

CURRICULUM VITAE

dr. Marian APOSTOL, scientific researcher

professor of Theoretical Physics

apoma Laboratory

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Personal

Born September 5, 1949, Giurgiu, Romania; married, one son, born 1973

Studies and degrees

MSc in Theoretical Physics, Bucharest University 1972, "**Magnetic excitations in thin films**"

PhD in Theoretical Physics, Institute of Atomic Physics, Magurele-Bucharest 1984, "**Fermion interaction in low-dimensional solids**"

Professor of Theoretical Physics, Institute of Atomic Physics, Magurele-Bucharest 1992, University of Bucharest 1999

Employment

Scientific researcher, Department of Theoretical Physics, Institute of Atomic Physics, Magurele-Bucharest since 1972 (**scientific researcher 1st rank** since 1992)

Experience

Theoretical Physics; Condensed Matter Physics, Solid State Physics, Materials Science, Nuclear Physics, Atomic Physics, Physical Chemistry, Mathematical Physics, Classical Physics, Applied Physics

Main achievements

Particle Channeling in Solids (1973), Quantum Theory of Plasmons in Layered Structures (1975), Fermion Bosonization in One

Dimension (1980), Charge-Density Waves (1983), Four-Fermion Condensate (1985), High-Tc Superconductivity (1990), Low-Dimensional Solids (1993), Field-Induced Spin-Density Wave (1994), Transport Theory (1995), Alkali Vacancies in Fullerides (1995), Off-Centre Diffusion (1997), Electron Liquid (1998), Atomic Clusters (2000), Pulse Transport (2002), Quanta of Viscosity (2002), Thermoelectricity (2003), Moon's Problem (2005), Quark-Gluon Plasma (2006), Condensation of Matter (2006), Theory of Liquids (2006), Magnetic Effects on Positronium Decay (2006), Weber's Coherent Scattering and Neutrino Detection (2006), Curved Spaces and Quantization in Non-Inertial Motion (2007), Quanta of Electrical Conductance (2007), Densitons (2008), Coherence Domains (2008), Plasmons and Polaritons (2008), Electromagnetic Theory in Matter (2009), Pulsed Polariton in Plasma (2010), Laser Theory (2011), Molecular Forces (2012), Resonant Dipolar Force (2012), Quasi-Classical Approximation (2014), Electronic Edge States in Graphene (2015), Boundary Layer Turbulence (2015), regularized elastic Hertz potentials (2017), charge scattering by laser pulses (2017), stimulated magnetic resonance (2017), fast ionization (2018), alpha decay in laser fields (2018), plasma stability (2019), lyophobic colloids, Landau penetration depth, pulses on metallic wires (2020)

Main themes of research

Channeling in solids; Fermi liquid; plasmons in layered structures; many-body theories of interacting fermions; electronic processes and C(S)DWs in quasi-one-dimensional solids; boson representation of the fermion fields in one dimension; superfluid four-fermion correlations in the alpha-particle structure of the atomic nuclei; conformal transitions in biomolecules; solitons; high-Tc superconductivity; transport in solids; sound attenuation; electrons in magnetic field; dynamics of molecules; fullerenes; defects and impurity diffusion in solids; low-dimensional solids; nuclear magnetic resonance; microstructures and nanostructures; Hubbard model;

metallic cohesion; chemical bonds; thermoelectricity; atomic clusters; condensation of matter; strongly interacting liquids; quantization in curved spaces; quantal transport; excitations in liquids; coherence in matter; polarization of matter, quasi-classical theory; electromagnetic field and charges, plasma, magnetic resonance, elasticity, charges in laser fields

Scientific publications 1

150 articles in referred international journals, **100** articles in referred national journals, **50** scientific communications, **18** articles of science popularization

Scientific publications 2

Founder and editor of **Journal of Theoretical Physics**, **325** scientific papers

Founder and editor of **Antiphysical Review**, **228** articles on science and society

Scientific publications 3: 30 Books

Elementary Mathematics (1989), Introductory Physics (1990), Mechanics (1994), Statistical Physics (1996), Many-Body Theory (1999), Selected Lectures on Condensed Matter (1996), Antiphysical Review 1995-1999, Journal of Theoretical Physics 1995-1999, The Electron Liquid (2000), Metallic Binding (2000) (Journal of Theoretical Physics 1999-2000), Transport Theory (2001); Journal of Theoretical Physics 2000-2001 (2001); Antiphysical Review 2000-2002 (2002); Geometry (2002) (highschool textbook, in Romanian); Journal of Theoretical Physics 2001-2002 (2002); Field-Controlled Superconducting Transistor (2003); Antiphysical Review 2002-2005 (2005); Journal of Theoretical Physics 2002-2005 (2005); Of Geophysical Episodes. An Introduction to Theoretical Seismology (J. Theor. Phys. 1995-2005) (2005); Journal of Theoretical Physics 2005-2006 (2006) (collection of scientific papers); Nuclear Theory (2006) (postgraduate monograph); The Antiphysical Review 2005-2007 (2007) (collection of science policy papers); Journal of Theoretical

