C U R R I C U L U M V I T A E

Name: Maciej Lewenstein

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Position:

ICREA – Institució Catalana de Recerca i Estudis Avançats Profesor
ICFO - Institut de Ciències Fotòniques
Professor
Head of the "Quantum Optics Theory Group"
(3 Research fellows, 9 Post-docs, 15 PhD students, 4 MSc student)

Personal data:

Place of birth: Warsaw, Poland
Date of birth: 21.09.55
Partner: Anna Sanpera Trigueros
Kids: 3 sons of age 20, 18, 18.

Academic degrees:

- Studies at the Physics Department, Warsaw University, 1974-1978.
- Graduate (magister) studies in statisitical physics, quantum optics and quantum electrodynamics, Warsaw University, 1977-1979.
- Magister (M.Sc.) in Theoretical Physics, Department of Physics, Warsaw University, Warsaw, December 1978, M.Sc. Thesis: *Collective radiation of system of few excited atoms*, Uniwersystet Warszawski, 1979.
- PhD in Physics, Fachbereich Physik, Universität Essen, Alemania, February 1983, Ph.D. Thesis: *Applications of Path Integrals in Quantum Optics*, Supervisors: Prof. F. Haake and Prof. K. Rzążewski. Prize for Excellent PhD Thesis.
- Habilitation, Institut of Physics, Polish Academy of Sciences, Warsaw. Habilitation thesis: *Ionization of atoms into structured continua*, 1986.
- Professor of Physics, title obtained from the President of the Republic Poland, L. Wałęsa, 1993.

Teaching experience:

- Tutor: Department of Physics, Warsaw University, Poland 1978-1981. Lectures on mechanics, electrodynamics, quantum electrodynamics, quantum optics, mathematical methods of physics, quantum physics and mechanics for mathematicians.

- Tutor: Departament of Physics, Universität Essen , Germany 1982-1983 supervision of laboratory experiments.
- Lecturer: Institute of Physics, Polish Academy of Science, Poland 1984-1989: Lectures: mechanics and quantum mechanics for mathematicians, Warsaw University, graduate course on stochastic processes and nonlinear optics.
- "Private docent" (Professor) in the Centre for Theoretical Physics, Polish Academy of Sciences 1988-1992. Lectures on statistical physics of neural networks and complex systems, classical and quantum chaos.
- Professor: (C4), Institute für Theoretische Physik, Universität Hannover 1998-2005: Lectures. Theory I (Mechanics and Electrodynamics), Quantum Optics, Physics of Ultracold Gases, Quantum Information, Quantum Field Theory, General Relativity, Quantum Mechanics I and II, Statistical Field Theory.
- ICREA Professor, ICFO, Graduate courses at the Universitat Politecnica de Catalunya on ultracold gases, Bose-Einstein condensation, and strongly correlated systems.
- ICREA Professor, participation in the Master of Science program in Photonics (UB-UAB-UPC-ICFO), courses on atom optics and ultracold gases.
- ICREA Professor, ICFO, graduate theory courses on quantum simulators, open systems, atto-physics, quantum information, condensed matter theory etc.
- ICREA Professor, ESMUC, post-graduate program on improvisation, semester course on history of free improvisation.

Positions at research institutions:

- 1979-1980 Assistent, Institute of Theoretical Physics, Warsaw University
- 1980-1981 Assisitent, Center for Theoretical Physics, Polish Academy of Sciences, Warsaw
- 1981-1984 Assistent, Mitarbeiter, Fachbereich Physik, Universität Essen
- 1984-1987 Lecturer (research associate), Centre for Theoretical Physics, Polish Academy of Sciences, Warsaw
- 1988-1993 Private Dozent (Profesor Asociado), Centre for Theoretical Physics, Polish Academy of Sciences, Warsaw
- 1988-1991 Vice-director, Centre for Theoretical Physics, Polish Academy of Sciences, Warsaw
- 1993-1995 Professor, Centre for Theoretical Physics, PAS, Warsaw
- 1995-1998 Engineer C3 (directeur de recherche) (C3), Commissariat à l'Énergie Atomique, Service des Photons, Atomes, et Molécules, Centre d'Études de Saclay
- 1998-2005 Full Professor (C4), Institut Für Theoretische Physik, Universität Hannover
- 2005- ICREA Professor and Group Leader, Institut de Ciències Fotòniques, Barcelona

Guest positions:

- 1981-1984 assistent, Fachbereich Physik, Universität Essen
- 1984,1985 assistent, Fachbereich Physik, Universität Essen
- 1986-1989 Visiting Research Associate, Physics Department, Harvard University Cambridge MA, USA

- 1990-1992 Visiting Scholar, Department of Physics, University of Oregon, Eugene OR, USA
- 1990-1992 Visiting Scholar, Department of Psychology, Florida Atlantic University, Boca Raton FL, USA
- 1992-1993 Visiting Research Associate, Centre d'Etudes Nucleaire, CEA, Saclay, France
- 1993-1994 Visiting Fellow, Joint Institute for Laboratory, University of Colorado, Boulder, USA
- 1994 Visiting Research Associate, Centre d'Etudes Nucleaire, CEA, Saclay, France
- 1994 Visiting Research Associate, Insitute for Theoretical Atomic and Molecular Physics, Harvard University, Cambridge, Massachussets
- 2003 Visiting Professor at ICFO (3 months)
- 2004 Visiting Professor at the Institut für Theoretische Physik, Universitat Innsbruck.
- 2008-2012 Humboldt Senior Research Award fellow at MPI, Garching, Universität Hannover and Technische Universität Darmstadt
- 2010-2012 Visiting Professor, Universität Hamburg, Hamburg Theory Prize lectures
- 2014 Visiting Professor, Imperial College, London
- 2016 Visiting Professor, University of Vihn, Vietnam

Area of research:

- Quantum Optics, Quantum Information, Physics of Cold Gases, Laser-Matter Interactions
- Statistical Physics
- Atomic and Molecular Physics
- Many Body Theory
- Interdisciplinary Applications of Physics, Complex Systems
- Inter-relations Physics-Avantgarde Music

Areas of Interest and Investigations:

- Laser-matter interactions (interaction of intense laser with atoms, molecules, and plasmas; new sources of coherent XUV radiation and X-rays; laser control of the atoms and molecules; ultrafast phenomena in atoms, molecules and solid state, attosecond physics, classical and complex dynamics of atomic systems.
- Quantum Optics (cavity quantum electrodynamics; cooling and trapping of atoms, non-classical states; foundations of quantum mechanics; classical and quantum stochastic processes)
- Physics of ultracold gases (Bose-Einstein condensation, quantum dynamics of degenerate gases, atom-laser, laser induced condensation, theory of master equation and open systems, macroscopic coherent quantum phenomena, ultracold Fermi gases, strongly correlated atomic and molecular systems, quantum Brownian motion)
- Quantum Information (theory of entanglement; implementations in quantum optical systems, quantum communications, quantum cryptography, quantum computers)

- Statistical Physics (stochastic processes; spin glasses and disordered systems; quantum gases, statistical physics of neural networks; complex systems; interdisciplinary applications of statistical physics in neurophysiology, cognitive science and social psychology, Brownian motion in biological environment)
- Free improvisation and avantgarde music, incorporation of quantum randomness into the process of musical composition

Invited Conferences:

