

Prof. Jacek Jan Dobaczewski
Professor
Physics
Email: jacek.dobaczewski@york.ac.uk
Phone: (01904) 322449



Employment

Chair in Theoretical Nuclear Physics

Professor
Physics
University of York
Heslington, York
1 Jun 2015 → present

Professor, honorary position

Univ Warsaw, University of Warsaw, Fac Phys
Poland
1 Jun 2015 → present

Adjunct Senior Scientist, honorary position

Helsinki Institute of Physics
Helsinki, Finland
1 Jan 2014 → present

Research Professor

Univ Jyvaskyla, University of Jyvaskyla, Dept Phys
Finland
1 Jan 2007 → 31 Dec 2017

Professor

Univ Warsaw, University of Warsaw, Fac Phys
Poland
1 Feb 2001 → 31 May 2015

Research output

Electromagnetic properties of indium isotopes illuminate the doubly magic character of ^{100}Sn

Karthein, J., Ricketts, C. M., Garcia Ruiz, R. F., Billowes, J., Binnersley, C. L., Cocolios, T. E., Dobaczewski, J., Farooq-Smith, G. J., Flanagan, K. T., Georgiev, G., Gins, W., de Groot, R. P., Gustafsson, F. P., Holt, J. D., Kanellakopoulos, A., Koszorus, Á., Leimbach, D., Lynch, K. M., Miyagi, T. & Nazarewicz, W. & 6 others, Neyens, G., Reinhard, P.-G., Sahoo, B. K., Vernon, A. R., Wilkins, S. G. & Yordanov, D. T., 30 Sept 2024, In: Nature Physics. 20, 11, p. 1719-1725 7 p.

Opportunities for fundamental physics research with radioactive molecules

Arrowsmith-Kron, G., Athanasakis-Kaklamakis, M., Au, M., Ballot, J., Berger, R., Borschevsky, A., Breier, A. A., Buchinger, F., Budker, D., Caldwell, L., Charles, C., Dattani, N., Groote, R. P. D., DeMille, D., Dickel, T., Dobaczewski, J., Düllmann, C. E., Eliav, E., Engel, J. & Fan, M. & 42 others, Flambaum, V., Flanagan, K. T., Gaiser, A. N., Ruiz, R. F. G., Gaul, K., Giesen, T. F., Ginges, J. S. M., Gottberg, A., Gwinner, G., Heinke, R., Hoekstra, S., Holt, J. D., Hutzler, N. R., Jayich, A., Karthein, J., Leach, K. G., Madison, K. W., Malbrunot-Ettenauer, S., Miyagi, T., Moore, I. D., Moroch, S., Navratil, P., Nazarewicz, W., Neyens, G., Norrgard, E. B., Nusgart, N., Pašteka, L. F., Petrov, A. N., Plaß, W. R., Ready, R. A., Reiter, M. P., Reponen, M., Rothe, S., Safranova, M. S., Scheidenerger, C., Shindler, A., Singh, J. T., Skripnikov, L. V., Titov, A. V., Udrescu, S.-M., Wilkins, S. G. & Yang, X., 12 Jul 2024, In: Reports on progress in physics. 87, 8, 1 p., 084301.

Measurements of binding energies and electromagnetic moments of silver isotopes – A complementary benchmark of density functional theory

Groote, R. P. D., Nesterenko, D. A., Kankainen, A., Bissell, M. L., Beliuskina, O., Bonnard, J., Campbell, P., Canete, L., Cheal, B., Delafosse, C., Roubin, A. D., Devlin, C. S., Dobaczewski, J., Eronen, T., Ruiz, R. F. G., Geldhof, S., Gins, W., Hukkanen, M., Imgram, P. & Mathieson, R. & 7 others, Koszorús, Á., Moore, I. D., Pohjalainen, I., Reponen, M., Borne, B. V. D., Vilén, M. & Zadvornaya, S., 1 Jan 2024, In: Physics Letters B. 848, 6 p., 138352.