Physics 2006-2007 (2007) (collection of scientific papers); The Theory of Condensed Matter (2007) (postgraduate monograph); Mathematical Analysis (2008) (highschool textbook, in Romanian); Algebra (2008) (highschool textbook, in Romanian); Geometrie, Trigonometrie si Geometrie Analitica (2008) (highschool textbook, in Romanian); Journal of Theoretical Physics 2007-2008 (2009) (collection of scientific papers); Lectii de Fizica Elementara – Mecanica si Statistica (2009) (highschool textbook, in Romanian); Lectii de Fizica Elementara – Electromagnetism si Fizica Moderna (2010) (highschool textbook, in Romanian); The Antiphysical Review 2007-2010 (2010) (collection of science policy papers); Journal of Theoretical Physics 2009-2010 (2010) (collection of scientific papers); Eleven Lectures on Theoretical Physics (J. Theor. Phys. 2003-2007) (2010); Electromagnetic Theory in Matter (2010), with G. Vaman and L. C. Cune (postgraduate monograph); Journal of Theoretical Physics 2010-2011 (2012) (collection of scientific papers); Journal of Theoretical Physics 2011-2013 (2013) (collection of scientific papers); Journal of Theoretical Physics 2013-2015 (2016) (collection of scientific papers); The Antiphysical Review 2010-2012 (2013) (collection of science policy papers); Elements of Equations of Mathematical Physics (2013); Journal of Theoretical Physics 2015-2016 (2017) (collection of scientific papers); The Antiphysical Review 2013-2018 (2018) (collection of science policy papers); Journal of Theoretical Physics 2016-2017 (2020) (collection of scientific papers); Journal of Theoretical Physics 2017-2018 (2020) (collection of scientific papers); Journal of Theoretical Physics 2018-2019 (2020) (collection of scientific papers); A lame Duck-Quantum Electrodynamics (2020)

at apoma, Magurele-Bucharest.

Special books

Twenty Lectures on Physics (Writings on Theoretical Physics), Lambert, 2012 (978-3-8465-8512-2) (234 pages)

Studies in Theoretical Physics (Selected Works 1972-2012), vols.1,2, Elsevier, 2012 (20360, 21036) (800 pages)

Essays in Electromagnetism and Matter (Dipoles and Polarization), Lambert, 2013 (978-3-659-41179-3) (261 pages)

Analysis of a Class of Teledetection Devices with a Rotating Antenna (in collaboration), Science PublGroup, 2014 (978-1-940366-26-5) (134 pages)

Magnetic and Electric Resonance, Cam. Scholars Publ., 2018 (978-1-5275-0598-8) (340 pages)

Scientific papers of Marian Apostol, apoma, 2018 (ISSN 1453-4428, 4436) (3 volumes, 1200 pages)

Equations of Mathematical Physics, Cam. Scholars Publ., 2018 (1-5275-16116-4, 978-1-5275-16116-8) (240pp)

Quantum Mechanics, Cam. Int. Sci. Publ., 2018 (978-1-910889-76-3) (244pp)

Quantum Theories, Cam. Int. Sci. Publ., 2018 (978-1-910889-79-4) (243pp)

Theory of Quanta, Nova Sci. Publs., 2019 (978-1-53616-651-4), (248pp)

Structure of Matter, Nova Sci. Publs., 2019 (978-1-53616-625-5), (247pp)

Physical Kinetics, Cam. Scholars Publ., 2020 (978-1-5275-4178-8), (430pp)

International participation

Physics Schools at Jadwisin-**Poland** 1978 and St Andrews-**Scotland** 1979
Working stays at Trieste-**Italy** 1980, 1981, 1984, 1987, 1992
Conferences on Low-Dimensional Materials Les Arcs-**France** 1982 and Abano-Terme-**Italy** 1984
Conference on High-Tc Superconductivity Miramare-**Italy** 1987
Conference on Low-Dimensional Materials and High-Tc Superconductivity Dubrovnik-**Croatia** 1989
Conference on Physics and Chemistry of Fullerenes Kirchberg-**Austria**

1995

Conference on Epitaxial Growth of Semiconductors Montpellier-**France**

1995

Invited lecturer at the International Summer School Varna-**Bulgaria** 1986

Invited seminars at the Institute for Molecular Physics Poznan-**Poland**

1987 and Institute of Theoretical Physics Zagreb-**Croatia** 1992, 1994

Working stays at Laboratoire de Physique des Solides Orsay-**France** 1990
(3 months), CRTBT/CNRS Grenoble-**France** 1992 (5 months),