- 1983 NATO Advanced Research Workshop "Quantum Electrodynamics and Quantum Optics", University of Colorado, Boulder
- 1984 Workshop "Quantum probability and Applications II", University of Heidelberg, Heidelberg, Germany
- 1986 CECAM Workshop on "Multiphoton Ionization of Atoms in Strong Fields'", Univerisit'e Paris-Sud, Orsay, France
- 1986 Workshop "Fluctuations and Nonlinear Phenomena", Universität Leipzig, Leipzig, Germany
- 1988 NATO Advanced Research Workshop "Squeezed and Nonclassical Light", Cortina d'Ampezzo, Italy
- 1989 XXX Congress of Polish Physics, Warsaw, Poland.
- 1990 January Colloquium Series, Florida Atlantic University, Boca Raton, USA
- 1990 X International School on Semiconductor Componds, Jaszowiec, Poland
- 1990 III International School on Current Topics in Condensed Matter Physics, University of Warsaw, Bialystok
- 1990 Workshop on Squeezed and Coherent States, Lebedev Physical Institute, Moscow, USSR
- 1991 Workshop "Neural Networks: From Biology to High Energy Physics" INFN, Elba, Italy
- 1992 Symposium on "New Developements in Statistical Physics" University of Wrocław,
  Kudowa, Poland
- 1993 NATO Advanced Research Workshop "SILAP III" Han-sur-Lesse, Belgium
- 1993 International Workshop on New Methods in Quantum Theory, JILA, Boulder, USA
- 1993 International Conference "Quantum Optics III" Polish Academy of Sciences, Szczyrk,
  Poland
- 1994 Organizer, International Workshop on Quantum Field Theory of Cold Atoms, JILA,
  Boulder, Colorado
- 1995 EC Network Workshop on Electron-Atom Collisions in Intense Laser Fields, Paris,
  France
- 1995 European Research Conference, Davos, Switzerland
- 1996 Workshop on Collective Effects in Ultracold Atomic Systems, Les Houches, France
- 1996 International Conference on Multiphoton Physics, Garmisch-Partenkirchen, Germany
- 1997 International Conference on Intense Laser Plasma Interactions, Varenna, Italy

- 1997 International Conference "Quantum Optics IV", Polish Academy of Sciences, Szczyrk, Poland
- 1997 International ESF Conference “Bose-Einstein Condensation”, Castellvecchio, Italy
- 1998 International Conference “Quantum Optics” Kühtai, Austria
- 1999 Workshop “Coherent Matter Waves”, Sylt, Germany
- 1999 DPG Tagung, Heidelberg, Germany
- 1999 Chairman, Workshop “Ultracold Gases and Liquids”, Benasque, Spain
- 1999 Chairman, ESF Conference “Bose-Einstein Condensation 1999”, San Feliu, Spain
- 2000 Workshop “Rotating BEC”, Trento, Italy
- 2000 Workshop “Quantum Information and Computing”, Benasque, Spain
- 2000 ESF Conference “Matter in Strong Laser Fields”, Maratea, Italy
- 2000 ESF Conference “Coherent Matter Fields”, Cargese, France
- 2001 “Young Atom Opticians” Conference, Stuttgart, Germany
- 2001 Workshop “Cold Quantum Gases”, Konstanz, Germany
- 2001 Workshop “Quantum Computing in Solid State”, Warsaw, Poland
- 2001 ESF Conference "Bose-Einstein Condensation 2001", San Feliu de Guixols, Spain
- 2001 ESF Conference on “Quantum Information Processing” Gda'nsk, Poland
- 2001 DGAO Tagung, Götingen, Germany
- 2001 Nobel Symposium “Coherence and Condensation”, Göteborg, Sweden
- 2003 Conference “Quantum Optics”, Obergurgl, Austria
- 2003 ESF Conference "Bose-Einstein Condensation 2003", San Feliu, Spain
- 2003 Workshop “Quantum Degenerate Gases”, Ulm, Germany
- 2004 Workshop “Ultracold Fermi gases”, Levico Terme, Italy
- 2004 Conference EU Network QUEST “Manipulations of cold matter”, La Thuile, Italy
- 2004 Conference “Mathematical Physics and Open Systems”, Torun, Poland
- 2004 Workshop “Coherent Phenomena in Mesoscopic Systems”, Dresden, Germany
- 2005 Conference “Quantum Optics IV”, Krynica, Poland
- 2005 International School on “Attosecond Physics”, Ilse de Porquerolles, France
- 2005 ESF Conference “Bose-Einstein Condensation 2005”, San Feliu de Guixols, Spain
- 2005 International Summer School on Quantum Information, MPI Dresden, Germany
- 2005 Workshop “Strongly Correlated Systems in Cold Atoms and Condensed Matter Physics”, Univesität Stuttgart, Germany
- 2005 International School on “Ultracold Atomic Gases”, ICTP, Trieste, Italy
- 2006 International Workshop “Atomoptics”, Kioloa, Canberra, Australia
- 2006 International Trimestre “Quantum Information Theory”, Intitute Henry Poincare, Paris
- 2006 Workshop “Classical-Quantum transition and Quantum Information”, Benasque, Spain
- 2006 International Conference on Atomic Physics, Innsbruck, Austria
- 2006 Summer School “Cold Atoms”, Toruń, Poland
- 2006 International Conference “Soliquantum – Solitons in Ultracold Quantum Gases”, Cuenca, la Mancha
- 2006 International Symposium “The Legacy of Ch. Bennett and A. Zeilinger”, Gdańsk, Poland
- 2007 International School on Quantum Information, Obergurgl, Austria
- 2007 International Conference on Recent Progress in Many Body Physics, Barcelona, Spain
- 2007 International conference BEC2007, San Feliu, Spain

- 2007 Workshop on Ultracold Gases, Institute Henri Poincare, Paris
- 2007 Symposium on Quantum Information, Lodz, Poland
- 2007 Workshop “Disordered Ultracold Atomic Gases”, Florence, Italy
- 2007 Workshop “Disordered Ultracold Gases”, Lorenz Centre, Leiden
- 2007 ESF Conference “Control, Constraints, and Quanta”, Będlewo, Poland
- 2008 APS March Meeting, New Orleans, USA
- 2008 Workshop “Mathematical Foundations of Quantum Control and Quantum Information Theory”, Madrid, Spain
- 2008 European Science Open Forum, Barcelona, Spain
- 2008 Symposium “Quantum Light and Matter”, Castelldefels, Spain
- 2008 Workshop “Quo vadis BEC?”, Bad Honnef, Germany
- 2009 Symposium “Quantum Limited Measurements – The Legacy of SFB 407”, Hannover
- 2009 School on “Strongly correlated systems in condensed matter and atomic physics”, Les Houches, France
- 2009 Summer School of “SCALA – Scalable Quantum Computers”, Cargese, France
- 2009 LPHYS’09, Barcelona
- 2009 International Symposium “Ultracold Dipolar Gases”, Stuttgart
- 2010 42-nd Symposium on Mathematical Physics, Toruń, Poland
- 2010 Sumer School "Many-Body Physics with Ultracold Atoms"; Les Houches, France
- 2010 Workshop and Conference “Beyond Standard Optical Lattices”, Santa Barbara, USA.
- 2010 Symposium « Frontiers in Quantum Photon Science », Hamburg
- 2011 International Workshop on Quantum Information Processing, Singapore
- 2011 International Workshop Quantum Dynamics of Trapped Ions QION11
- 2011 Workshop “Quantum Transport in Ultracold Atoms”, Benasque, Spain
- 2011 Summer School “Quantum phenomena in graphene and optical lattices”, Erice, Italy
- 2011 Workshop on “Polar molecules”, ITAMP, Harvard, Cambridge, USA
- 2011 Symposium « Frontiers in Quantum Photon Science », Hamburg, Germany
- 2012 Winter School “Quantum optics and quantum information”, Obergurgl, Austria
- 2012 Workshop “Device Independent Quantum Information Processing”, Catelldefels, Spain
- 2012 Workshop “Informatica Cuantica Espagnola”, Madrid, CSIC
- 2012 ESF-Workshop "Cold and Ultracold Molecules", Obergurgl, Uni Innsbruck
- 2012 European Workshop on Indirect Excitons, ICFO, Castelldefels
- 2013 ICQIQC International Conference on Quantum Information and Quantum Computing, Bangalore, India
- 2013 Workshop: Pushing the boundaries with cold atoms, Nordita, Stockholm
- 2013 APS march Meeting, Baltimore, USA
- 2013 Finite temperature and low energy effects in cold atomic and molecular few- and many-body systems, ITAMP, Harvard University, USA
- 2013 Workshop on “Ultracold Atoms and Gauge Theories”, Trieste, Italy
- 2013 New trends in complex quantum systems dynamics, Cartagena, Spain
- 2013 Symposium “New Frontiers of Atomic Physics and Quantum Optics –Celebrating Wolf prize for I. Cirac and P. Zoller”, Technion, Haifa, Israel
- 2013 Workshop “New Trends with Topological Insulators”, San Feliu de Guixols, Spain
- 2013 Symposium “Sympa” (satellite 2013 Attoscience Conference), Paris, France
- 2013 Conference “Majorana Physics in Condensed Matter”, Erice, Italy

