez14, A. Ferrari4, P. Ferreira9, P. Finocchiaro19, V. Furman23, K. Göbel10, A. R. García7, T. Glodariu24,†, I. F. Gonçalves9, E. González-Romero7, A. Goverdovski25, E. Griesmayer6, C. Guerrero18, F. Gunsing11,4, H. Harada26, T. Heftrich10, S. Heinitz22, J. Heyse27, D. G. Jenkins28, E. Jericha6, F. Käppeler29, Y. Kadi4, T. Katabuchi30, P. Kavrigin6, V. Ketlerov25, V. Khryachkov25, A. Kimura26, N. Kivel22, I. Knapová3, M. Kokkoris31, E. Leal-Cidoncha14, H. Leeb6, J. Lerendegui-Marco18, S. Lo Meo16,17, S. J. Lonsdale2, R. Losito4, D. Macina4, T. Martínez7, C. Massimi17,32, P. Mastinu33, M. Mastromarco8, F. Matteucci34,35, E. A. Maugeri22, E. Mendoza7, A. Mengoni16, P. M. Milazzo34, F. Mingrone17, M. Mirea24,†, S. Montesano4, A. Musumarra19,36, R. Nolte37, A. Oprea24, N. Patronis38, A. Pavlik39, J. I. Porras4,40, J. Praena40, J. M. Quesada18, K. Rajeev41, T. Rauscher42,43, R. Reifarth10, A. Riego-Perez15, P. C. Rout41, C. Rubbia4, J. A. Ryan12, M. Sabaté-Gilarte4,18, A. Saxena41, P. Schillebeeckx27, S. Schmidt10, D. Schumann22, P. Sedyshev23, A. G. Smith12, A. Stamatopoulos31, G. Tagliente8, J. L. Tain21, A. Tarifeño-Saldivia15,21, L. Tassan-Got5, A. Tattersall2, A. Tsinganis31, G. Vannini17,32, V. Variale8, P. Vaz9, A. Ventura17, V. Vlachoudis4, R. Vlastou31, A. Wallner44, S. Warren12, M. Weigand10, C. Weiss4,6, C. Wolf10, P. J. Woods2, T. Wright12, and P. Žugec13,4 (n_TOF Collaboration)
Published 12 October 2021

Phys. Rev. C **104**, 044616
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.044616
Reaction channel contributions to proton scattering at 65 MeV
R. S. Mackintosh and N. Keeley
Published 18 October 2021

Phys. Rev. C **104**, 045801
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.104.045801
Neutron capture cross sections of light neutron-rich nuclei relevant for r-process nucleosynthesis
A. Bhattacharyya1,2, Ushasi Datta1,2,3,*, A. Rahaman1,4, S. Chakraborty1,5, T. Aumann3,6, S. Beceiro-Novo7, K. Boretzky3, C. Caesar3, B. V. Carlson8, W. N. Catford9, M. Chartier10, D. Cortina-Gil7, P. Das1,2, G. De. Angelis11, P. Diaz Fernandez7, H. Emling3, H. Geissel3,12, D. Gonzalez-Diaz3, M. Heine3,13, H. Johansson14, B. Jonson14, N. Kalantar-Nayestanaki15, T. Kröll6,16, R. Krücken16, J. Kurcewicz3, C. Langer3, T. Le Bleis16, Y. Leifels3, J. Marganiec17, G. Münzenberg3, T. Nilsson14, C. Nociforo3, V. Panin3, S. Paschalis10, R. Plag3, R. Reifarth3, M. V. Ricciardi3, C. Rigollet15, D. Rossi3,6, C. Scheidenberger3,12, H. Scheit6, H. Simon3, Y.

