UK Nuclear Activity

November 2019 Issue 77

In this issue,

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1. Nuclear Physics Publications for November (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. Rev. C **100**, 051302(R)
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.051302

Extracting the spectral signature of α clustering in ^{44,48,52}Ti using a continuous wavelet transform

Sam Bailey, Tzany Kokalova, Martin Freer, Carl Wheldon, Robin Smith, Joseph Walshe, Neil Curtis, Neven Soić, Lovro Prepolec, Vedrana Tokić, Francisco Miguel Marqués, Lynda Achouri, Franck Delaunay, Quentin Deshayes, Marian Parlog, Beatriz Fernández-Dominguez, Bertrand Jacquot, and Asim Soylu
Published 15 November 2019

Phys. Rev. C **100**, 054310
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.054310

α-decay properties of ^{200,202}Fr

L. Ghys[1,2,*], A. N. Andreyev[3,4], M. Huyse[1], P. Van Duppen[1], S. Antalic[5], A. Barzakh[6], L. Capponi[7], T. E. Cocolios[1,8,9], J. Cubiss[3], X. Derkx[7,10], H. De Witte[1], J. Elseviers[1], F. P. Hessberger[11,12], Z. Kalaninová[5,13], U. Köster[14], J. F. W. Lane[7], V. Liberati[7], S. Mitsuoka[4], Y. Nagame[4], K. Nishio[4], S. Ota[4], D. Pauwels[2], R. D. Page[15], L. Popescu[2], D. Radulov[1], M. M. Rajabali[1], E. Rapisarda[8], K. Sandhu[7], V. L. Truesdale[3], P. Van den Bergh[1], and Y. Wakabayashi[4,16]
Published 7 November 2019

Phys. Rev. C **100**, 052201(R)
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.052201

Beam asymmetry Σ for the photoproduction of η and η′ mesons at E_γ=8.8GeV

S. Adhikari[22], A. Ali[10], M. Amaryan[22], A. Austregesilo[3], F. Barbosa[14], J. Barlow[3,5], A. Barnes[3,5], E. Barriga[7], R. Barsotti[12], T. D. Beattie[23], V. V. Berdnikov[17], T. Black[20], W. Boeglin[6], M. Boer[4], W. J. Briscoe[8], T. Britton[14], W. K. Brooks[24], B. E. Cannon[7], N. Cao[11], E. Chudakov[14], S. Cole[1], O. Cortes[8], V. Crede[7], M. M. Dalton[14], T. Daniels[20], A. Deur[14], S. Dobbs[7], A. Dolgolenko[13], R. Dotel[6], M. Dugger[1], R. Dzhygadlo[10], H. Egiyan[14], T. Erbora[6], A. Ernst[7], P. Eugenio[7], C. Fanelli[16], S. Fegan[8], A. M. Foda[23], J. Foote[12], J. Frye[12], S. Furletov[14], L. Gan[20], A. Gasparian[19], N. Gevorgyan[27], C. Gleason[12], K. Goetzen[10], A. Goncalves[7], V. S. Goryachev[13], L. Guo[6], H. Hakobyan[24], A. Hamdi[10], G. M. Huber[23], A. Hurley[28], D. G. Ireland[9], M. M. Ito[14], N. S. Jarvis[3], R. T. Jones[5], V. Kakoyan[27], G. Kalicy[4], M. Kamel[6], C. Kourkoumelis[2], S. Kuleshov[24], I. Larin[15], D. Lawrence[14], D. I. Lersch[7], H. Li[3], W. Li[28], B. Liu[11], K. Livingston[9], G. J. Lolos[23], V. Lyubovitskij[25,26], D. Mack[14], H. Marukyan[27], P. Mattione[14], V. Matveev[13], M. McCaughan[14], M. McCracken[3], W. McGinley[3], C. A. Meyer[3,*], R. Miskimen[15], R. E. Mitchell[12], F. Nerling[10], L. Ng[7], A. I. Ostrovidov[7], Z. Papandreou[23], M. Patsyuk[16], C. Paudel[6], P. Pauli[9], R. Pedroni[19], L. Pentchev[14], K. J. Peters[10], W. Phelps[8], E. Pooser[14], N. Qin[21], J. Reinhold[6], B. G. Ritchie[1], L. Robison[21], D. Romanov[17], C. Romero[24], C. Salgado[18], A. M. Schertz[28], R. A. Schumacher[3], J. Schwiening[10], A. Yu. Semenov[23], I. A. Semenova[23], K. K. Seth[21], X. Shen[11], M. R. Shepherd[12], E. S. Smith[14], D. I. Sober[4], A. Somov[14], S. Somov[17], O. Soto[24], M. Staib[3], J. R. Stevens[28], I. I. Strakovsky[8], K. Suresh[23], V. V. Tarasov[13], A. Teymurazyan[23], A. Thiel[9], G. Vasileiadis[2], T. Whitlatch[14], N. Wickramaarachchi[22], M. Williams[16], T. Xiao[21], Y. Yang[16], J. Zarling[12], Z. Zhang[29], G. Zhao[11], Q. Zhou[11], X. Zhou[29], and B. Zihlmann[14] (The GlueX Collaboration)
Published 27 November 2019

