

## Curriculum Vitae

08.02.1969 Born in Gorlice, Poland

### Education:

1976-1983 Primary School in Kryg, Poland

1983-1987 Secondary School V LO in Cracow, Poland

1993 Master degree in nuclear physics, Jagiellonian University, Poland

1998 Doctorate in nuclear physics, Jagiellonian University, Poland

2005 Habilitation in nuclear physics, Jagiellonian University, Poland

2011 Scientific title of professor of physics

### Employment:

1992 Diploma scholarship at the Research Center Juelich in Germany

1993 - 1994 Assistant at the Physics Institute of the Jagiellonian University

1994 - 1998 PhD Student at the Jagiellonian University (including 30 months scholarship at the Research Center Juelich in Germany)

1999 - 2000 Assistant-lecturer at the Jagiellonian University

2001 - 2003 Postdoc in the Research Center Juelich in Germany

2004 - 2004 Research visit at the HiEnergy Laboratory, Irvine, USA (1 month)

2004 - 2005 Senior assistant at the Jagiellonian University

2005 - 2007 Associate professor at the Jagiellonian University

2005 - 2019 Extraordinary professor at the Jagiellonian University

04-09.2017 Head of the Nuclear Physics Department at the Jagiellonian University

since 10.2017 Head of the Cluster of Nuclear Physics Departments at the Jagiellonian University

since 10.2017 Head of the Department of Experimental Particle Physics and Applications at JU

since 2019 Full professor at the Jagiellonian University

### Other Appointments:

since 2024 Elected member of the Scientific Council of Institute of Nuclear Physics,  
Polish Academy of Sciences

since 2022 Chair of the International Scientific Council of the Bio-Algorithms and Med-Systems Journal

since 2020 Elected member of the Committee on Medical Physics, Radiobiology and X-Ray Imaging,  
Polish Academy of Sciences

2017 - 2025 Elected member of the Research Discipline Council for Physics at the Jagiellonian University

2015 - 2017 Elected member of the Scientific Committee SPSC at CERN in Switzerland

2011 - 2017 Head of the Introductory Physics Laboratory in the Institute of Physics (JU)

2008 - 2017 Chair of the Committee of the Physics Olympic Competitions in Lesser Poland District

2005 - 2015 Deputy spokesperson of the international experiment WASA-at-COSY (~200 scientists)

2012 - 2014 Member of the Expert Panel of the Polish National Science Centre

2008 - 2014 Board member of the international KLOE-2 collaboration (~70 scientists)

2002 - 2010 Spokesperson (scientific coordinator) of the international experiment COSY-11 (~30 scientists)

since 2011 Founder and coordinator of the Jagiellonian-PET interdisciplinary research group (50 scientists)

since 2002 Chair of the scientific and organizing committees of 19 international conferences and symposia

