

## CURRICULUM VITAE

**dr. Marian APOSTOL, scientific researcher**

**professor of Theoretical Physics**

**apoma Laboratory**

Institute of Atomic Physics

Magurele-Bucharest MG-6, POBox MG-35, Romania

ph: 40-21-404 23 00 / 3213, -0727 438 755,

-40-21-404 62 34

email: [apoma@theory.nipne.ro](mailto:apoma@theory.nipne.ro), <http://www.theory.nipne.ro/~apoma>

### **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 1<sup>st</sup> 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), electrolytes (2022), turbulence (2023)**

### **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, electric pulses, electrolytes, colloids, fluids**

### **Scientific publications 1**

**160** articles in referred international journals, **110** articles in referred national journals, **50** scientific communications, **18** articles of science popularization

### **Scientific publications 2**

Founder and editor of **Journal of Theoretical Physics**, **353** scientific papers

Founder and editor of **Antiphysical Review**, **245** articles on science and society

### **Scientific publications 3: 68 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), Prelegeri de Fizica (2021), Lectii de Fizica Elementara (2021), Matematici Elementare (2021), Journal of Theoretical Physics 2019-2020 (2022) (collection of scientific papers),**

**Journal of Theoretical Physics 2020-2021 (2022) (collection of scientific papers), Lecture Notes on An Introduction to Theoretical Physics, vol. 1,2 (2023), Journal of Theoretical Physics 2021-2023 (2023) (collection of scientific papers)**

### **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)

**Statistical Physics,** Cam. Scholars Publ., 2020 (978-1-5275-7449-0,6), (324pp)

**Radiation and Matter,** Nova Sci. Publ., NY 2022 (979-8-88697-246-7),

(317pp)

**Singular Equations of Waves and Vibrations**, Cam. Scholars Publ., 2023 (978-1-5275-0496-7), (190pp)

**Scattering in Condensed Matter**, Cam. Scholars Publ., 2024 (978-1-5275-5835-9), (242pp)

### **Textbooks**

**Lectii de Fizica Elementara**, apoma MG 2021 (1453-4426, 4436), (294p)

**Matematici Elementare**, apoma MG 2021 (1453-4426, 4436), (296p)

### **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 20<sup>th</sup> 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 4<sup>th</sup> 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**, 14<sup>th</sup> edition 1997

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

Included in **Dictionary of International Biographies**, 26<sup>th</sup> edition, Cambridge 1997

Included in **Who's Who in 21<sup>st</sup> Century**, 1<sup>st</sup> edition, USA 2001

Included in **Contemporary Who's Who Hall of Fame**, 1<sup>st</sup> 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 21<sup>st</sup> Century**, 2006

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

**Laird of Glencairn**, Caithness Scotland, 2007

Institute **Annual Award for Achievement**, 2008

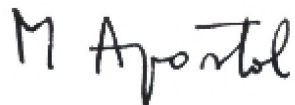
**Certificate of Appreciation**, University of New Mexico- Gallup, 2008,  
2009

**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 2023



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>