Shape polarization in the tin isotopes near N=60 from precision g-factor measurements on short-lived 11/2⁻ isomers

Gray, T. J., Stuchbery, A. E., Dobaczewski, J., Blazhev, A., Alshammari, H. A., Bignell, L. J., Bonnard, J., Coombes, B. J., Dowie, J. T. H., Gerathy, M. S. M., Kibédi, T., Lane, G. J., McCormick, B. P., Mitchell, A. J., Nicholls, C., Pope, J. G., Reinhard, P.-G., Spinks, N. J. & Zhong, Y., 10 Dec 2023, In: Physics Letters B. 847, 6 p., 138268.

Nuclear DFT electromagnetic moments in heavy deformed open-shell odd nuclei

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Isomeric Excitation Energy for 99In^m from Mass Spectrometry Reveals Constant Trend Next to Doubly Magic 100Sn

Nies, L., Atanasov, D., Athanasakis-Kaklamakis, M., Au, M., Blaum, K., Dobaczewski, J., Hu, B. S., Holt, J. D., Karthein, J., Kulikov, I., Litvinov, Y. A., Lunney, D., Manea, V., Miyagi, T., Mousseot, M., Schweikhard, L., Schwenk, A., Sieja, K. & Wienholtz, F., 14 Jul 2023, In: Physical Review Letters. 131, 2, 8 p., 022502.

A new avenue in the search for CP violation: Mössbauer spectroscopy of 227Ac

Scheck, M., Chapman, R., Dobaczewski, J. J., Ederer, C., Ivanov, P., Lorusso, G., O'Donnell, D. & Schröder, C., 26 May 2023, In: European Physical Journal A : Hadrons and Nuclei. 59, 5, 6 p., 116.

Nuclear DFT analysis of electromagnetic moments in odd near doubly magic nuclei

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Nuclear moments of indium isotopes reveal abrupt change at magic number 82

Vernon, A. R., Garcia Ruiz, R. F., Miyagi, T., Binningsley, C. L., Billowes, J., Bissell, M. L., Bonnard, J., Cocolios, T. E., Dobaczewski, J., Farooq-Smith, G. J., Flanagan, K. T., Georgiev, G., Gins, W., de Groot, R. P., Heinke, R., Holt, J. D., Hustings, J., Koszorús, Á., Leimbach, D. & Lynch, K. M. & 5 others, Neyens, G., Stroberg, S. R., Wilkins, S. G., Yang, X. F. & Yordanov, D. T., 13 Jul 2022, In: Nature. 607, p. 260-265 6 p.

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Marsh, B. A., Goodacre, T. D., Sels, S., Tsunoda, Y., Andel, B., Andreyev, A. N., Althubiti, N. A., Atanasov, D., Barzakh, A. E., Billowes, J., Blaum, K., Cocolios, T. E., Cubiss, J. G., Dobaczewski, J., Farooq-Smith, G. J., Fedorov, D. V., Fedosseev, V. N., Flanagan, K. T., Gaffney, L. P. & Ghys, L. & 25 others, Huyse, M., Kreim, S., Lunney, D., Lynch, K. M., Manea, V., Palenzuela, Y. M., Molkanov, P. L., Otsuka, T., Pastore, A., Rosenbusch, M., Rossel, R. E., Rothe, S., Schweikhard, L., Seliverstov, M. D., Spagnetti, P., Van Beveren, C., Van Duppen, P., Veinhard, M., Verstraelen, E., Welker, A., Wendt, K., Wienholtz, F., Wolf, R. N., Zadvornaya, A. & Zuber, K., Feb 2022, In: Nature Physics. 18, 2, 1 p., 219.

Symmetry restoration in mean-field approaches

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Solution of universal nonrelativistic nuclear DFT equations in the Cartesian deformed harmonic-oscillator basis. (IX)**HFODD (v3.06h): a new version of the program**

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Finite-range separable pairing interaction in Cartesian coordinates

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Regularized pseudopotential for mean-field calculations

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Properties of spherical and deformed nuclei using regularized pseudopotentials in nuclear DFT

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Model nuclear energy density functionals derived from \texttt{ab initio} calculations

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Establishing the Maximum Collectivity in Highly Deformed $N=Z$ Nuclei

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

Vilén, M., Kankainen, A., Baczyk, P., Canete, L., Dobaczewski, J. J., Eronen, T., Geldhof, S., Jokinen, A., Konieczka, M., Kostensalo, J., Moore, I. D., Nesterenko, D. A., Penttila, H., Pohjalainen, I., Reponen, M., Rinta-Antila, S., de Roubin, A., Satula, W. & Suhonen, J., 26 Nov 2019, In: Physical Review C - Nuclear Physics. 100, 5, 10 p., 054333.