- 2013 Conference “Bose-Einstein condensation”, San Feliu de Guixols, Spain
- 2013 Conference “Quantum Technologies IV”, Warsaw, Poland
- 2013 Workshop “Quantum Simulators and Quantum Walks”, Pisa, Italy
- 2013 Symposium “Frontiers of Quantum Optics – Celebrating 60th birthday of E. Polzik”, Copenhagen, Denmark.
- 2013 Symposium “New Trends in Theoretical Physics”, Warsaw University, Poland
- 2014 School “Spring School on Quantum Photonics and Quantum Information”, Russian Quantum Centre, Skolkovo, Russia
- 2014 COST Meeting on Quantum Information, Complex Systems and Quantum Gravity”, Weizmann Institute, Rehovot, Israel
- 2014 Free Electron Lasers and Attosecond Light Sources, UCL, London
- 2014 International School of Physics "Enrico Fermi" 2014, Course 191 - Quantum Matter at Ultralow Temperatures,
- 2014 Colloquium, Universitaet Heidelberg, Heidelberg
- 2014 Symposium "Perspectives on Quantum Atom Optics" (Celebrating Honoris Causa of K. Rzazewski), Stuttgart
- 2015 APS March Meeting, San Antonio, U.S.A.
- 2015 Symposium “Frontiers of Quantum Information – Celebrating 60th Birthday of Marek Kuś”, Warsaw University, Warsaw, Poland
- 2015 Gordon Research Conference on Atomic Physics, Newport, USA (cancelled for family reasons)
- 2015 CLEO Europe, Munich, Germany (cancelled for family reasons)
- 2015 ICPEAC International Conference of Photonic, Electronic and Atomic Collisions, Toledo
- 2016 SIQS Workshop, Venice, Italy
- 2016 Workshop on Recent Advances in Continuous-Variable Quantum Information Theory, Barcelona, Spain
- 2016 Conference on Quantum Communication, Measurement and Computing, Singapore (replacement A. Sanpera)
- 2016 Workshop on Frontiers of Quantum Optics and Quantum Information, Vihn, Vietnam
- 2016 Conference on Synthetic Topological Quantum Matter, KITPC, Beijing
- 2016 Program on Spin-Orbit-Coupled Quantum Gases, KITPC, Beijing
- 2016 Workshop on Frontiers of Quantum Physics, Emperor’s Island, China
- 2016 International Summer School on Computational Approaches for Quantum-Many-Body Systems, Yanqi Lake, Chinese Academy of Sciences
- 2016 Doctorate Honoris Causa, Warsaw University, Poland
- 2016 Fest-Koloquium 75th Birthday of Fritz Haake, Universität Duisburg
- 2016 Colloquium Center for Ultracold Atoms, Harvard University/MIT, USA
- 2016 Colloquia UAM Poznan, UJ Cracow
- 2017 Workshop on Simulators of Lattice Gauge Theories, Mainz
- 2017 Colloquium JQI University of Maryland-NIST
- 2017 Colloquium ENS Lyon
- 2017 Condensed Matter Colloquium ENS Lyon
- 2017 KCIK Sopot 10th Workshop
- 2017 ICREA Colloquium, Barcelona
- 2017 Frontiers in Complex Systems Workshop, Mallorca
- 2017 Physics of Magnetism, Poznan, Poland
- 2017 BEC Conference, San Feliu de Guiols
- 2017 44th Meeting of the Polish Physical Society, Wroclaw

- 2017 Quantum Optics, IX, Gdansk
- 2017 Symposium 2x60 Gajda-Brewczyk, Warszawa
- 2018 PALM International School on Attosecond Science, Gif-sur-Yvette, France
- 2018 Workshop “Challenges in Quantum Computation”, Simons Institute, Berkeley, USA
- 2018 Symposium “Chaotic paths to cold atom physics – celebrating Kuba Zakrzewski”, Kraków, Poland
- 2018 Conference “Strong and Electro-Weak Matter”, Barcelona
- 2018 Humboldt Kolleg “Controlling quantum matter: From ultracold atoms to solids”, Vilnius, Lithuania
- 2018 Conference “Correlations and Coherence at Different Scales”, Katowice-Ustroń, Poland
- 2018 Conference “Quantum Technologies IX”, Jastarnia, Poland
- 2018 Conference “IQIP – Italian Quantum Information Science Conference”, Catania
- 2018 Symposium “Ultracold Matter – Celebrating 70th birthday of Gora Shlyapnikov”
- 2018 QIPA Quantum Information Processing and Applications, Alahabad, India
- 2018 Symposium en Hommage de Betrand Carré, CEA-Saclay, France
- 2019 Conference Novel Concepts in Photonics Research 2019, Ein Gedi, Dead Sea, Israel,
- 2019 Solvay Workshop on Quantum Simulators, Solvay Institute, Brussels, Belgium
- 2019 Workshop: Tensor networks: from simulations to holography, Albert Einstein Institute, Golm, Germany
- 2019 Colloquium Physics Department Uniwersytet Marii Curie Skłodowskiej
- 2019 Center for Contemporary Culture Barcelona, Quantum Debate „What do we mean when we speak of quantum physics?” (with concert)
- 2019 Three invited lectures, Capital Normal University, Beijing
- 2019 KITSC program for ultracold atoms: Emergent phenomena in ultracold atoms: merging topology, interaction, and dynamics, invited lecture, UCAS, Beijing
- 2019 Forum for Quantum Simulation in Optical Lattice, 6 invited lectures
- 2019 Workshop on Femi-Bose Mixtures: celebrating Sandro Stringari, Trento
- 2019 Workshop Time Crystals and elated Phenomena, Cracow
- 2019 Academia Europea Barcelona Debate, "A new Humanism for the 21st century? Specialisation vs. generalisation"
- 2020 Webinar Nordita “25 years of strong field approximation”
- 2020 APS Celebrations “25 years of strong field approximation”
- 2020 S+T+ARTS TALKS IN GENOVA 2020**,** Combining science, technology and art for a new approach to innovation.
- 2020 Panel “The Coming Decade of Quantum Simulation” INT, University of Washington
- 2020 Quantum Foundations, Technologies and Applications QFTA2020, IISER Mohali
- 2020 Webinar NCBJ (Warsaw) “Quantum Simuators of Lattice Gauge Theories”
- 2021 Copernicus Center for Polish Studies, University of Michigan, Ann Arbor, “Jazz Avantgarde and Free Improvisation in Poland: form Tomasz Stańko to Mikołaj Trzaska”
- 2021 Webinar Politechnika Wrocławska “A cold-atom approach to topological quantum matter across the energy scale”
- 2021 8th International Conference on New Music Concepts, Music Academy (Studio Musica), Italy “Applications of Quantum Randomness: From Rabi Oscillations to Fourier Axis Controlling the Musical Timbre” (paper presented by Reiko Yamada and Samuele Grandi)