Togano17,18, S. Typel3,6, Y. Utsuno19, A. Wagner20, F. Wamers3, H. Weick3, and J. S. Winfield3
Published 1 October 2021

Phys. Rev. Lett. **127**, 152701
https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.127.152701
Direct Measurement of the $^{13}C(\alpha,n)^{16}O$ Cross Section into the s-Process Gamow Peak
G. F. Ciani1,2,3, L. Csedreki1,2,3, D. Rapagnani4,5, M. Aliotta6, J. Balibrea-Correa4,5, F. Barile7,8, D. Bemmerer9, A. Best4,5,*, A. Boeltzig4,5, C. Broggini10, C. G. Bruno6, A. Caciolli10,11, F. Cavanna12, T. Chillery6, P. Colombetti12, P. Corvisiero13,14, S. Cristallo15,16, T. Davinson6, R. Depalo11,10, A. Di Leva4,5, Z. Elekes3, F. Ferraro13,14, E. Fiore7,8, A. Formicola2,†, Zs. Fülöp3, G. Gervino17,18, A. Guglielmetti19,20, C. Gustavino21, Gy. Gyürky3, G. Imbriani4,5, M. Junker2, M. Lugaro22,23, P. Marigo10,11, E. Masha19,20, R. Menegazzo10, V. Mossa8, F. R. Pantaleo7,8, V. Paticchio8, R. Perrino8,‡, D. Piatti10,11, P. Prati13,14, L. Schiavulli7,8, K. Stöckel9,24, O. Straniero15,2, T. Szücs3, M. P. Takács9,24, F. Terrasi25,5, D. Vescovi16,26, and S. Zavatarelli14 (LUNA Collaboration)
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2. News to Report

a. IOP Nuclear Physics Group Early Career Prize nominations

We would like to remind everyone that the call for nominations for the IOP Nuclear Physics Group Early Career Researcher Prize is currently open. This prize is awarded to an individual, at an early stage of their career, who has made a significant contribution to either experimental or theoretical nuclear physics research in either fundamental or applied areas.

Researchers, who are within 6 years of the completion of their Ph.D. or, for those without a Ph.D, within 10 years of the start of their first employment contract where research is the primary function of their role are eligible. Nominees should be employed by, studying at, or obtained their Ph.D. at a UK or Irish institution or be an IOP Nuclear Physics Group member. The winner receives £250 and is invited to present at the annual IOP Nuclear Physics Conference.

The nomination form will be available soon at: Nuclear Physics Early Career Researcher Prize | Institute of Physics (iop.org) or can be obtained by emailing the Group's Secretary at james.benstead@awe.co.uk.

This completed form should be sent to the Secretary of the Nuclear Physics Group at james.benstead@awe.co.uk by 30th November 2021, with a supporting statement from a referee external to the nominee's current place of study or work sent no later than 7th December 2021.

We also support anyone wishing to self-nominate, though students should have the support of their supervisor in doing so.

Contribution by David Sharp
(IOP Nuclear Physics Group Chair)

b. Next IOP Nuclear Physics Group Colloquium

Future directions of UK nuclear physics from an ECR perspective
Thursday December 9th 3pm GMT
Speakers: Jacob Heery, Peter Pauli, James Smallcombe
Chair: Jack Henderson

This open access colloquium will be hosted on behalf of the IOP Nuclear Physics Group by the University of Surrey.

To join please use the following link to access the Zoom platform:
https://surrey-ac.zoom.us/j/97668515542
Meeting ID: 976 6851 5542
Passcode: IOP-2021

Talks:

Using a charge plunger method for lifetime measurements in the heavy elements
Jacob Heery - University of Surrey

The hunt for exotic particles at Jefferson Lab and EIC
Peter Pauli - University of Glasgow

E0 Transitions Present and Future
James Smallcombe - University of Liverpool

The IOP Nuclear Physics Group Colloquia is a series of online open access research colloquia for all those involved in nuclear physics. This series will highlight the latest results, new techniques and future prospects in the field, for the attention and discussion of the research community.