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TOWARDS A NOVEL ENERGY DENSITY FUNCTIONAL FOR BEYOND-MEAN-FIELD CALCULATIONS WITH PAIRING AND DEFORMATION

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Isobaric Multiplet Mass Equation within nuclear Density Functional Theory

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Characterization of the shape-staggering effect in mercury nuclei

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Giant monopole resonances and nuclear incompressibilities studied for the zero-range and separable pairing interactions

Vesely, P., Toivanen, J., Carlsson, B. G., Dobaczewski, J. J., Michel, N. & Pastore, A., 6 Aug 2012, In: Physical Review C (Nuclear Physics). 86, 2, 024303.

Excited superdeformed band in Sm142 identical to Gd146

Hackman, G., Wadsworth, R., Haslip, D. S., Clark, R. M., Dobaczewski, J., Dudek, J., Flibotte, S., Hauschild, K., Hibbert, I. M., Lee, I. Y., Mullins, S. M., Macchiavelli, A. O., Pilote, S., Semple, A. T., Thorslund, I., Timar, J., Vaska, P., Waddington, J. C. & Walker, L., 1 Jan 1995, In: Physical Review C. 52, 5, p. R2293-R2297

Activities

Electromagnetic moments in nuclei within nuclear DFT

Dobaczewski, J. J. (Invited speaker)

29 Jun 2021

Electromagnetic moments in nuclei within nuclear DFT

Dobaczewski, J. J. (Invited speaker)

10 Jun 2021

The magnetic octupole moment of 45Sc

Dobaczewski, J. J. (Invited speaker)

19 Nov 2020

Nuclear Magnetic Moments in EDF approaches

Dobaczewski, J. J. (Invited speaker)

8 Oct 2019

Nuclear magnetic moments and time-odd properties of density functionals

Dobaczewski, J. J. (Invited speaker)

3 Sept 2019

Shape coexistence in neutron deficient mercury isotopes

Dobaczewski, J. J. (Speaker)

1 Aug 2019

Octupole deformations from DFT

Dobaczewski, J. J. (Invited speaker)

25 Jul 2019

Octupole correlations in actinides

Dobaczewski, J. J. (Invited speaker)

18 Apr 2019

More news about novel functionals

Dobaczewski, J. J. (Invited speaker)

18 Mar 2019

Physics: Nuclear Density Functional Theory for determining the properties of atomic nuclei
Dobaczewski, J. J. (Advisor)
2019 → ...

THE ATOMIC NUCLEUS: GREATER THAN THE SUM OF ITS PARTS
Dobaczewski, J. J. (Advisor)
2019 → ...

Properties of ^{229}Th within the state-of-the-art nuclear DFT calculations (progress report)
Dobaczewski, J. J. (Invited speaker)
6 Nov 2018

Isobaric Multiplet Mass Equation within nuclear Density Functional Theory
Dobaczewski, J. J. (Invited speaker)
1 Nov 2018

STFC TECHNOLOGY (External organisation)
Dobaczewski, J. J. (Member)
1 Oct 2018 → 30 Sept 2021

Computing Atomic Nuclei
Dobaczewski, J. J. (Invited speaker)
12 Sept 2018

Nuclear Density Functional Theory and its selected applications
Dobaczewski, J. J. (Invited speaker)
4 Jul 2018

Calculations of nuclear Schiff moments for atomic EDM measurements
Dobaczewski, J. J. (Invited speaker)
14 May 2018

Fission processes - a theoretical viewpoint
Dobaczewski, J. J. (Invited speaker)
11 May 2018

Search for novel nuclear density functionals
Dobaczewski, J. J. (Invited speaker)
6 Apr 2018