- 2021 Clustering and Global Challenges, Barcelona, “The Coming Decades of Quantum Simulation”
- 2021 Joint Theoretical Physics and Astronomy Seminar, “A cold-atom approach to topological quantum matter across the energy scale”, Vilnius University
- 2021 Atto-Friday, “Quantum electrodynamics of strongly driven atoms”, University College London
- 2021 Science Polish Perspective, “Brownian motion revisited”, Polonium Foundation, Zürich
- 2021 Annual KCIK Symposium, “Bell’s inequalities for many body systems: from dynamical programming to data driven approach”, University of Gdansk, KCIK, Sopot
- 2021 Symposium *“Remembering Artur Polls”, “*From spinor Boise-Einstein condensates to spinor lattice gases: The heritage of Artur Polls*”,* University of Barcelona
- 2021 Biennal de la Ciència de l’Ajuntament de Barcelona, “Toward Quantum Music”, with Reiko Yamada, Mercat de Born, Barcelona
- 2021 52 Symposium on Mathematical Physics, “Storage capacity and learning capability of quantum neural networks”, Universytet Mikołaja Kopernika, Toruń, Polska
- 2021 Summer Maciej Lewenstein School for Teachers, opening lecture, “What should you know about Quantum Mechanics, but never dared to ask” ICFO, Castelldefels
- 2021 International Conference on Quantum Artificial Intelligence “Storage capacity and learning capability of quantum neural networks”, Shanghai Qi Zhi Institute, China
- 2021 Workshop on Perspectives on Quantum Sensing and Computation for Particle Physics, “Cold atoms meet lattice gauge theory”, CERN, Switzerland
- 2021 International Conference on Frontiers of Quantum and Mesoscopic Thermodynamics, “From Generalized Resource Theories of Quantum Thermodynamics to Novel Quantum Thermometry*”*, Prague, Czech Republic
- 2021 Symposium Celebrating 40 Years of Centre for Theoretical Physics, “From CFT to FNP: How Machine Learning Aids Quantum Simulators”, Polish Academy of Science, Warsaw
- 2021 Symposium “100 lat fizyki – od Hożej do Pasteura”, „Hoża 69 and Warsaw School of Quantum Optics”, Warsaw University, Poland
- 2021 X Quantum Optics, panel discussion “The Legacy of Quantum Optics Conferences”, Toruń, Poland
- 2021 Workshop on Modern Developments in Quantum Chaos -- In memory of Fritz Haake, “Fritz's legacy revisited”, Bad Honnef, Germany
- 2021 Venice meeting on Fluctuations in small complex systems, “Complexity in Simplicity: from phase separation in cells to small Hubbard-Holstein systems, Venice, Italy
- 2021 XXIII Training Course in the Physics of Strongly Correlated Systems, 6 hours lecture on “Introduction to theory of entanglement and Bell correlations”, University of Salerno, Italy.
- 2021 Opening Symposium of Institute of Spintronics and Quantum Informatics, “The Coming Decades of Quantum Simulation”, Adam Mickiewicz University, Poznan, Poland
- 2021 27th IFT Xmas Workshop, Univesidad Autonoma de Madrid, @Cold Atoms Meet Lattice Gauge Theories”, Madrid, Spain
- 2022 Colloquium ICTP Trieste, “To thermalize or not to thermalize, that is the question”
- 2022 International Conference on Quantum Information and Foundations, invited talk online “The coming decades of quantum simulators”, Kolkatta, India

- 2022 Workshop “Quantum Optics and Quantum Technologies”, IESL-FORTH, Heraklion, “Quantum information science and atto-physics”
- 2022 Colloquium Universita Milano Stattale, “Quantum Information Science and Quantum Technologies at Quantum Optics Group at ICFO”
- 2022 Gauge Workshop Munich, Max Planck Institute for Quantum Optics, Garching, “DYNAMITE - Next Generation Quantum Simulators: From DYNAMIcal Gauge Fields to Lattice Gauge ThEory”
- 2022 Workshop Entanglement in Action, Centre for Science, Benasque, “Entanglement certification in quantum simulators”
- 2022 Wolf Prize Symposium, Technion, Haifa, Symposium celebrating Wolf Prize for P. Corkum, A. L’Huillier and F. Krausz, “Quantum Information Science and Attophysics”
- 2022 ATTO VIII, 8th International Conference on attosecond Science and Technology, “Attosecond Physics and Quantum Information Science”, CFU, Orlando
- 2022 Frontiers of Quantum and Mesoscopic Thermodynamics, “To thermalize or not to thermalize, that is the question”, Institute of Physics, the Czech Academy of Sciences, Prague
- 2022 ELISS Extreme Light Infrastructure Summer School, “Toward quantum electrodynamics of super-intense laser-matter interactions”, Szeged, Hungary
- 2022 Smoluchowski Symposjum, “To thermalize or not to thermalize, that is tmmhe question”, Universytet Jagielloński, Kraków, Polandm
- Seminars and lectures at various Universities and Instimtutes

Prizes:

- 1983 Prize for the extraordinary PhD Thesis, Universität Essen, Germany
- 1984 Prize of the Division of Natural Sciences of the Polish Academy of Sciences.
- 1990 Prize of the Secretary of the Polish Academy of Sciences.
- 2004 Fellow of the American Physical Society
- 2007 Humboldt Research Prize
- 2008 European Research Council Advanced Grant QUAGATUA
- 2010 Joachim Hertz Foundation Prize of University of Hamburg
- 32011 Prize of the Polish Foundation for Science
- 2012 Member of the European Academy of Science
- 2013 Johannes Gutenberg Prize of University of Mainz
- 2013 European Research Council Advanced Grant OSYRIS
- 2013 EPS Quantum Optics and Electronic Division Prize for Fundamental Research
- 2014 Listed among 144 Thompson Reuters Highly Cited Researchers 2014
- 2014 Listed among Thompson Reuters 2014 The World's Most Influential Scientific Minds
- 2015 Listed among 119 Thompson Reuters Highly Cited Researchers 2015
- 2015 Listed among Thompson Reuters 2015 The World's Most Influential Scientific Minds
- 2016 Doctorate Honoris Causa University of Warsaw
- 2016 Listed among 110 Thompson Reuters Highly Cited Researchers 2016
- 2016 Listed among Thompson Reuters 2016 The World's Most Influential Scientific Minds
- 2016 Willis E. Lamb Medal for Laser Science and Quantum Optics
- 2017 Listed among 190 Clarivate Analytics Highly Cited Researchers 2017
- 2017 Listed among Clarivate Analytics 2017 The World's Most Influential Scientific Minds

- 2017 Medalla de Real Sociedad Española de Física
- 2017 Foreign Member of the Polish Academy of Sciences
- 2018 Listed among Clarivate Analytics Highly Cited Researchers 2018
- 2018 Listed among Clarivate Analytics 2018 The World's Most Influential Scientific Minds
- 2018 Member of Academia Europea
- 2018 European Research Council Advanced Grant NOQIA
- 2019 Listed among Clarivate Analytics Highly Cited Researchers 2019
- 2019 Listed among Clarivate Analytics 2019 The World's Most Influential Scientific Minds
- 2020 Listed among Clarivate Analytics Highly Cited Researchers 2019
- 2020 Listed among Clarivate Analytics Highly Cited Researchers 2020
- 2020 Listed among Clarivate Analytics 2019 The World's Most Influential Scientific Minds
- 2021 Corresponding Member of the Polska Akademia Umiejętności
- 2021 Listed among Clarivate Analytics Highly Cited Researchers 2021
- 2021 Premi Nacional de la Reserca

Grants :

- 1991-1992 Research Project of the Committee of Scientific Research "Statistical physics of neural networks", KBN 2-0207-91-01
- 1992-1994 Research Project of the Committee of Scientific Research "Applications of statistical physics to network models", KBN 2-2417-92-03
- 1992-1995 Research Project of the Committee of Scientific Research "Applications of network models in social and behavioral sciences", KBN 1-1113-92-02
- 1993-1995 NSF (National Science Foundation USA) Research Project INT-9023548 on "Photon detection and quantum measurement theory" collaboration with R. J. Glauber, Harvard University
- 1996-1997 Programa de Colaboración "Francia-Espana", on "Collective effects in atomic systems" with Prof. J. I. Cirac (Ciudad Real)
- 1996-1997 Collaboration program "FrancePoland", on "Atoms and Molecules in strong laser fields" with Prof. K. Rzążewski (Warsaw)
- 1998-2000 Research Project A7 und A8 in Sonderforschungsbereich 407 "Quantenlimitierte Messprozesse, Alemania
- 1999-2001 Research Project Potsdam-Hannover in Deutcher Forchungsgemeinschaft (Sociedad Ale-mana de Investigación) DFG Schwerpunktes "Quanteninformationsverarbeitung"
- 2000-2006 Projects A7, A8 and A10 A8 in Sonderforchungsberaich 407 "Quantenlimitierte Messprozesse, Germany
- 1998- European Networks: TMR "Coherent Matter Waves", PESC Programm "Quantum Information", PESC Program "BEC 2000", PESC Program "Matter in Strong Laser Fields", IST Program "EQUIP", Network of Excellence "QUIPROCONE"', IST Network "QUPRODIS"

