



Niculae I. IONESCU *PhD*



NICULAE I. IONESCU *PhD* AT HIS 85th ANNIVERSARY

Niculae I. Ionescu, a honorary researcher at “Ilie Murgulescu” Institute of Physical Chemistry of the Roumanian Academy and former scientific director of the institute turned 85 years old on May 10, 2018.

His scientific personality can be hardly described in few words. However, several characteristic features can be outlined: tenacity and perseverance, permanent curiosity for various fields of knowledge, ability for finding new, original solutions to old problems, dedication to solving scientific and administrative issues. His contributions to keep the ideas of the founder of the modern school of Physical Chemistry in Roumania, Professor Ilie Murgulescu, in the Center of Physical Chemistry and after 1990 in the institute, and his scientific activity have been acknowledged and appreciated in the national and international scientific community.

Niculae I. Ionescu *PhD* was born in Bucharest. After finishing Gheorghe Sincai high school in Bucharest, he graduated from the Faculty of Chemistry of the Bucharest University in 1957 and the Faculty of Physics and Mathematics of the same University in 1962. In 1957 he joined the Institute of Medicine and Pharmacy from Bucharest where he was involved in teaching and research activities concerning biological physical chemistry and electron microscopy until 1962. The rest of his entire scientific life was linked to the Center of Physical Chemistry transformed after 1990 in Institute.

In 1969 Niculae I. Ionescu obtained his *PhD* in chemistry with a thesis concerning gas adsorption on thin clean metallic films. His scientific adviser, in the Department of Physical Chemistry of the Faculty of Chemistry from the Bucharest University, was Professor Ilie Murgulescu.

Being awarded with a Humboldt fellowship, Ionescu *PhD* spent 15 months in 1970–1971 in the Institute of Physical Chemistry of the Göttingen University-Germany and he was the first Roumanian researcher accepted to work in “the house of Nernst”. His activity there and the obtained results have been recognized by the Humboldt Foundation and also in scientific meetings and journals. After 1990, several resumptions of this fellowship afforded research stages in the Institute of Applied and Physical Chemistry of Bremen University, Germany. Other stages in the neighbouring countries helped Ionescu *PhD* to establish very good contacts with prestige research groups from abroad and cooperation in modern topics of physical chemistry.

In 1969, N. I. Ionescu *PhD* was appointed head of the Chemical Kinetics Laboratory. He had this position until 1990, when he became the Scientific Director of “Ilie Murgulescu” Institute of Physical Chemistry, being active in this function until his retirement in 2005. After this date, N. I. Ionescu *PhD* remained in the institute as a honorary researcher.

N. I. Ionescu attracted many talented people to work in his research group, the purpose of studies being theoretical and experimental investigations on fundamental chemical kinetics, catalysis and combustion. His remarkable scientific activity, his broad scientific horizon, his equilibrium and management capacity were a help in establishing the actual profile of “Ilie Murgulescu” Institute of Physical Chemistry, in accord to new challenges and trends of physical chemistry.

N. Ionescu’s *PhD* investigations in physical chemistry cover a broad subject area.

The main results were obtained in the fields of gas adsorption on metals, fast reactions in the gas phase and heterogeneous solid-gas reactions. The main objective of his research activity was the study concerning the strong and weak interactions of gases with solid surfaces, aiming at elucidating the importance of elementary adsorption act, followed sometimes by reaction in simple catalytic events. Through these themes he brought conclusive original contributions opening new working directions. In gas adsorption on thin clean metallic films, he was the first to verify the hypothesis of surface de-metallization. He introduced a new class of models based on superficial reactions to explain the observed kinetic laws and also realized a new transient method for the determination of the “spillover effect”. In the field of gas-phase reactions, Ionescu *PhD* initiated in 1975 the study of gaseous explosions, for the first time in our country, in cooperation with the Department of Physical Chemistry of Bucharest University. In these studies, the stability of a potentially explosive system could be examined along with its initiation, time evolution and quenching. In the dynamics of solid-gas reactions, Ionescu *PhD* investigated the lower olefin oxidation underlying the role of new phase formation reflected in variations of lattice parameters, in mobility of charge carriers and in electrons or vacancies transfer at interfaces. The use of

metal oxides as chemical sensors and the conversion of methanol to olefins have been investigated as well, revealing the importance of cations with variable valence, especially of molybdates and the existence of the redox mechanism. In the field of oscillatory reactions in heterogeneous systems, he elaborated new methods to determine the apparent activation energy and the initiation energy of these reactions. At the same time, he described a new oscillating system based on SnO_2 and, for the first time, oscillations using an industrial catalyst. In biological physical chemistry he studied the influence of some metallic ions on virus components and the electron microscopy of viruses and their nucleic acids.

