

One Page Description of Activity of Marian Apostol

MA, PhD, is scientific researcher in the Institute of Physics and Nuclear Engineering, Institute for Atomic Physics, Magurele-Bucharest since 1972 and Professor of Theoretical Physics since 1992. He graduated in 1972 from the University of Bucharest, Theoretical Physics, with a thesis on *Magnons in Thin Films*. He got his PhD from the Institute for Atomic Physics, Magurele-Bucharest, in 1984 with a thesis on *Fermion Interaction in Low-Dimensional Solids*.

MA has published more than 300 scientific articles in specialized journals and 30 scientific books on a large variety of subjects. Among the best known are the papers on channeling in solids, quantum plasmons, bosonisation in one-dimension, four-fermion condensate, NMR effects in alkali fullerenes, pulsed thermoelectricity, electromagnetism in matter, charges in laser fields. Among his best known books are *Transport Theory, Electron Liquid, Metallic Bonding, Nuclear Physics, Of Geophysical Episodes, Condensed Matter, Twenty Lectures on Physics, Essays in Electromagnetism and Matter, Magnetic and Electric Resonance, Equations of Mathematical Physics, Quantum Mechanics, Quantum Theories, Theory of Quanta, Structure of Matter, Physical Kinetics, Statistical Physics, Prelegeri de Fizica, Radiation and Matter, Singular Equations of Waves and Vibrations, Lecture Notes on An Introduction to Theoretical Physics, vol. 1,2, Scattering in Condensed Matter*.

MA is the founder and editor of the *Journal of Theoretical Physics* and *Antiphysical Review*, which have reached by now 353 and, respectively, 245 issues. His main subjects of research and teaching are *Condensed Matter, Solid State, Atomic and Nuclear Physics, Plasma and Laser Physics, Materials Sciences, Physical Chemistry, Mathematical and Theoretical Physics, Classical Physics*. He is widely known in Romania and abroad for his significant contributions to ion channeling in solids, quantum plasmons, one-dimensional physics, four-fermion condensate, high T_c superconductivity, low-dimensional solids, transport theory (especially the

novel pulse transport concept), theory of matter aggregation and nanostructures, theory of matter condensation, theory of liquids, hadronization of the quark-gluon plasma, quantization in non-inertial motion, coherence in matter, electromagnetic theory in matter, laser physics, pulsed polariton, molecular forces, resonant dipolar force, quasi-classical approximation, electronic edge states in graphene, boundary layer turbulence, Hertz potentials in elasticity, charge scattering by laser pulses, stimulated magnetic resonance, charge scattering on laser fields, fast ionization rate, alpha decay in laser fields, plasma stability, lyophobic colloids, pulses on metallic wires, electrolytes, fluids. A main component of MA's recent research activity is the applied physics, where he is known for pulsed thermoelectricity, induced dipolar force, stimulated magnetic resonance.

His main expertise resides in *Statistical and Quantum Physics* and *Theoretical Physics*.

In 1985 MA founded at Magurele, and is continuously coordinating since then, the *General Seminar of Condensed Matter*, the *Special Seminar of Theoretical Physics* and the *Course of Theoretical Physics*.

MA had numerous collaborations, in Romania and abroad, PhD students, post-docs and was the leader of numerous contracts and projects of scientific research.

A distinguished feature of MA's activity is also the interdisciplinarity and the elementary textbooks of *Mathematics* and *Physics* for gymnazial use.

MA has given along the years numerous talks in Romania and abroad, on various scientific subjects, and is currently giving a yearly *General Seminar* at Magurele-Bucharest (*Nanostructures* 2004, *Moon's Problem* 2005, *Quark-Gluon Plasma* 2006, *Curved spaces* 2007, *Coherence* 2008, *Electromagnetic Theory in Matter* 2009, *Pulsed Polariton* 2010, *Molecular Forces* 2011, *Laser Pulses* 2012, *Photon-Nucleus Coupling* 2013, *Giant Dipole Resonance in Heavy Atoms* 2014, *Rotation Molecular Spectra in High Electric Fields* 2015, *Interaction of laser fields with charges* 2016, 2018. *van der Waals equation* 2019).

MA initiated the Series of Seminars *Pulse and Impulse of ELI (Extreme Light Infrastructure)* at the Institute for Atomic Physics Magurele-Bucharest in 2010 (15 seminars up to 2018). He is currently publishing in laser interaction with matter (cca 12 papers up to 2019).

MA has published the books *Twenty Lectures on Physics (Writings on Theoretical Physics)*, cca 250 pp), Lambert 2012, *Studies in Theoretical Physics (Selected Works)*, 2 vols, cca 800 pp), Elsevier 2012, *Essays in Electromagnetism and Matter (Dipoles and Polarization)*, cca 260 pp), Lambert 2013 and *Analysis of a Class of Teledetection Devices with a Rotating Antenna* (in collaboration, cca 135 pp), Science Publ Group 2014, *Magnetic and Electric Resonance* (356 pp), *Equations of Mathematical Physics* (254 pp), Cambr. Scholars, *Quantum Mechanics* (254 pp), *Quantum Theories* (255 pp), Cambr. Int. Sci. Publish, *Theory of Quanta* (248pp) , Nova Sci. Publs.2019, *Structure of Matter* (247pp), Nova Sci. Publs. 2019, *Physical Kinetics* (430pp) , Cam. Scholars Publ. 2020, *Statistical Physics* (324pp) , Cam. Scholars Publ. 2021, *Prelegeri de Fizica* (203pp), apoma MG 2021, *Radiation and Matter* (317pp), Nova Sci. Publs. 2022, *Singular Equations of Waves and Vibrations* (190 pp), Cam. Scholars Publ. 2023, *Scattering in Condensed Matter* (242 pp), Cam. Scholars Publ. 2024. MA published his *Scientific Papers* (3 volumes, 1200 pp), apoma MG.

MA contributed to the apparition of the books *The Theory of Earthquakes* and *Introduction to the Theory of Earthquakes*, Cambridge Int. Sci. Publ. 2017 and *Seismology*, Nova 2020, author B. F. Apostol, *A Guide to Practical Seismology*, Cam. Scholars Publ. 2020, authors B. F. Apostol and L. C. Cune.

MA has also published much on the organization and policy of the scientific research, especially in *Antiphys. Rev.*

MA founded the *Academy of Physics* at Magurele.

He is distinguished with numerous honors and awards, like the inclusion in various *Who's Who* encyclopedias, *Dictionaries of International Biographies*,

Romanian Academy Prize (1984), Medal of Excellence of the Romanian Government (2000), Institute Annual Award for Achievement, 2008, Institute for Atomic Physics's Honor Award and Medal, 2009 and was declared by the *American Biographical Institute (ABI)* one of the *Greatest Minds of the 21st Century (2006)*. He is also a recipient of the ABI's *Gold Medal for Romania*. He is a member of the *European Academy of Arts, Sciences and Humanities (Academie des Arts, Sciences et Humanities, Paris, 2004)* and was declared one of cca 30 *Elites of Romanian Researchers (2005)*. MA is Laird of Glencairn in Caithness. MA has the *Certificate of Appreciation* of the University of New Mexico-Gallup, 2008, 2009 and the *Distinguished Achievements in Paradoxism Award 2010* of the International Association of Paradoxism.

MA has published as a single author cca 270 scientific papers in peer-reviewed journals in cca 50 years of activity. This amounts to more than 5 papers per year, *i.e.* a paper every 2.5 months, continuously in 50 years. Such a figure could well be taken as an index of activity for scientific researchers. We may call it the MA (apoma) index.

December 2023, Magurele-Bucharest.