Laboratoire Leon Brillouin-CEA Saclay-**France** 1993 (3 months), GDPC

Montpellier-**France** 1995 (1 year), University of Georgia in Athens-**USA**

1997 (1 month), 2000 (2 weeks), National Nanoscience Report Meeting,

Bern-**Switzerland** 2000

Key speaker 20th International Conference on Thermoelectricity Beijing-

China 2001

Key speaker NATO Advanced Research Workshop on Molecular and

Nanostructured Materials, Poznan-**Poland** 2001

Key speaker NATO Advanced Research Workshop on Dynamic

Interactions in Quantum Dots, Puszczykowo-**Poland** 2002

The 4th Int Conference on Metamaterials, photonic Crystals and

Plasmonics, March 2013, Sharjah-**United Arab Emirates**

The 2nd Advanced Electromagnetics Symposium, March 2013, Sharjah-

United Arab Emirates

Seminar **Dubna**, High Energy Laboratory, Noiembrie 2013

Cooperation

cca **80** coworkers, **60** abroad; **8** graduation and **12** PhD theses in
condensed matter physics

Scientific leadership

Chief Investigator "Many-body theories", Institute of Atomic Physics,
1980-1990

Coordinator, Seminar "Theoretical Physics and Related Fields", Institute
of Atomic Physics, 1985-

PhD Supervisor, Institute of Atomic Physics and University of
Bucharest, 1991-

Project Coordinator "Condensed Matter Physics", Institute of Atomic Physics, 1991-1997

Project Coordinator "Condensed Matter and Statistical Physics", Institute of Atomic Physics, 1997-2000

Project Coordinator "Modern Problems in Condensed Matter", Institute of Atomic Physics, 2001-2003

Project Coordinator "Quantum Condensates for Atomic and Molecular Nano-Aggregates, Networking Techniques and Methods for numerical Computing and Inter-Connectivity", Institute of Atomic Physics, 2003-2005

Project Coordinator "Boson Liquids and Superfluid Bose-Einstein Phases", Institute of Atomic Physics, 2003-

Project Coordinator "Supramolecular Aggregation and Nanostructured Transport", Institute of Atomic Physics, 2005-

Project Adviser "Extreme Light Infrastructure – Magurele-Bucharest - Theory", 2010-

Participation in many research projects on correlated electrons, seismic phenomena, nuclear physics, plasmas in gases, computational physics

Coordinator

General Seminar on Condensed Matter, Magurele-Bucharest, 1985-

Special Seminar on Theoretical Physics, Magurele-Bucharest, 1985-

Course of Theoretical Physics, Magurele-Bucharest, 1992-

Recent Seminars: **Moon's Problem**, **Hadronization** of Quark-

Gluon Plasma, **Modern Ways** of Doing Research (The Plagues of our

Society), **Curved Spaces** and Quantization in Non-Inertial Motion,

Coherence domains in matter interacting with radiation,

Electromagnetism in Matter, Extreme Light Infrastructure – ELI Series

of Seminars **Pulse and Impulse of ELI** (3)– Institute of Atomic Physics,

Magurele-Bucharest, **Molecular Forces** on Macroscopic Bodies, **Laser**

Pulses in Plasma, **Electronic Edge States in Graphene**, Phase Diagram

of the **Quantum Chromodynamics**, **Photons and Nucleus**, **Giant**

Oscillations in Heavy Atoms, **Phase Diagram of Quark-Gluon**

Plasma, **Rotation Molecular Spectra in High Electric Fields**, **Charges**

in Laser Fields, van der Waals equation, at Magurele-Bucharest

Consultant

High-tech companies (USA, Japan, Romania)

Awards and recognition

National Prize for Physics of the Romanian Academy 1984

Included in **Marquis Who's Who in the World**, 14th edition 1997

Included in **Marquis Who's Who in Science and Engineering**, 4th edition 1998-99

Included in **Dictionary of International Biographies**, 26th edition, Cambridge 1997

Included in **Who's Who in 21st Century**, 1st edition, USA 2001

Included in **Contemporary Who's Who Hall of Fame**, 1st edition, USA 2002

Consulting Editor for Contemporary Who's Who, USA, 2002

Professor *International Spinoza Free University*

Founding member of the *Academy of Physics*, Magurele-Bucharest
Romanian Government **Award and Medal** for Excellence in Scientific Research, 2000

Member associate to the **European Academy of Sciences, Arts and Humanities**, Paris, 2004

Included in **Elite of Romanian Researchers**, P. T. Frangopol, *Casa Cartii de Stiinta*, Cluj 2004 (in Romanian)

Included in **Hubner's Who is Who**, 2006

American Biographical Institute **Great Minds of the 21st Century**, 2006

American Biographical Institute **Gold Medal for Romania**, 2007

Laird of Glencairn, Caithness Scotland, 2007

Institute **Annual Award for Achievement**, 2008

Certificate of Appreciation, University of New Mexico- Gallup, 2008, 2009

Institute for Atomic Physics's Honor Award and Medal, 2009

Distinguished Achievements in Paradoxism Award, International Association of Paradoxism, 2010

Once Member of the **Chemical Society of America**, Member of the
American Optical Society, 2011

December 2020

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Full list of publications, copies of recent publications and more
information can be found at <http://www.theory.nipne.ro/CMP>
<http://www.theory.nipne.ro/~apoma>