Colloquia feature talks from invited international speakers and the best of young British researchers, as well as open discussions. Each of the sessions will be chaired on behalf of the IOP Nuclear Physics Group by experts in the field invited from esteemed UK research groups.

Sessions are open to all, but are aimed towards graduate students, researchers and academics. We encourage student participation in discussions and offer the option to submit anonymous questions through the session chair.

Please check the IOP events page for details of future colloquia
https://events.iop.org/tagsearch/NuclearPhysicsGroup

Contribution by James Smallcombe (University of Liverpool)

c. Two faculty positions in Theoretical Nuclear Physics at Surrey

The theoretical nuclear physics group at Surrey is looking to recruit two new faculty to tenured lecturing positions. This exceptional and rare opportunity is open to researchers who would reinforce the long-established focus on nuclear theory at Surrey and also work side by side with our experimental nuclear physics group. Closing date for applications is 17 January 2022. Details plus contact information can be found at the official university link: https://jobs.surrey.ac.uk/Vacancy.aspx?id=9550&forced=1

(Please contact Paul Stevenson or Wilton Catford with any preliminary enquiries; addresses in link).

Contribution by Paul Stevenson (University of Surrey)

3. Outreach Activity

a. IOP Nuclear Physics Group committee overview

The IOP Nuclear Physics Group is one of the largest IOP special interest groups and currently has over 2000 members. The Group's activities are coordinated and led by the Group's management committee composed of elected members from throughout the community.

The committee is able to support the Group's members in a number of different ways, including helping to coordinate and arrange events (such as the annual IOP Nuclear Physics conference), providing funding for members to attend events or training, and administering the Group's annual Early Career award.

The **Group's webpage**, which provides more details may be found at: https://www.iop.org/physics-community/special-interest-groups/nuclear-physics-group

The **Group's (brand new!) Twitter** account is: @iopnpg

Short bios for a number of the Group's current committee members are given below, in order to help provide a better overview of those involved and the current research being performed in the field of Nuclear Physics.

Dr David Sharp – Chair of IOP Nuclear Physics Group Committee
I have been Chair of the committee since 2020. I am an Ernest Rutherford Fellow at The University of Manchester where my research is focussed on the study of the single-particle structure of nuclei. I use radioactive ion beams to perform studies on exotic nuclei at facilities such as ISOLDE at CERN. I have recently also started looking at alternative ways to access information on properties of fission in short-lived nuclei using surrogate reactions and radioactive beams. I have twelve years' experience in the field of experimental nuclear physics but also spent time working in industry as an R&D scientist. In this role I worked at developing new patentable technologies for trace chemical detection. I believe I bring a mix of experience from both industrial and academic settings to the committee. Within my own institution I represent the views of early career researchers within my department, and I believe the IOP Nuclear Physics Group Committee also has a role to play in promoting and supporting early career researchers within our community.

Dr Stefanos Paschalis – Treasurer
I am a Senior Lecturer in Nuclear Technology at the University of York since 2016. My research activities include experimental work to probe the nuclear structure of exotic nuclei. As an academic at York, I have expanded my research portfolio beyond fundamental nuclear science to include societal applications of nuclear technology. I am collaborating closely with UK industry and research organisations on research projects ranging from nuclear security to medical imaging and protontherapy. Before joining the group at York, I worked as postdoctoral research fellow at Lawrence Berkeley National Laboratory, USA and at the Technical University of Darmstadt, Germany. I obtained my PhD from University of Liverpool and completed my first degree at the National Technical University of Athens in Greece. I believe that this international trajectory has equipped me not only with a strong scientific background and a good understanding of the international research landscape but also with experience in working and communicating effectively with a diverse group of people from around the globe. I have already been an active member of IoP Nuclear Physics Group since 2017 and now, in my new role as a Treasurer for the group, I hope to contribute further to the NP Group's activities.

Dr James Benstead – Secretary
James has been the Secretary of the Nuclear Physics Group since 2020. He is a nuclear physicist at AWE and a visiting research fellow at the University of Surrey. His current research interests are in the theoretical calculation of nuclear data and the potential application of quantum computing to nuclear physics.