- 2000- Coordinator (together with Prof. M. Wilkens) of PESC Program "BEC 2000+" y „QUDEDIS".
- 2001-2005 Proyecto conjunto con Prof. J.I. Cirac (Garching-Hannover) en el marco des DFG Schwerpunktes "Quanteninformationsverarbeitung"
- 2001-2005 Project with Dr. Bruss and Dr. Sanpera in DFG Schwerpunktes "Quanteninformationsverarbeitung"
- 2001-2005 Project in DFG Schwerpunktes "Wechselwirkungen in ultrakalten Atom-- und Molekulargasen"
- 2000- Graduiertenkolleg GK 282 des Instituts für Theoretische Physik der Universität Hannover, financement of the 2 Doctoranes, Europäische Graduiertenkolleg des Instituts für Quantenoptik der Universität Hannover (1 Doctorant)
- 2003- 2005 Proyecto de Investigacion DAAD, Acciones Integradas "Alemania- Spain" on "Quantum Information Processing" conjuntamente con la Universidad Autonoma, Barcelona.
- 2005-2009 Proyecto FET IST EU 6th Framework Program: Integrated Project "SCALA"
- 2006-2009 Proyecto of Spanish MEC FIS2005-04627
- 2006 -2008 Proyecto de Investigación DAAD, Acciones Integradas "Alemania-España" sobre "UltraCold Gases" conjuntamente con la Universität Hannover.
- 2006-2009 Proyecto de Investigación MEC "Consolider Ingenio 2010 QOIT"
- 2007- ESF – MEC Project EUROQUAM Fermix – on ultracold fermionic mixtures.
- 2008-2013 QUAGATUA – Quantum gauge theories and ultracold atoms – ERC Ad. Grant
- 2009 ICREA Conference Award
- 2009-2013 TOQATA – Toward quantum Technologies, MEC Project
- 2009-2012 NAMEQUAM – EU STREP proposal on Nano-design and manipulations of quantum matter
- 2010-2013 AQUTE –EU IP on Atoms for Quantum Technologies
- 2011 BEC2011 project for support of Bose-Einstein Conference in San Feliu
- 2011-2013 AACC MINCIN project for collaboration with University of Hamburg
- 2012-2014 INTERCAN MINCIN project of support conferences and workshop on ultracold atoms
- 2013-2016 SIQS-EU IP on Simulators and Interfaces with Quantum Systems
- 2013-2016 EQuaM-EU STREP on Emulators of quantum frustrated anti-ferromagnetism
- 2014-2018 OSYRIS on Open systems revisited – ERC Advanced Grant
- 2013-2016 Templeton Foundation grant "Intrinsic randomness of quantum mechanics".
- 2015-2018 QUIC EU FET-Pro Active grant on quantum insulators and conductors
- 2014-2016 FOQUS MINECO National Plan project on Frontiers of Quantum Science
- 2014-2016 SGR 874 AGAUR
- 2016-2018 Symfonia NCN Poland
- 2017 USA Army Research offices support BEC2017
- 2018 USA Army Research offices support ICAP2018
- 2017-2019 MINECO National Plan project FISICATEAMO
- 2017-2020 SGR 1341 AGAUR
- 2019 USA Army Research offices support BEC2019
- 2019-2024 NOQIA on NOvel Quantum simulators – connectIng Areas – ERC AdG
- 2019-2022 MAQS Magnetic Atoms Quantum Simulators QUANTERA
- 2020-2023 MINECO National Plan project FIDEUA
- 2020-2023 FET Open OPTOLogic
- 2020-2022 AGAUR Quantum-CAT
- 2022-2025 DYNAMITE Next Generation Quantum Simulators: From DYNAMIcal Gauge Fields to Lattice Gauge ThEory QUANTERA

- 2022-2025 NEQST Quantum information processing using multi-level systems FET-RIA
- 2022-2025 Acciones Complementarias European Union NextGenerationEU (PRTR C17.I1).
- Host of several Marie Curie, Feodor Lynen, Ramon y Cajal and Juan de la Cierva grants.

Conferences and Workshops organized and co-organized

- 1997 “Bose-Einstein Condensation 1997”, co-chairman, Castelvecchio, Italy
- 1999 “Bose-Einstein Condensation 1999”, chairman, Sant Feliu de Guixols
- 1999 “Quantum Gases and Liquids”, workshop, Benasque
- 2001 “Quantum Challenges I”, Essen
- 2003 “Quantum Challenges II”, Warsaw
- 2004 “Disordered Ultracold Quantum Gases”, Hannover
- 2005 Quantum Optics and Photonics part, “DFG Tagung – Einstein 2005”, Berlin
- 2006 Quantum Optics and Photonics part, “DFG Tagung”, Frankfurt
- 2006 Symposium “Ultracold Dipolar Quantum Gases”, “DFG Tagung”, Frankfurt
- 2006 Summer School „SCALA – scalable quantum computer”, Benasque, Spain
- 2006 Workshop “Classical-Quantum transition and Quantum Information”, Benasque, Spain
- 2007 ICREA Workshop “Disordered ultracold atomic gases”, Barcelona (Bellaterra), Spain
- 2007 QUROPE International Conference on “Quantum Information Processing and Communications”
- 2008 ESF EuroQUAM Workshop of Ultracold Matter, co-organiser, Barcelona
- 2008 Workshop “Quantum information with quantum matter”. Sant Benet, Spain
- 2009 LPHYS’09, Barcelona, co-organiser, Spain
- 2009 ICREA Workshop on Ultrtacold Atoms and Quantum Gauge Fields, Sant Benet, Spain
- 2009 “Bose-Einstein 2009”, Sant Feliu de Guixols, co-organizer, Spain
- 2010 “Beyond Standard Optical Lattices”, 3 months Program at KITP, Santa Barbara
- 2010 Workshop "New Trends in Quantum Information and Quantum Optics", Sant Benet, Spain
- 2011 Workshop “Quantum Dynamics in Closed Systems”, Barcelona, Spain
- 2011 Conference “Bose-Einstein Condensation 2011”, San Feliu de Guixols, Spain
- 2012 Symposium “Frontiers of Quantum Physics – Celebrating 60th birthdays of Peter Zoller and Rainer Blatt”, Innsbruck, Austria
- 2012 Conference “Quantum Technologies III”, Warsaw, Poland
- 2012 European Workshop on Indirect Excitons, ICFO, Castelldefels
- 2013 Workshop on “Ultracold Atoms and Gauge Theories”, Trieste, Italy
- 2013 Conference “Quantum Technologies IV”, Warsaw, Poland
- 2013 Conference “Bose-Einstein Condensation 2013”, San Feliu de Guixols, Spain
- 2013 Symposium “Frontiers of Quantum Optics – celebrating 60 E. Polzik”, Copenhagen, Denmark
- 2013 Conference "Noise Information and Complexity at Quantum Scale 2013", Erice, Italy
- 2013 Workshop “Cold and Ultracold Molecules Workshop”, Granada, Spain
- 2014 Quantum Information Processing, Barcelona, Spain
- 2014 Conference “Quantum Technologies V”, Cracow, Poland
- 2015 Conference “Intrinsic Randomness in Quantum Physics”, Barcelona