The long term activity of Ionescu *PhD* and his deep involvement in basic topics of physical chemistry is substantiated by his publication list, which includes 5 volumes issued at the Roumanian Academy Publishing House and more than 280 scientific papers, some 240 of them published in ISI quoted journals, and 1 patent. From the list of his publications one can see the breadth of application and depth of development of his scientific career. Ionescu's *PhD* papers have collected a large number of scientific citations, around 1400, by many scientists from Roumania and abroad in various areas he has approached.

More than 150 scientific communications have been presented at national and international meetings in several countries. Dissemination of original results has been made also through many invited lectures in foreign universities and institutes from Azerbaidjan, Bulgaria, Germany, Hungary, France, the Netherlands, Portugal, Russia, Ukraine.

Between 1995–2005, N. I. Ionescu *PhD* was a Director of several national grants, of a contract with Deutsche Forschungsgemeinschaft from Germany and took part to a research contract financed by the World Bank and the Romanian Government in the field of gas-phase explosions of fuel-air mixtures. He was also a member of larger research teams in two main projects of the Roumanian Academy in the field of nanomaterials and risk factors.

Ionescu *PhD* coordinated many bilateral cooperations with universities and institutes from Berlin, Bremen, Budapest, Prague, Moscow and Szeged.

In 1991 N. I. Ionescu became a *PhD* adviser. Since then, 14 young researchers have received their *PhD* title under his tutorship. Five coworkers have been distinguished by the Roumanian Academy with prizes in chemical sciences for their results and another, under common trusteeship with an institute from Lyon, was awarded a prize in France for the *PhD* thesis results.

Between 1984 and 1990, Ionescu *PhD* was a honorary secretary of the Chemical Science Section of the Roumanian Academy. In this quality, he organized the sessions of communications in this section. After 1990, he organized several times round tables with the topic "Oscillatory reactions", held in Bucharest with the support of the Roumanian Academy.

Dr. Ionescu is a member of the editorial board of *Revue Roumaine de Chimie* and *Roumanian Chemical Quarterly Reviews* (1993–2000) and of *Buletinul Societății de Chimie din România* (1993–1997) and a reviewer for many important journals published in Roumania and abroad.

He has been a member of the Bunsen Society for Physical Chemistry-Germany, from 1992 to present, of the Roumanian Chemical Society from 1991 to present as a founder member, of the Roumanian Catalysis Society and of the Academy of Roumanian Scientists. In 2018 he was elected a Honorary Member of the Romanian Academy.

For this obtained results, Ionescu *PhD* was distinguished by the Roumanian Academy with the prizes "Gheorghe Spacu" – 1969 and "Nicolae Teclu" – 1985. He received the Honour Diploma from the Roumanian Chemical Society in 2004 for the contribution brought to the promotion of chemistry in Roumania and the "Academic Merit Diploma" conferred by the Roumanian Academy in 2013 for excellent contributions to the development of physico-chemical research in Roumania. His biography was included in the "Best of Europe", "Marquis who is who" and in the Encyclopedia of personalities in Roumania.

For myself, working with Ionescu *PhD* was a privilege, as I had the opportunity to discover that behind the outstanding scientist there is an encyclopedic personality covering the most diverse segments of human culture. Ionescu's generosity, charm, and humor complement his sharp intellect and his broad and varied interests.

On behalf of his friends, colleagues, and coworkers we wish Nicolae I. Ionescu *PhD* the best of luck on the occasion of his 85th birthday and hope that he continues to enjoy his life for many years to come.

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"Ilie Murgulescu" Institute of Physical Chemistry
of the Roumanian Academy

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D. TEZA DE DOCTORAT

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Efectul chemosorbției oxigenului asupra proprietăților electrice ale straturilor subțiri de cupru și argint.

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