Nuclear Schiff and octupole moments of the actinides
Dobaczewski, J. J. (Invited speaker)
21 Feb 2018

Octupole correlations in radium and around it
Dobaczewski, J. J. (Invited speaker)
16 Jan 2018

Nuclear magnetic moments
Dobaczewski, J. J. (Invited speaker)
2 Nov 2017

STFC TECHNOLOGY (External organisation)

Dobaczewski, J. J. (Member)

1 Oct 2017 → 30 Sept 2020

DFT nuclear magnetic moments

Dobaczewski, J. J. (Invited speaker)

26 Sept 2017

Recent progress in building novel nonlocal energy density functionals

Dobaczewski, J. J. (Invited speaker)

5 Sept 2017

Approximate symmetry restoration correction at the SR level with the Lipkin method

Dobaczewski, J. J. (Invited speaker)

28 Feb 2017

Strong-force isospin-symmetry breaking in masses of N~Z nuclei

Dobaczewski, J. J. (Invited speaker)

2 Feb 2017

Journal of physics g-Nuclear and particle physics (Journal)

Dobaczewski, J. J. (Editor in chief)

1 Jan 2017 → 31 Dec 2019

Nuclear energy density functionals generated by higher-order finite-range pseudopotentials

Dobaczewski, J. J. (Invited speaker)

8 Nov 2016

Regularized finite-range DFT generators with pairing

Dobaczewski, J. J. (Invited speaker)

2 Nov 2016

Density Functional Theory and Self-Consistent Methods

Dobaczewski, J. J. (Invited speaker)

18 Jul 2016 → 6 Aug 2016

Density Functionals for Heavy and Superheavy Nuclei

Dobaczewski, J. J. (Invited speaker)

1 Jun 2016

Novel energy density functionals for low-energy nuclear phenomena

Dobaczewski, J. J. (Invited speaker)

31 Mar 2016

Isospin and angular-momentum projection plus conugration interaction

Dobaczewski, J. J. (Invited speaker)

2 Dec 2015

Novel nuclear energy density functionals

Dobaczewski, J. J. (Invited speaker)

4 Nov 2015

Nuclear structure with novel non-local density functionals

Dobaczewski, J. J. (Invited speaker)

20 Oct 2015

Coupling of single-particle motion to nuclear vibrations

Dobaczewski, J. J. (Invited speaker)
15 Sept 2015

Nuclear Structure

Dobaczewski, J. J. (Invited speaker)
25 Aug 2015 → 27 Aug 2015

New developments in nuclear DFT

Dobaczewski, J. J. (Invited speaker)
29 Jul 2015

New ideas for building nuclear energy density functionals

Dobaczewski, J. J. (Invited speaker)
3 Jul 2015

Journal of physics g-Nuclear and particle physics (Journal)

Dobaczewski, J. J. (Editor)
1 Jan 2014 → 31 Dec 2016

Neutron Time-of-flight Committee (INTC) (External organisation)

Dobaczewski, J. J. (Advisor)
1 Jan 2013 → 31 Dec 2016

Computer Physics Communications (Journal)

Dobaczewski, J. J. (Editor)
2011 → 2013

Training in Advanced Low Energy Nuclear Theory (TALENT) (External organisation)

Dobaczewski, J. J. (Member)
2011 → ...

Belgian FNRS Commission des Sciences Exactes et Naturelles

Dobaczewski, J. J. (Advisor)
1 Jan 2010 → ...

STFC TECHNOLOGY (External organisation)

Dobaczewski, J. J. (Advisor)
1 Jan 2008 → 31 Dec 2018

Journal of physics g-Nuclear and particle physics (Journal)

Dobaczewski, J. J. (Editorial board member)
2008 → 2013

European Physical Journal A : Hadrons and Nuclei (Journal)

Dobaczewski, J. J. (Reviewer)
2007 → ...

Physical Review C - Nuclear Physics (Journal)

Dobaczewski, J. J. (Editorial board member)
2006 → 2008

Nature (Journal)
Dobaczewski, J. J. (Reviewer)
2005 → ...

