

## LIFE AND SCIENTIFIC WORKS OF IOAN-IOVITZ POPESCU AT THE 75 YEAR ANNIVERSARY

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Ioan-Iovitz Popescu was born on 1 October 1932 at Burila-Mare, county of Mehedinți, Romania. He graduated in 1955 from the Faculty of Physics of the University of Bucharest, and was doctor in physics of the University of Bucharest in 1961, under the supervision of Eugen Bădărău.

Between 1955 and 1960 he was assistant professor at the Faculty of Physics, Bucharest, and between 1960 and 1972 he was chief of the Plasma Physics Laboratory and then scientific director of the Institute of Physics Bucharest. In 1960 he was awarded the Constantin Miculescu Prize for Physics of the Romanian Academy, and in 1961 he was awarded the Prize for Physics of the Ministry of Education.

In 1963 he married Denisa Popescu, and they were close co-worker in the years to come.

Between 1967 and 1969 he had a Humboldt Research Fellowship in plasma physics at the Universität Kiel, Institut für Experimentalphysik, working with Walter Lochte-Holtgreven and Johannes Richter. He was secretary of the IX<sup>th</sup> International Conference on Phenomena in Ionized Gases held at Bucharest in September 1969.

In 1972 he became professor of plasma physics of the Faculty of Physics of the University of Bucharest, and then professor of optics, his courses being inspiring for the students. He was dean of the Faculty of Physics Bucharest between 1972 and 1977, and he supervised the move in 1974 of the Faculty of Physics to its new location on the Măgurele campus. Between 1977 and 1981 he was the first director of the Institute of Physics and Radiation Technology at Măgurele, and contributed to the crystallization of the research directions of the new institute. Between May 1981 and October 1989 he was rector of the University of Bucharest.

Between 1971 and 1981 he was principal investigator, jointly with Professor Carl B. Collins of the University of Texas at Dallas, of the U.S.-Romanian Collaboration Project in Atomic and Plasma Physics, funded by the U.S. National Science Foundation. Since 1995 he was director of the Induced Gamma Emission Foundation, Măgurele.

Since 1969 he supervised over 40 doctoral theses in the field of plasma physics and related areas. In 1990 he retired from the Faculty of Physics Bucharest

but continued to supervise theses as a consulting professor of the Faculty of Physics.

In 1974 he became a corresponding member of the Romanian Academy, and since 1990 he was a full member of the Romanian Academy. Between 1990 and 1992 he was president of the Physics Section of the Romanian Academy.

Between 1991 and 2000 he was Editor-in-Chief of the journal *Romanian Reports in Physics*, published by the Romanian Academy. He was an advisory Editor of *Europhysics Letters* of the European Physical Society, since the foundation of this journal in 1986.

In 1997 he became a Honorary Citizen of the Mehedinți county, and in 1998 Doctor Honoris Causa of the Craiova University. In 2000 he was awarded the Loyal Service National Order in Commander Rank, in 2002 the Academic Merit Diploma of the Romanian Academy, and in 2002 he was awarded the Excellence Diploma of the Romanian Ministry of Education and Research.

The scientific achievements of Ioan-Iovitz Popescu include contributions in the field of electrical gas discharges and plasma physics, such as glow discharges, hollow-cathode effect, plasma diodes, resonant charge transfer and photoionization. Over the years, the optogalvanic effect was used by Eugen Bădărău, Ioan-Iovitz Popescu, Denisa Popescu, Johannes Richter, Carl B. Collins, Constantin Stanciulescu, Ani Surmeian and their colleagues as a tool for laser spectroscopy by thermionic detection (1964), radio-frequency detection (1980) and detection of laser-induced frequency shift of self-excited plasma oscillations (1990).

In 1969, Ioan-Iovitz Popescu and Rüdiger von der Heide reported the first experimental evidence of stable ion clusters with icosahedron and dodecahedron symmetry in ionized dense gases.

Denisa Popescu, Ioan-Iovitz Popescu, Carl B. Collins and their colleagues have reported evidence of multiphoton spectra of free atoms and molecules with tunable lasers (1973), have discovered the hybrid molecular-atomic resonances (1974) and have used the two-photon techniques for the photolytic spectroscopy of molecules (1980). They have demonstrated the real possibilities of multiphoton spectroscopy (1973–1981), contributing to the growth of the field of laser spectroscopy by excited-state spectroscopy, Rydberg spectroscopy, two-photon doppler-free spectroscopy, multiphoton ionization spectroscopy and photolytic spectroscopy.

In 1994, M. Ganciu, Anne-Marie Pointu, N. B. Mandache, Ioan-Iovitz Popescu and their colleagues developed a new type of pseudospark plasma source of high intensity electron, ion, and electromagnetic beams and have discovered the “cruising effect” of intense electron beams along dielectric surfaces, with applications in high intensity X-ray sources, X-ray lasers, high density ion traps and electron beam plasma-surface chemistry.

Ioan-Iovitz Popescu has written many books on ionized gases, plasma physics, optics, spectroscopy, and general physics, among which is the outstanding

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two-volume monograph by E. Bădărău and Ioan-Iovitz Popescu entitled *Ionized gases*, published in Romanian by Editura Tehnica, and consisting of volume I, *Fundamental processes*, published in 1963, and volume II, *Electric discharges in gases*, published in 1965. A translation in French under the title *Gaz ionisés, décharges électriques dans les gaz* has been published jointly in 1968 by Editions Dunod, Paris, and Meridiane, Bucharest.

Another outstanding book of Ioan-Iovitz Popescu is *Geometric optics*, 258 pages (1988), published in Romanian by the Bucharest University Press.

In recent years Ioan-Iovitz Popescu was preoccupied with scientometry and computational linguistics.

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