### Awards:

2025 Laureate of the ERC Advanced Grant from the European Research Council

2022 Laureate of the National Science Center's MAESTRO research grant

2022 Prime Minister Medal for Merit for Invention

2022 Minister of Education and Science Award for achievements in the implementation of inventions

2019 Silver Cross of Merit awarded by the president of Poland.

2019 Laureate of the Silla Sanford Award at the University of Los Andes, Colombia

2017 Laureate of the Foundation for Polish Science in the TEAM research programme

2016 Award of the Minister of Science and Higher Education for educational and scientific supervision

2010 Laureate of the Foundation for Polish Science in the International PhD (MPD) programme

2009 Minister of Science and Higher Education diploma for inventions in Positron Emission Tomography

2009 Gold Medal for the invention of the novel Positron Emission Tomography at The World

Exhibition on Innovation, Research and New Technologies, Brussels Innova 2009

2000 Laureate of the Henryk Niewodniczański Prize awarded by Institute of Physics (JU)

1999 Laureate of the Foundation for Polish Science in the START programme

1999 Prime Minister award for the doctoral dissertation



### Miscellaneous:

- Supervision of 21 Postdocs (Postdocs from 7 countries).
- Supervision of 34 completed Ph.D. theses and 14 theses in progress (PhD students from 9 countries).
- Inventor or co-inventor of 47 national and international (USA, Europe, Japan, Poland) patents in medical diagnostics and homeland security
- In total over 460 publications listed in Web of Science: citations > 9300; h-index = 50, according to <https://scholar.google.pl>: citations > 16800; h-index = 70
- Principal investigator of grants with total funding of more than 80 mln PLN (~19.5 mln Euro)
- Over 270 presentations (including over 200 invited) at international conferences and invited seminars
- Research stays and visits in foreign scientific institutions (Colombia, Germany, India, Italy, Japan, Portugal, RPA, Sweden, Switzerland, USA) with total duration of about 9.5 years
- Guest editor of 19 volumes in Acta. Phys. Pol. A, Acta Phys. Pol. B, Bio-Algorithms and Med-Systems, Acta Phys. Slovaca, American Inst. of Phys. Conf. Proc., Schriften des FZ-Juelich Matter and Materials
- Reviewer for British, Czech, Croatian, Norwegian, Polish, South Africa, Swiss and EU foundations.
- Reviewer of PhD theses and professorships in Poland, as well as in Belgium, Croatia, France, Germany, India, Italy, Pakistan, South Africa, Sweden, Switzerland, USA

### Selected publications:

- P. Moskal et al., Nature Reviews Physics 1, 527 (2019).
- P. Moskal et al., Science Advances 7, eabh4394 (2021).
- P. Moskal et al., Nature Communications 12, 5658 (2021).
- P. Moskal et al., Nature Communications 15, 79 (2024).
- P. Moskal et al., Science Advances 10, eadp2840 (2024).
- P. Moskal et al., Science Advances 11, eads3046 (2025).

**Succinct biographical note:** Pawel Moskal, Ph.D. is an inventor of cost-effective positron emission tomography based on plastic scintillators and an inventor of the method of *positronium imaging*. He conceived and headed a medical experiment demonstrating the first positronium images of the human brain in vivo. He also conceived and headed physics experiments achieving best-to-date precision in studies of discrete symmetries in decays of positronium atoms, and demonstrated non-maximal entanglement of photons from the annihilation of positronium in the matter. He is Professor of physics and the head of the Cluster of Nuclear Physics Departments and the head of the Department of Particle Physics and Applications at the Jagiellonian University in Cracow, Poland. He won the Prime Minister's award for his doctoral dissertation in 1999 and a Gold Medal for the invention of the matrix device for Positron Emission Tomography at The World Exhibition on Innovation, Research and New Technologies at Brussels Innova 2009. Prof. Moskal has supervised 34 completed Ph.D. theses, has co-authored 47 patents in Europe, USA and Japan, and more than 460 scientific articles in the field of nuclear and particle physics and positron emission tomography. In the years 2015-2017 he was a member of the SPSC Scientific Committee at CERN, and since 2020 he is a Member of the Committee on Medical Physics, Radiobiology and X-Ray Imaging, Polish Academy of Sciences. Prof. Moskal has formed and is leading the J-PET collaboration: an interdisciplinary research team at the Jagiellonian University conducting research and development of a new imaging device based on plastic scintillators with applications including multi-photon imaging, positronium imaging, simultaneous double tracer imaging, and quantum entanglement enhanced tomography. This research aims at the construction of a cost effective portable and modular total-body PET for experiments with positronium in basic physics, biophysics and medical diagnostics, e.g. for studies of discrete symmetries in the decays of positronium, the development and tests of multi-photon imaging, and the study of properties of positronium atoms in living organisms, opening new perspectives to study the dynamics of metabolism and tissue pathology in-vivo in the whole human body simultaneously. Prof. Pawel Moskal was awarded many prizes including the Prime Minister Medal for Merit for Invention and Minister of Education and Science Award for significant achievements in the implementation of inventions. He received also the Minister of Science and Higher Education Award for outstanding achievements in educational and scientific supervision.

Prof. Moskal was coordinator of the COSY-11 international collaboration conducting experiments on meson production at the Cooler Synchrotron COSY at FZ-Jülich in Germany and deputy-coordinator of the WASA-at-COSY experiment, which comprised about 200 physicists testing fundamental symmetries in nature by means of the decays of mesons. He is also a member of the KLOE-2 and SIDDHARTA-2 collaborations conducting experiments at the electron-positron collider DAFNE in Italy. These experiments include tests of quantum mechanics, exotic mesonic atoms, and searching for phenomena beyond the standard model of particle physics. Prof. Moskal chaired the scientific and organizing committees of nineteen international symposia and workshops devoted to fundamental and applied physics and served as the (co-)editor of the proceedings books.