Phys. Rev. C **100**, 054317
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.054317

Lifetime measurements in ^{52,54}Ti to study shell evolution toward N=32

A. Goldkuhle[1,*], C. Fransen[1], A. Blazhev[1], M. Beckers[1], B. Birkenbach[1], T. Braunroth[1], E. Clément[2], A. Dewald[1], J. Dudouet[3], J. Eberth[1], H. Hess[1], B. Jacquot[2], J. Jolie[1], Y.-H. Kim[4], A. Lemasson[2], S. M. Lenzi[5,6], H. J. Li[2], J. Litzinger[1], C. Michelagnoli[5,6,2], C. Müller-Gatermann[1], B. S. Nara Singh[7,8], R. M. Pérez-Vidal[9], D. Ralet[10,11,12], P. Reiter[1], A. Vogt[1], N. Warr[1], K. O. Zell[1], A. Ataç[13], D. Barrientos[14], C. Barthe-Dejean[2], G. Benzoni[15], A. J. Boston[16], H. C. Boston[16], P. Bourgault[2], I. Burrows[17], J. Cacitti[2], B. Cederwall[13], M. Ciemala[18], D. M. Cullen[7], G. De France[2], C. Domingo-Pardo[9], J.-L. Foucher[2], G. Fremont[2], A. Gadea[9], P. Gangnant[2], V. González[19], J. Goupil[2], C. Henrich[12], C. Houarner[2], M. Jean[2], D. S. Judson[16], A. Korichi[10], W. Korten[20], M. Labiche[17], A. Lefevre[2], L. Legeard[2], F. Legruel[2], S. Leoni[15,21], J. Ljungvall[10], A. Maj[18], C. Maugeais[2], L. Ménager[2], N. Ménard[2], R. Menegazzo[5], D. Mengoni[5,6], B. Million[15], H. Munoz[2], D. R. Napoli[22], A. Navin[2], J. Nyberg[23], M. Ozille[2], Zs. Podolyak[24], A. Pullia[15,25], B. Raine[2], F. Recchia[5,6], J. Ropert[2], F. Saillant[2], M. D. Salsac[20], E. Sanchis[19], C. Schmitt[2], J. Simpson[17], C. Spitaels[2], O. Stezowski[3], Ch. Theisen[20], M. Toulemonde[26], M. Tripon[2], J.-J. Valiente Dobón[22], G. Voltolini[2], and M. Zielińska[20] (AGATA Collaboration)
Published 18 November 2019

Phys. Rev. C **100**, 054319
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.054319

Highly deformed bands in Nd nuclei: New results and consistent interpretation within the cranked Nilsson-Strutinsky formalism

C. M. Petrache[1], B. F. Lv[1], A. Astier[1], E. Dupont[1], K. K. Zheng[1], P. T. Greenlees[2], H. Badran[2], T. Calverley[2,*], D. M. Cox[2,†], T. Grahn[2], J. Hilton[2,*], R. Julin[2], S. Juutinen[2], J. Konki[2,‡], J. Pakarinen[2], P. Papadakis[2,§], J. Partanen[2], P. Rahkila[2], P. Ruotsalainen[2], M. Sandzelius[2], J. Saren[2], C. Scholey[2], J. Sorri[2,‖], S. Stolze[2,¶], J. Uusitalo[2], B. Cederwall[3], Ö. Aktas[3], A. Ertoprak[3], H. Liu[3], S. Guo[4], M. L. Liu[4], J. G. Wang[4], X. H. Zhou[4], I. Kuti[5], J. Timár[5], A. Tucholski[6], J. Srebrny[6], and C. Andreoiu[7]
Published 15 November 2019