Nuclear Physics A (Journal)
Dobaczewski, J. J. (Editorial board member)
1 Mar 2000 → 31 Dec 2016

Computer Physics Communications (Journal)
Dobaczewski, J. J. (Reviewer)
1998 → ...

Physical Review Letters (Journal)
Dobaczewski, J. J. (Reviewer)
1990 → ...

Physical Review C - Nuclear Physics (Journal)
Dobaczewski, J. J. (Reviewer)
1989 → ...

Physics Letters B : Particle Physics, Nuclear Physics and Cosmology (Journal)
Dobaczewski, J. J. (Reviewer)
1987 → ...

Journal of physics g-Nuclear and particle physics (Journal)
Dobaczewski, J. J. (Reviewer)
1985 → ...

Prizes

honorary degree awarded by the Claude Bernard Lyon 1 University
Dobaczewski, J. J. (Recipient), 20 Nov 2017

Wojciech Rubinowicz scientific prize
Dobaczewski, J. J. (Recipient), 7 Sept 2015

Awards

Nuclear Physics Consolidated Grant 2024-2027
Jenkins, D. (Principal investigator), Andreyev, A. (Co-investigator), Bashkanov, M. (Co-investigator), Bentley, M. (Co-investigator), Diget, C. A. (Co-investigator), Dobaczewski, J. J. (Co-investigator), Laird, A. M. (Co-investigator), Paschalis, S. (Co-investigator), Petri, M. (Co-investigator), Wadsworth, R. (Co-investigator), Watts, D. (Co-investigator) & Zachariou, N. (Co-investigator)
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL (STFC): £3,345,293.60
1/10/24 → 30/09/27

Projects

MeVQE: A World-leading Centre for MeV Scale Entanglement Physics
Watts, D. (Principal investigator), Bashkanov, M. (Co-investigator), D'Amico, I. (Co-investigator), Dobaczewski, J. J. (Co-investigator), Jenkins, D. (Co-investigator) & Zachariou, N. (Co-investigator)
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL (STFC)
1/09/22 → 31/08/24

Nuclear Physics Consolidated Grant
Jenkins, D. (Principal investigator), Andreyev, A. (Co-investigator), Bentley, M. (Co-investigator), Diget, C. A. (Co-investigator), Dobaczewski, J. J. (Co-investigator), Fulton, B. R. (Co-investigator), Laird, A. M. (Co-investigator),

Paschalis, S. (Co-investigator), Pastore, A. (Co-investigator), Petri, M. (Co-investigator) & Wadsworth, R. (Co-investigator)
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL (STFC)
1/10/17 → 30/09/22

Nuclear Physics Consolidated Grant 2021-2024

Jenkins, D. (Principal investigator), Andreyev, A. (Co-investigator), Bashkanov, M. (Co-investigator), Bentley, M. (Co-investigator), Dobaczewski, J. J. (Co-investigator), Laird, A. M. (Co-investigator), Paschalis, S. (Co-investigator), Pastore, A. (Co-investigator), Petri, M. (Co-investigator), Wadsworth, R. (Co-investigator), Watts, D. (Co-investigator) & Zachariou, N. (Co-investigator)
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL (STFC)
1/10/21 → 31/03/25

Nuclear Physics Consolidated Grant 2024-2027

Jenkins, D. (Principal investigator), Andreyev, A. (Co-investigator), Bashkanov, M. (Co-investigator), Bentley, M. (Co-investigator), Diget, C. A. (Co-investigator), Dobaczewski, J. J. (Co-investigator), Laird, A. M. (Co-investigator), Paschalis, S. (Co-investigator), Petri, M. (Co-investigator), Wadsworth, R. (Co-investigator), Watts, D. (Co-investigator) & Zachariou, N. (Co-investigator)
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL (STFC)
1/10/24 → 30/09/27

Nuclear Physics Theory

Dobaczewski, J. J. (Principal investigator) & Pastore, A. (Principal investigator)
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL (STFC)
1/06/15 → 31/03/20

Symmetry-restored two-centre self-consistent approach to fission with arbitrary deformations, orientations, and distance of fragments

Dobaczewski, J. J. (Principal investigator) & Sanchez Fernandez, A. (Researcher)
1/01/22 → 31/12/23