- 2015 Annual SIQS Integrated Project Meeting, ICFO Castelldefles
- 2015 Conference “Quantum Technologies VI”, Warsaw, Poland
- 2015 Workshop on “Synthetic Quantum Magnetism”, Max Planck Institut für Komplexe Systeme, Dresden
- 2015 Conference “Bose-Einstein Condensation 2015”, San Feliu de Guixols, Spain
- 2016 Conference “Quantum Technologies VII”, Warsaw, Poland
- 2017 Symposium “Quantum Simulators of Lattice Gauge Theories”, DPG Fruhjahrstagung AMOP University Mainz
- 2017 Conference “Bose-Einstein Condensation 2017”, San Feliu de Guixols, Spain
- 2018 International Conference on Atomic Physics 2018, Barcelona, Spain
- 2018 International Conference on Atomic Physics School 2018, Barcelona, Spain
- 2018 Humboldt Kolleg “Controlling quantum matter: From ultracold atoms to solids”, Vilnius, Lithuania
- 2019 ICFO School on the Frontiers of Light: Attosecond science and extreme photonics, ICFO, Spain
- 2019 Conference “Bose-Einstein Condensation 2019”, San Feliu de Guixols, Spain
- 2019 ICFO Workshop on Quantum Machine Learning, Castelldefels, Spain
- 2020 ICFO-MIT School on the Frontiers of Light: “Emergent phenomena in Moiré materials”
- 2021 Summer School on Machine 3Learning in Physics and Chemistry, Warsaw University, Poland
- 2021 Conference Quantum Optics X, Toruń, Poland
- 2022 Symposium Frontiers of Atomic Physics and Quantum Information, Barcelona

Diplomas/MSc (38) and PhD Theses (49+17):

- 4 Diplomas (D. Roguś, J.R. Kukliński, W. Tarkowski, M. Żochowski) at the Warsaw University, Department of Physics
- 1 Diploma (A. Bazylko) at the Warsaw University, Department of Mathematics
- 13 Diplomas (F. Floegel, Ch. Trump, T. Schulte, K. Eckert, O. Urfalioglu, A. Heinrich, I. Josopait, H. Fehrmann, N. Plaß, A. Shirani, T. Meyer, A. Kantian, A. Cojuhovschi) at the Universität Hannover
- 1 supervision of the Diploma S. Braungardt, Technische Universität Berlin (Germany)
- 2 MSc theses at Europhotonics MSc (UPC/ICFO/UB/UAB) (G. Muñoz Gil, T. Rodrigues Ramos)
- 1 MSc UPC Master Photonics (G. Guigo Corominas, Oct. 2018)
- 1 MSc University of Crete (A. Gratsea, Oct. 2018)
- 5 MSc UPC Master Photonics (J. Rivera Dean, Md-M. Rahman, A. Fabra Ruiz, L. Malo Roset, J. Pérez Díaz 2019)
- 1 MSc La Caixa (G. Guigo Corominas, 2019-2020)
- 3 MSc UPC Master Photonics (Gabriel Fernández, Guillem Müller, Eloy Piñol, 2020)
- 2 MSc UPC Master Photonics (Xavi Barcons, Carles Mestre, 2021)
- 2 MSc UB Quantum Master (Maria Recasens, Sabhyata Gupta)
- 1 MSc UPC Master Photonics (Alejandro de Bosque)

- 1 MSc Karlsruhe Institute of Technology (Jayagreav Kannan)
- 3 PhD's (J. Grochmalicki, W. Tarkowski, M. Żochowski (first 2.5 years)) at the Centre for Theoretical Physics, defensed at the Warsaw University
- Co-supervision of the Doctorate of L. Santos (Referent: Prof. L. Roso, University of Salamanca)
- Directeur de la These, Dr. P. Villain, Université Pierre et Marie Curie, Paris
- 11 PhDs at the Universität Hannover (S. Karnas, F. Floegel, Ł. Dobrek, O. Guehne, Ph. Hyllus, K. Eckert, F. Hulpke, J. Korbicz, H. Fehrmann, A. Mebrahtu, K. Osterloh)
- 1 joint PhD of the Universität Hannover and Universita di Trento (P. Pedri)
- 1 PhD at the Warsaw University (A. Chęcińska 2010)
- 4 PhD at UPC – ICFO (C. Trefzger, co-supervised by Ch. Menotti, 2010, Armand Niederberger co-supervised with F. Cucchietti, 2010, Sibylle Braungardt, co-supervised by M. Rodriguez, 2011, Anna Kubasiak, co-supervised with J. Zakrzewski, 2011)
- 24 PhD at ICFO (three in 2013 [P. Hauke 2013, O. Tieleman co-supervised with A. Eckardt 2013, T. Grass, co-supervised with B. Julía-Díaz 2013], four in 2014 [M. Alloing, co-supervised with F. Dubin, U. Elbing, co-supervised with A. Eckardt, A. Zamora, co-supervised with G. Szirmai, P. Migdał, co-supervised with J. Rodriguez Laguna], J. Tura, co-supervised with R. Augusiak 2015, M. Beian, co-supervised with F. Dubin 2016, Noslen Suárez, co-supervised J. Biegert and M. Bellini 2018, Aniello Lampo 2018, David Raventós, co-supervised with B. Julia-Díaz 2019, Christos Charalambous, co-supervised with M.A. García-March, 2020, Angelo Piga 2020, Emanuele Tirrito, co-supervised with A. Bermudez, 2020, Albert Aloy, co-supervised with J. Tura, 2020, Gorka Muñoz, co-supervised M.A. García-March, 2020, Zahra Khanian, supervised A.Winter, co-supervised M. Lewenstein 2020, Daniel González Cuadra, co-supervised by Alejandro Bermúdez, 2020, Nils-Eric Guenther, co-supervised by Pietro Massignan, 2021, Sergi Julià-Farré, co-supervised by A. Dauphin, 2022, Jessica O. de Almeida, co-supervised M. Skoteiniotis, 2022, Korbinian Kottmann, co-supervised Antonio Acín, 2022) .
- 3 PhD cotutelle ICFO-Univ. Southampton (2017, S. Mugel, co-supervised with C. Lobo), ICFO-Università di Napoli (2019, Maria Maffei, co-supervised with Alexandre Dauphin), ICFO-Uniwersytet Warszawski (2022, Anna David-Łękowska, co-supervised with Michał Tomza).
- 17 PhD students currently (M. Bera, D. Cirauqui, G. Fernández, Joana Fraxanet, K. Koffman, B. Requena, T. Salomon, N. Baldoli, G. Müller, Barbara Andrade, G. Fernández, Ph. Stammer, P. Popov, A. Srivastava, E. Piñol, A. Macarone, Maria Recasens)

Other activities:

- 1997-2003 Division Associate Editor of the Physical Review Letters
- 2004-2006 Chairman of the Quantum Optics Division of the German Physical Society
- 2004-2012 Editor of Open Systems & Information Dynamics
- 2007- Editor of Reports on Progress of Physics
- 2008-2013 Editor EPL
- 2014- Editor Springer Lectures on Physics
- 2017 – Associate Editor Annales Henri Poincaré
- 2019 – Honorary Director "Center of Quantum Physics and Intelligent Sciences", CNU, Beijing
- 2019 – Reviewer in AMS Mathematical Reviews
- Scientific Advisory Committee (ICAP Int. Conf. At. Physics)
- Chairman ICAP 2018 Barcelona

- Scientific and Organisation Committee BEC Conferences 1997-2019
- Scientific Advisory Committee ITAMP Harvard/Smithonian
- ERC Panel P2 member & chair 2013/2019, ERC reviewer

Languages:

Polish, English, Russian, French, German, Spanish, basic Catalan and Italian; understanding of read Portuguese, Gallego, Slovak, Slovenian, Czech, Ukrainian, Belorussian, Bulgarian.