Phys. Rev. C **100**, 054321
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.054321

Single-particle structure of neutron-rich Sr isotopes via ^{2}H(^{94,95,96}Sr,p) reactions

S. Cruz[1,2], K. Wimmer[3,4,*], P. C. Bender[2], R. Krücken[1,2], G. Hackman[2], F. Ames[2], C. Andreoiu[5], R. A. E. Austin[6], C. S. Bancroft[3], R. Braid[7], T. Bruhn[2], W. N. Catford[8], A. Cheeseman[2], A. Chester[9], D. S. Cross[5], C. Aa. Diget[10], T. Drake[11], A. B. Garnsworthy[2], R. Kanungo[2,6], A. Knapton[8], W. Korten[12,2], K. Kuhn[7], J. Lassen[2], R. Laxdal[2], M. Marchetto[2], A. Matta[8,13], D. Miller[2], M. Moukaddam[2], N. A. Orr[13], N. Sachmpazidi[3], A. Sanetullaev[6,2], C. E. Svensson[14], N. Terpstra[3], C. Unsworth[2], and P. J. Voss[5]

Published 18 November 2019

Phys. Rev. C **100**, 054327
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.054327

Detailed spectroscopy of ^{46}Ca: A study of the β^{-} decay of ^{46}K

J. L. Pore[1,*], C. Andreoiu[1], J. K. Smith[2,†], A. D. MacLean[3], A. Chester[2,‡], J. D. Holt[2], G. C. Ball[2], P. C. Bender[2,§], V. Bildstein[3], R. Braid[4], A. Diaz Varela[3], R. Dunlop[3], L. J. Evitts[2,5,¶], A. B. Garnsworthy[2], P. E. Garrett[3], G. Hackman[2], S. V. Ilyushkin[4], B. Jigmeddorj[3], K. Kuhn[4], P. Kunz[2,1], A. T. Laffoley[3], K. G. Leach[2,**], D. Miller[2,††], W. J. Mills[2], W. Moore[4], M. Moukaddam[2,‡‡], L. N. Morrison[2,5], B. Olaizola[3,§§], E. E. Peters[6], A. J. Radich[3], E. T. Rand[3], F. Sarazin[4], D. Southall[2,¶¶], C. E. Svensson[3], S. J. Williams[7], and S. W. Yates[6,8]

Published 25 November 2019

Phys. Rev. C **100**, 054330
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.054330

Lifetime measurements of short-lived excited states, and shape changes in ^{69}As and ^{66}Ge nuclei

M. Matejska-Minda[1,*], P. Bednarczyk[1], B. Fornal[1], F. R. Xu[2], W. Y. Liang[2], G. de Angelis[3], S. Aydin[4,5], S. Brambilla[6], M. Ciemała[1], E. Farnea[3,†], T. Hüyük[3], G. Jaworski[7], M. Kmiecik[1], M. Krzysiek[1], S. Leoni[6,8], A. Maj[1], R. Menegazzo[4], W. Męczyński[1], C. Michelagnoli[3,9], M. Palacz[7], F. Recchia[4], E. Sahin[3,10], J. Styczeń[1], B. Szpak[1], C. A. Ur[4,11], R. Wadsworth[12], and M. Zięblński[1]

Published 26 November 2019

Phys. Rev. C **100**, 054333
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.054333

High-precision mass measurements and production of neutron-deficient isotopes using heavy-ion beams at IGISOL

M. Vilén[1,*], A. Kankainen[1], P. Bączyk[2], L. Canete[1], J. Dobaczewski[2,3,4], T. Eronen[1], S. Geldhof[1], A. Jokinen[1], M. Konieczka[2], J. Kostensalo[1], I. D. Moore[1], D. A. Nesterenko[1], H. Penttilä[1], I. Pohjalainen[1], M. Reponen[1], S. Rinta-Antila[1], A. de Roubin[1], W. Satuła[2,4], and J. Suhonen[1]