Dr Rachel Montgomery – Ordinary Member
I am currently an STFC Ernest Rutherford Research Fellow in the Nuclear and Hadron Physics Research Group at the University of Glasgow. My research interests lie in high-luminosity, fixed target, electron nucleon scattering experiments for studying hadron structure. I am particularly interested in novel detector designs for measuring high rates of particles in such experiments. My current research is heavily focussed on the development of a high-rate capable time projection chamber for an upcoming experiment aiming to study the structure of the pion and kaon mesons. This will provide us with insights into the dynamical generation of the mass of the nucleon. The experiment will be performed at Jefferson Lab (USA), where we will scatter electrons from the virtual meson cloud of the nucleon and the time projection chamber will allow us to tag events of interest. I am very much looking forward to working within the Nuclear Physics Group Committee and to learning more about the nuclear physics activities happening across our entire group.

Dr James Smallcombe – Ordinary Member
I am a researcher based at the University of Liverpool. I study collective properties of nuclei in experiments at international accelerator facilities such as TRIUMF in Vancouver. I specialise in the technique of combined gamma-ray and internal conversion electron spectroscopy and I also lead the development of novel detectors for use with radioactive ion beams. As well as research I'm involved in undergraduate and postgraduate teaching, and community outreach.

Dr Philippos Papadakis – Ordinary Member
is a member of the STFC Nuclear Physics Group at Daresbury Laboratory. He is leading the construction of the novel MARA low-energy branch, which will enable the study of exotic proton-rich nuclei through optical spectroscopy and mass measurements. Previously, his research concentrated in the investigation of heavy and super-heavy nuclei, via prompt conversion electron and gamma-ray spectroscopy, decay spectroscopy and nuclear chemistry. He is an advocate of public engagement and diversity in science. Most notably he organised large-scale public engagement events in Finland, is the chair of the STFC Public Engagement for Early-career Researchers Forum and the equality, diversity and inclusion champion for the STFC Technology Department.

Dr Jack Henderson – Ordinary Member
I studied for my PhD at the University of York, performing gamma-ray spectroscopy of extremely neutron-deficient isotopes of strontium. Following the completion of my PhD, I worked as a postdoctoral researcher at TRIUMF in Vancouver, Canada, and at Lawrence Livermore National Laboratory in California, USA. I was then awarded a UKRI Future Leaders Fellowship, which I took up at the University of Surrey in 2020. I specialise in gamma-ray spectroscopy of exotic nuclei, making use of reactions such as Coulomb excitation to study nuclear structure. In addition, I work with novel scintillators for fast-neutron detection, looking to bridge the gap between neutron spectroscopy for fundamental science and applications.

Malik Salaam – Ordinary Member
is an early career physicist at AWE. He is an alumnus of three Universities, having done a BSc. in astronomy involving particle detection at South Wales, a graduate diploma in physics involving materials research at York, and an MSc in applied physics involving molecular spectroscopy at Strathclyde. After working in the photonics industry as a test engineer, he joined AWE where he worked on radiation detection and is currently working in computational physics. He also holds secretarial roles in internal groups and is involved with the IoP Particle Accelerators and Beams Group.

Latha Chappa – Ordinary Member
I have been a member of the IOP since October 2019, and have been elected as a member of the Nuclear Physics Group. I did my undergraduate in 1996 from Andhra University with Electronics as major and Microprocessors as specialization. I did my post graduate in Nuclear Physics from Andhra University in 1998 with Isotope Technology as specialization. After being a lecturer and

reader in private institutions, I did my MBA in 2012 with HR as specialization from Andhra University. But my interest towards Nuclear Physics made me pursue my PhD from Selinus University in 2020. At present I'm doing my individual research in fundamental science/ physics. I also do freelance coaching to students.

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4. Media Interactions

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