Scientific Impact (ISI Web of Science and Essential Science Indicators):

- 730 articles in total [674 articles in peer-reviewed journals (646 published, 16 in print, 12 submitted)], 23 review articles, 33 articles and chapters in books and conference proceedings), 8 books (Oxford University Press, 2012, 460 pages; paperback reprint Oxford University Press, 2017, 470 pages; Warszawska Firma Wydawnicza, 2014, 554 pages; extended second edition, Wydawnictwo Drugie, 2016, 666 pages; Springer Briefs in Physics, Springer, 2019, 140 pages; Springer Lecture Notes in Physics, 2020, 659 pages; Bandcamp 2021, 1450 pages), Modern applications of machine learning in quantum sciences, Anna Dawid-Łękowska et al., http://arxiv.org/abs/2204.04198
- 44005 citations (41261 without self-citations), (59.07/paper) on the 25th of December 2022 (Web of Science)
- H-index 104 (Web of Science)
- i10-index 458 (Web of Science)
- i50-index 185 (Web of Science)
- i100-index 108 (Web of Science)
- 14 Highly Cited Papers, i.e. papers in the last 10 years with the top 1% citation rate (Essential Science Indicators, Web of Science)
- 68198 citations, 25th of December 2022 (Google Scholar)
- H-index 121 (Google Scholar)
- i10-index 553 (Google Scholar)
- Listed among Thompson Reuters 144 Highly Cited Researchers 2014 in Physics, i.e. researchers with the largest number of Highly Cited Papers—ranking among the top 1% most cited for their subject field and year of publication, earning them the mark of exceptional impact
- Listed among Thompson Reuters 2014 The World's Most Influential Scientific Minds
- Listed among Thompson Reuters 119 Highly Cited Researchers 2015 in Physics
- Listed among Thompson Reuters 2015 The World's Most Influential Scientific Minds
- Listed among Thompson Reuters 111 Highly Cited Researchers 2016 in Physics
- Listed among Thompson Reuters 2016 The World's Most Influential Scientific Minds
- Listed among Clarivate Analytics 194 Highly Cited Researchers 2017 in Physics
- Listed among Clarivate Analytics Highly Cited Researchers 2018 in Physics
- Listed among Clarivate Analytics Highly Cited Researchers 2019 in Physics
- Listed among Clarivate Analytics Highly Cited Researchers 2020 in Physics
- Listed among Clarivate Analytics Highly Cited Researchers 2021 in Physics

Regular articles:

1. M. Lewenstein and J. Mostowski, Functional integration method of calculation certain averages in quantum optics, Acta Phys. Polon. A **61**, 201 (1982).Massi

2. M. Lewenstein and K. Rzążewski, Coupling between left and rigth waves in the initial stage of superfluorescence, Phys. Rev. A **26**, 1510 (1982).3

3. M. Lewenstein, K. Rzążewski, and J. H. Eberly, Threshold effects in strong field photodetachment, J. Phys. B **15**, L661 (1982).

4. K. Rzążewski, M. Lewenstein and M. G. Raymer, Statistics of stimulated Stokes pulse energies in the steady state regime, Opt. Comm. **43**, 451 (1982).

5. F. Haake and M. Lewenstein, Adiabatic drag and initial slip in random processes, Phys. Rev. A **28**, 3606 (1983).

6. F. Haake and M. Lewenstein, Adiabatic expansion for a single mode laser, Phys. Rev. A **27**, 1031 (1983).

7. F. Haake and M. Lewenstein, Renormalization groups for two and three dimensional kinetic Ising models, Phys. Rev. B **27**, 5868 (1983).

8. J. W. Haus, M. Lewenstein and K. Rzążewski, Laser induced autoionization in the presence of radiative damping and transverse relaxation, Phys. Rev. A **28**, 2269 (1983).

9. M. Lewenstein, J. W. Haus and K. Rzążewski, Photon spectrum in laser induced autoionization, Phys. Rev. Lett. **50**, 417 (1983).

10. M. Lewenstein, P. Zoller and J. Mostowski, Path integration method applied to (N-1)-resonant N-photon ionization, J. Phys. B **16**, 563 (1983).

11. F. Haake, M. Lewenstein and M. Wilkens, Renormalization group and high temperature series for the two dimensional Ising model, Z. Phys. B **54**, 333 (1984).

12. F. Haake, M. Lewenstein and M. Wilkens, The irrelevance of detailed balance for the dynamical critical exponents, Z. Phys. B **55**, 211 (1984).

13. J. W. Haus, M. Lewenstein and K. Rzążewski, Finite interaction times and laser band-width effects on the photoemission from an autoionizing atom, J. Opt. Soc. Am. B **1**, 641 (1984).

14. M. Lewenstein, Fluctuations in the nonlinear regime of stimulated Raman scattering, Z. Phys. B **56**, 69 (1984).

15. J. Zakrzewski, K. Rzążewski and M. Lewenstein, Threshold effects in strong field photodetachment monitored by spontaneous photo-relaxation, J. Phys. B **17**, 729 (1984).

16. F. Haake, M. Lewenstein and M. Wilkens, Relation of random and competing nonrandom couplings for spin glasses, Phys. Rev. Lett. **55**, 2606 (1985).

17. M. Lewenstein, J. Mostowski and M. Trippenbach, Multichannel decay and continuum-continuum relaxation in above threshold ionization, J. Phys. B **18**, L461 (1985).

18. M. Lewenstein and T. Tèl, On the dynamics of ensemble averages in chaotic maps, Phys. Lett. A **109**, 411 (1985).

19. K. Rzążewski, J. Zakrzewski, M. Lewenstein and J. W. Haus, Strong field autoionization by strong pulses, Phys. Rev. A **31**, 2995 (1985).

20. J. Zakrzewski, M. Lewenstein and J. R. Kukliński, Soluble models of optical systems driven by exponential pulses, J. Phys. B **18**, 4631 (1985).

21. J. Grochmalicki, J. R. Kukliński and M. Lewenstein, Above threshold ionization and electron scattering in intense laser field, J. Phys. B **19**, 3649 (1986).

22. M. Kuś and M. Lewenstein, Exact isolated solutions for the class of quantum optical systems, J. Phys. A **19**, 305 (1986).

23. M. Lewenstein, Collective effects at high laser intensities and multiple ionization, J. Phys. B **19**, L309 (1986).

24. M. Lewenstein, J. Zakrzewski and K. Rzążewski, Theory of spectra generated by short laser pulses, J. Opt. Soc. Am. B **3**, 22 (1986).

25. D. Roguś and M. Lewenstein, Resonant ionization by smooth pulses, J. Phys. B **19**, 3051 (1986).

26. F. Haake, M. Lewenstein and M. Wilkens, Equivalence of random and competing nonrandom bonds for Edwards-Anderson spin-glass, Z. Phys. B **66**, 201 (1987).

27. A. Jaffe, A. Leśniewski and M. Lewenstein, Ground state structure in supersymmetric quantum mechanics, Ann. Phys. (N. Y.) **178,** 313 (1987).

28. J. R. Kukliński and M. Lewenstein, Pulse shape induced phenomena in photodetachment.
J. Phys. B **20**, 1387 (1987).

29. M. Lewenstein and J. Javanainen, Cooperative quantum jumps with two atoms, Phys. Rev. Lett. **59**, 1289 (1987).

30. M. Lewenstein, T. W. Mossberg and R. J. Glauber, Dynamical supression of spontaneous emission, Phys. Rev. Lett. **59**, 775 (1987).

31. M. Lewenstein and K. Rzążewski, Noise reduction in Raman ring laser driven by chaotic pump, Opt. Comm. **63**, 174 (1987).

32. J. Grochmalicki and M. Lewenstein, Strong pulse excitation of Rydberg wave packets,
J. Phys. B **21**, 3285 (1988).

33. M. Lewenstein and J. Javanainen, Quantum jumps statistics for two-atom systems, J. Quantum Elec. IEEE **24**, 1403 (1988).

34. M. Lewenstein and T. W. Mossberg, Spectral and statistical properties of strongly driven atoms coupled to frequency dependent reservoirs, Phys. Rev. A **37**, 2048 (1988).

35. M. Lewenstein, J. Zakrzewski, T. W. Mossberg and J. Mostowski, Non-exponential spontaneous decay in cavities and waveguides, J. Phys. B **21**, L9 (1988).

36. M. Lewenstein, J. Zakrzewski and T. W. Mossberg, Spontaneous emission of atoms coupled to frequency-dependent reservoirs, Phys. Rev. A **38**, 1075 (1988).

37. Y. Zhu, A. Lezama, T. W. Mossberg and M. Lewenstein, Vacuum-field dressed state pumping, Phys. Rev. Lett. **61**, 1947 (1988).

38. M. Lewenstein and T. W. Mossberg, Strong-field-induced squeezing and dressed-state-polarization of atoms in cavities, Phys. Rev. A **38**, 808 (1988).

39. J. Grochmalicki and M. Lewenstein, Detection of decay processes by means of the quantum jumps statistics, Phys. Rev. A **40**, 2517 (1989).