Published 26 November 2019

Phys. Rev. C **100**, 054615
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.054615

Elastic transfer and parity dependence of the nucleus-nucleus optical potential

Nguyen Tri Toan Phuc[1,2,*], R. S. Mackintosh[3], Nguyen Hoang Phuc[2], and Dao T. Khoa[2]

Published 18 November 2019

Phys. Rev. C **100**, 044903 (2019)
https://journals.aps.org/prc/abstract/10.1103/PhysRevC.100.044903
Two-particle differential transverse momentum and number density correlations in p–Pb collisions at 5.02 TeV and Pb-Pb collisions at 2.76 TeV at the CERN Large Hadron Collider
ALICE Collaboration, UK Authors: H.A. Andrews, L.S. Barnby, M. Borri, M. Chartier, G. Contin, 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 2019

Phys. Rev. Lett. **123**, 182301
https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.123.182301
Kaon Photoproduction and the Λ Decay Parameter α_
D. G. Ireland[1,*], M. Döring[2,3,†], D. I. Glazier[1,‡], J. Haidenbauer[4,§], M. Mai[2,¶], R. Murray-Smith[5,**], and D. Rönchen[6,]
Published 28 October 2019

Phys. Rev. Lett. **123**, 192301 (2019)
https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.123.192301
Measurement of Y(1S) Elliptic Flow at Forward Rapidity in Pb-Pb Collisions at $\sqrt{s_{NN}}$=5.02 TeV
ALICE Collaboration, UK Authors: H.A. Andrews, L.S. Barnby, M. Borri, M.D. Buckland, M. Chartier, G. Contin, 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, S. Ragoni, O. Villalobos Baillie, E.Willsher
Published 6 November 2019

Phys. Rev. Lett. **123**, 142301 (2019)
https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.123.142301
Investigations of Anisotropic Flow Using Multiparticle Azimuthal Correlations in pp, p–Pb, Xe-Xe, and Pb-Pb Collisions at the LHC
ALICE Collaboration, UK Authors: H.A. Andrews, L.S. Barnby, M. Borri, M.D. Buckland, M. Chartier, G. Contin, 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, S. Ragoni,O. Villalobos Baillie, E.Willsher, N. Zardoshti
Published 2 October 2019

Phys. Rev. D **100**, 092004 (2019)
https://journals.aps.org/prd/abstract/10.1103/PhysRevD.100.092004
Measurement of charged jet cross section in pp collisions at √s=5.02 TeV
ALICE Collaboration, UK Authors: H.A. Andrews, L.S. Barnby, M. Borri, M.D. Buckland, M. Chartier, G. Contin, 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, S. Ragoni, O. Villalobos Baillie, E.Willsher
Published 13 November 2019

Eur. Phys. J. C (2019) **79**: 896
https://link.springer.com/article/10.1140/epjc/s10052-019-7389-9
Measurement of the inclusive isolated photon production cross section in pp collisions √s = 7 TeV
ALICE Collaboration, UK Authors: H.A. Andrews, L.S. Barnby, M. Borri, M.D. Buckland, M. Chartier, G. Contin, 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, S. Ragoni, O. Villalobos Baillie, E.Willsher
Published 7 November 2019

Eur. Phys. J. C (2019) **79**: 857
https://link.springer.com/article/10.1140/epjc/s10052-019-7350-y
Charged-particle production as a function of multiplicity and transverse spherocity in pp collisions at √s = 5.02 and 13 TeV
ALICE Collaboration, UK Authors: H.A. Andrews, L.S. Barnby, M. Borri, M.D. Buckland, M. Chartier, G. Contin, 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, S. Ragoni, O. Villalobos Baillie, E.Willsher
Published 17 October 2019

J. High Energ. Phys. (2019) **10**: 84
https://link.springer.com/article/10.1007/JHEP10%282019%29084
Inclusive J/ψ production at mid-rapidity in pp collisions at √s = 5.02 TeV
ALICE Collaboration, UK Authors: H.A. Andrews, L.S. Barnby, M. Borri, M.D. Buckland, M. Chartier, G. Contin, 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, S. Ragoni, O. Villalobos Baillie, E.Willsher
Published 7 October 2019

Physics Letters B, **798**, 2019
https://www.sciencedirect.com/science/article/pii/S0370269319307208?via%3Dihub
Lifetime measurements of excited states in ^{163}W and the implications for the anomalous B(E2) ratios in transitional nuclei
M.C. Lewis[a], D.T. Joss[a], B. Saygı[b], R.D. Page[a], D.M. Cullen[c], L. Barber[c], M.M. Giles[c], J. Simpson[d], M.A.M. Al-Aqeel[ae], H. Badran[f], T. Braunroth[g], A.D. Briscoe[a], T. Calverley[af], A. Dewald[g], M. Doncel[a], T. Grahn[f], P.T. Greenlees[f], C. Henrich[h], A. Herzáň[ai], R.-D. Herzberg[a], E. Higgins[a], J. Hilton[af], S. Ilieva[h], R. Julin[f], S. Juutinen[f], J. Keatings[j], T. Kröll[h], M. Labiche[d], K. Mashtakov[j], B.S. Nara Singh[cj], E. Parr[a], J. Partanen[f], E.S. Paul[a], P. Rahkila[f], M. Sandzelius[f], J. Sarén[f], C. Scholey[f], M. Siciliano[kl], P. Spagnoletti[j], S. Stolze[f], S.V. Szwec[f], M.J. Taylor[m], and J. Uusitalo
Published 10 November 2019

Physics Letters B, **798**, 2019, 134926
https://www.sciencedirect.com/science/article/pii/S0370269319306483
Coherent J/ψ photoproduction at forward rapidity in ultra-peripheral Pb–Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV
ALICE Collaboration, UK Authors: H.A. Andrews, L.S. Barnby, M. Borri, M.D. Buckland, M. Chartier, G. Contin, 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, S. Ragoni, O. Villalobos Baillie, E.Willsher, and N. Zardoshti
Published 10 November 2019

Physics Letters B, **797**, 2019, 134905
https://www.sciencedirect.com/science/article/pii/S0370269319306276
3ΛH and 3Λ-barH-bar lifetime measurement in Pb–Pb collisions at $\sqrt{s_{NN}}$ = 5.02 via two-body decay
ALICE Collaboration, UK Authors: H.A. Andrews, L.S. Barnby, M. Borri, M.D. Buckland, M. Chartier, G. Contin, 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, S. Ragoni, O. Villalobos Baillie, and E.Willsher
Published 10 October 2019

Physics Letters B, **797**, 134822
https://www.sciencedirect.com/science/article/pii/S0370269319305362
Study of the Λ–Λ interaction with femtoscopy correlations in pp and p–Pb collisions at the LHC
ALICE Collaboration, UK Authors: H.A. Andrews, L.S. Barnby, M. Borri, M.D. Buckland, M. Chartier, G. Contin, 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, S. Ragoni, O. Villalobos Baillie, and E.Willsher
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2. News to Report

a. Announcement of the 24th UK Monte Carlo User Group Meeting (MCNEG)

MCNEG AWE

We are pleased to announce that the 24th MCNEG meeting will be held at the Culham Conference Centre, Oxfordshire 14th-15th January 2020. This meeting provides a forum for new and experienced users of Monte Carlo software for radiation transport. We would like to extend our invitation to presenters including academics, researchers and students from the fields of medical physics, radiation dosimetry, radiation detectors, reactor, space, shielding modelling and related fields.

Thanks to sponsorship from AWE plc. this year's conference will be **free to attend**.

We would like to encourage you to submit an abstract for presentations and to register. To submit an abstract and/or register please email: **mcneg@awe.co.uk**
With: Name, Affiliation, Abstract and Dietary requirements.

The deadline for abstracts is 13th December 2019.

Venue address:

Culham Conference Centre, Culham Science Centre, Abingdon, Oxfordshire, OX14 3DB
Parking is available on site or there is a train station close by (~5 min walk): Culham railway station serves the village of Culham in Oxfordshire. It is on the Cherwell Valley Line between Didcot Parkway and Banbury. It is served by local train services provided by Great Western Railway.

A few of the local hotels are:

- The Hilton Garden Inn – Abingdon
- Courtyard by Marriott - Oxford South
- The Cosener's House – Abingdon

For more information, to submit an abstract, or to register, please contact:
Simon Rice
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Direct: +44(0) 118 98 56085
AWE, Aldermaston, Reading, RG7 4PR

Please see **www.mcneg.org.uk** for further updates.