40. J. Grochmalicki and M. Lewenstein, Detection of cavity fields by means of quantum jumps statistics, Phys. Rev. A **40**, 2529 (1989).

41. M. Lewenstein and A. Nowak, Fully connected neural networks with self-control of noise levels, Phys. Rev. Lett. **62**, 225 (1989).

42. M. Lewenstein and A. Nowak, Recognition with self-control in neural networks, Phys. Rev. A **40**, 4652 (1989).

43. M. Wilkens and M. Lewenstein, Quantum noise reduction in photodetection processes, Phys. Rev. A **39**, 4291 (1989).

44. T. W. Mossberg and M. Lewenstein, Stability and phase-dependent dynamics of an atom driven by a strong resonant field and a tunablemoderate-strength perturber, Phys. Rev. A **39**, 163 (1989).

45. M. Wilkens, H. J. Sommers, M. Lewenstein and F. Haake, Random versus nonrandom competing bonds for spin glasses with long-range interactions, Z. Phys. B **77**, 141 (1990).

46. M. Lewenstein, Y. Zhu and T. W. Mossberg, Two-level atoms as a medium for two-photon laser action, Phys. Rev. Lett. **64**, 3131 (1990).

47. J. Grochmalicki, M. Lewenstein, M. Wilkens and K. Rzążewski, Beyond ATI - Ionization of atoms by ultrastrong laser pulse above atomicintensity, J. Opt. Soc. Am. B **7**, 607 (1990).

48. R. J. Glauber and M. Lewenstein, Quantum optics of dielectric media, Phys. Rev. A **43**, 467 (1991).

49. J. Grochmalicki, M. Lewenstein, and K. Rzążewski, Stabilization of atoms in ultrastrong laser fields - is it real?, Phys. Rev. Lett. **66**, 1038 (1991).

50. M. Lewenstein and M. Olko, "Quantum" neural networks, Network **2**, 207 (1991).

51. J. Zakrzewski, M. Lewenstein and T. W. Mossberg, Theory of dressed state lasers I. Effective Hamiltonians and stability properties, Phys. Rev. A **44**, 7717 (1991).

52. J. Zakrzewski, M. Lewenstein and T. W. Mossberg, Theory of dressed state lasers II. Quantum statistical properties, Phys. Rev. A **44**, 7732 (1991).

53. J. Zakrzewski, M. Lewenstein and T. W. Mossberg, Theory of dressed state lasers III. Pump depletion effects, Phys. Rev. A **44**, 7746 (1991).

54. W. Tarkowski, M. Komarnicki, and M. Lewenstein, Optimal storage of invariant sets of patterns in neural network memories, J. Phys. A **24**, 4197 (1991).

55. M. Kuś, M. Lewenstein, and F. Haake, Density of eigenvalues of random band matrices, Phys. Rev. A **44**, 2900 (1991).

56. T. W. Mossberg, M. Lewenstein, and D. Gauthier, Cooling and trapping of atoms in colored vacua, Phys. Rev. Lett. **67**, 1729 (1991).

57. J. Zakrzewski and M. Lewenstein, Theory of dressed state lasers in the bad cavity limit, Phys. Rev. A **45**, 2057 (1992).

58. K. Życzkowski, M. Lewenstein, M. Kuś and F. Izrailev, Eigenvector statistics for random band matrices, Phys. Rev. A **45**, 811 (1992).

59. M. Lewenstein and M. Olko, Storage capacity of "quantum"neural networks, Phys. Rev. A **45**, 8938 (1992).

60. M. Gajda, J. Grochmalicki, M. Lewenstein and K. Rzążewski, Stabilization of atoms in ultrastrong laser fields: classical approach, Phys. Rev. A **46**, 1638 (1992).

61. M. Lewenstein and W. Tarkowski, Optimal storage of exponentially correlated patterns in neural networks, Phys. Rev. A **46**, 2139 (1992).

62. J. Zakrzewski, D. Segal, and M. Lewenstein, Pulsed dressed state lasers, Phys. Rev. A **46**, 1638 (1992).

63. Maciej Lewenstein, Andrzej Nowak, and Bibb Latané, Statistical mechanics of social impact, Phys. Rev. A 45, 763 – Published 1 January 1992

64. W. Tarkowski and M. Lewenstein, Estimates of storage capacity of neural network memories based on random matrix theory, J. Phys. A **25**, 6251 (1992).

65. T. W. Mossberg and M. Lewenstein, Radiative properties of strongly driven atoms in the presence of photonic bands and gaps, JOSA B **10**, 340 (1993).

66. M. Lewenstein and L. Roso Franco, Cooling of atoms in colored vacua, Phys. Rev. A **47**, 3385 (1993).

67. J. R. Kukliński, M. Lewenstein, and T. W. Mossberg, Laser induced photonic-continuum structure, Phys. Rev. A **48**, 764 (1993).

68. W. Tarkowski and M. Lewenstein, Storage of correlated data in neural network memories, J. Phys. A **26**, 2453 (1993).

69. M. Żochowski, M. Lewenstein and A. Nowak, A memory that tentatively forgets, J. Phys. A **26**, 2099, (1993).

70. W. Tarkowski and M. Lewenstein, Learning from correlated examples in a perceptron,
J. Phys. A **26**, 3669 (1993).

71. A. Nowak, M. Lewenstein, and W. Tarkowski, Repeller neural networks, Phys. Rev. E **48**, 4091 (1993).

72. M. Lewenstein and L. You, Probing Bose-Einstein condensated atoms with short laser pulses, Phys. Rev. Lett. **71**, 1339 (1993).

73. A. L'Huillier, M. Lewenstein, P. Salières, Ph. Balcou, M. Yu. Ivanov, J. Larsson, C. G. Wahlström, High-order harmonic-generation cutoff, Phys. Rev. A **48**, R3433 (1993).

74. K. Rzążewski, M. Lewenstein, and P. Salières, Multielectron stabilization of atoms in laser field: classical perspective, Phys. Rev. A **49**, 1196 (1994).

75. M. Lewenstein, Ph. Balcou, M. Yu. Ivanov, Anne L'Huillier, and P. Corkum, Theory of high harmonic generation by the low frequency laser fields, Phys. Rev. A **49**, 2117 (1994).

76. M. Lewenstein, L. You, and J. Cooper, Quantum optics of Bose-Einstein condensates, in Proc. of Int. Conf. "Quantum Optics III", Szczyrk 1993, ed. M. Kolwas and J. Mostowski, special issue of Acta Phys. Polon. A **86**, 173 (1994).

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78. L. You, M. Lewenstein, and J. Cooper, Line shapes for ligth scattered from Bose-Einstein condensate, Phys. Rev. A **50**, R3565 (1994).

79. M. Lewenstein, L. You, J. Cooper and K. Burnett, Quantum field theory of atoms interacting with light I: Foundations, Phys. Rev. A **50**, 2207 (1994).

80. M. Żochowski, M. Lewenstein, and A. Nowak, SMARTNET - a neural network with self-controlled learning, Network **6**, 93 (1994).

81. J. Guo, J. Cooper, A. Gallagher, and M. Lewenstein, Theory of reflection selective spectroscopy, Opt. Comm. **110**, 732 (1994).

82. J. I. Cirac, M. Lewenstein, and P. Zoller, Quantum dynamics of a laser cooled ideal gas, Phys. Rev. A **50**, 3409 (1994); *erratum* **50**, 5363 (1994).

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84. M. Lewenstein, K. C. Kulander, K. J. Schafer, and P. Bucksbaum, Rings in above threshold ionization - A quasi-classical analysis, Phys. Rev. A **51**, 1495 (1995).

85. J. I. Cirac, M. Lewenstein, and P. Zoller, Laser cooling of atoms in a cavity: bad cavity limit, Phys. Rev. A **51**, 1650 (1995).

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87. J. L. Cirac, M. Lewenstein, and P. Zoller, Generalized Bose-Einstein condensation and multistability in a laser cooled ideal gas, Phys. Rev. A **51**, 2899 (1995).

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91. R. J. Glauber and M. Lewenstein, Glauber's and Lewenstein's reply, Phys. Rev. A **51**, 884 (1995).

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