Contributed by Simon Rice (AWE)

b. Announcement of TALENT 2020 courses

The TALENT (Training in Advanced Low Energy Nuclear Theory) initiative aims at providing an advanced and comprehensive training to graduate students and early career researchers in all aspects of low-energy nuclear theory. TALENT offers intensive three-week courses on a rotating set of topics. General information on TALENT and past courses can be found at **http://www.nucleartalent.org.**

Three TALENT courses will be offered in 2020. The topics and principal lecturers are:

Atomic Nuclei as Open Quantum Systems: Unifying Nuclear Structure and Reactions will be held at the INT in Seattle, WA, USA from June 22 to July 10, 2020. The principal lecturers will be Christian Forssén (Chalmers), Witek Nazarewicz (MSU), Marek Ploszajczak (GANIL), and Alexander Volya (FSU). In this course, students will learn about the fundamental concepts pertaining to the unification of nuclear structure and reaction theory and they will be introduced to state-of-the-art theoretical methods that can be used for weakly bound and unbound nuclear states.
Contact:
Alexander Volya (volya@physics.fsu.edu).

Density Functional Theory and Self-Consistent Methods will be held at LBNL, in Berkeley, CA, USA from July 6 to July 24, 2020. The principal instructors will be Nicolas Schunck (LLNL), Michael Forbes (WSU), Heiko Hergert (MSU), and Tomás Rodríguez (Univ. Autonoma de Madrid). The main goal of the course is to gain an in-depth understanding of the basic concepts, mathematical methods, and computational techniques used to solve the quantum many-body problem within the framework of energy density functional theory. This will be achieved both through regular lectures and the development of a computational project over the duration of the course.
Contact: Nicolas Schunck (schunck1@llnl.gov).

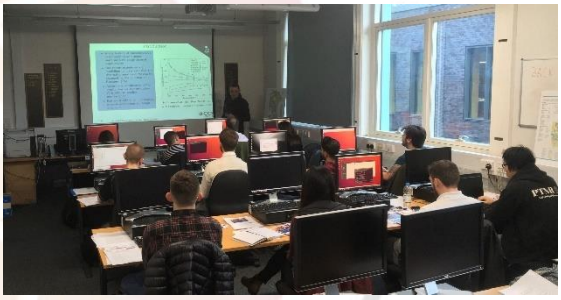
Machine Learning and Data Analysis for Nuclear Physics will be held at the ECT* in Trento, Italy from June 22 to July 10, 2020. The principal instructors will be Daniel Bazin (MSU, USA), Morten Hjorth-Jensen (MSU, USA), Michelle Kuchera (Davidson College, USA), Sean Liddick (NSCL, USA), and Raghuram Ramanujan (Davidson College, USA). The major scope is to give the participants a deeper understanding on what Machine Learning and Data Analysis are and how they can be used to analyze data from nuclear physics experiments and perform theoretical calculations of nuclear many-body systems.
Contact:
Morten Hjorth-Jensen (hjensen@msu.edu).

To express interest or find out more about any course, please check **http://www.nucleartalent.org** and/or email the designated contact.

Application details will be announced in late 2019 or early 2020.

Contributed by Jacek Dobaczewski (University of York)

c. FISPACT-II Training Workshop



The workshop in progress

From October 23-25 2019, the University of Manchester hosted a FISPACT-II training workshop – the first time such an event has been held in the UK (FISPACT-II workshops are regularly held in Europe). FISPACT-II is a nuclear inventory and burn-up code developed by the UKAEA, which was developed primarily for fusion, but has wider applications including fission, medical, and astrophysics.

The UKNDN (UK nuclear data network) grant sponsored the workshop, which was free to participants. Over the course of 2 days, four instructors from UKAEA delivered a mixture of lectures and tutorial sessions with the aim of addressing the needs of both new and experienced FISPACT-II users. The workshop was attended by PhD students and post-docs from the Universities of Manchester,

Birmingham, Sheffield Hallam, and Oxford, as well as by industrial scientists and engineers from Magnox, TUD-SUV, and NCBJ (Poland).

Contributed by Mark Gilbert
(UKAEA)

The workshop attendees

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3. Outreach Activity

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4. Media Interactions

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