

Professor Bogdan Baranowski

In 2007 we celebrated the eightieth birthday of Bogdan Baranowski, Professor Emeritus in the Institute of Physical Chemistry of the Polish Academy of Sciences in Warsaw, an outstanding physico-chemist, member of the Polish Academy of Sciences, member of the German Academy “Leopoldina” and foreign member of Ukrainian National Academy of Sciences. His scientific career has started at the University of Wrocław (1947–1951 – studies of chemistry, 1949–1954 – research assistant). Between 1954 and 1956 he was an assistant at the Department of Theoretical Chemistry of the Jagiellonian University in Cracow. In 1956 he was invited to work at the Institute of Physical Chemistry of the Polish Academy of Sciences in Warsaw, where in 1964 he became the head of the Department of Physical Chemistry of Solids. He was the head of this Department up to 1997.

Initially Professor Baranowski’s research interests have been concerned with non-equilibrium thermodynamics. His collaboration with Professor Ilya Prigogine (Nobel Prize winner in 1977) from the Université Libre de Bruxelles is documented in monographs by I. Prigogine, where Professor Baranowski is mentioned as one of the closest co-workers. Prof. Baranowski has initiated and developed investigations in nonlinear irreversible thermodynamics in Poland. His most important achievements in linear and nonlinear non-equilibrium thermodynamics have theoretical as well as experimental character. He developed the theory of electrothermodiffusion method and performed experiments, showing the utility of this method in separation of chemical compounds. The new theoretical description of diffusion in metals and experimental determinations of diffusion coefficients of hydrogen and deuterium in many metals and metal hydrides developed by Professor Baranowski show the great practical value of the irreversible thermodynamics. He has published pioneering papers on the influence of chemical reactions on the distribution of components in a non-uniform temperature field and on the interaction between diffusion and viscous flow in 2D systems, which according to so called Curie principle is excluded in 3D systems. His application of the electrochemical analogue of the Benard problem had resulted in the discovery of chaos in electrochemical systems. Even such fundamental problems as the origin of life and its evolution were touched in his work on dissipative structures. His monograph “*Non-equilibrium Thermodynamics in Physical Chemistry*” edited in Polish and German is still the most actual and modern textbook on the linear irreversible thermodynamics.

Continuing his interests in the nonlinear irreversible thermodynamics Professor Baranowski had initiated investigations on the influence of hydrogen on metals. Beginning from the discovery of nickel hydride in electrochemical process (1958), he step by step was developing the high pressure technique, which allowed him and his

co-workers to synthesize hydrides of nickel, chromium, manganese and aluminum directly from the elements. He has found that the volume occupied by hydrogen in metal hydrides does not depend of the kind of metal and is slightly dependent on pressure. These achievements needed to beat step by step world records in pressures of gaseous hydrogen. High pressure studies of metal – hydrogen systems, which is currently an actively developing field in physical chemistry, has been initiated by Professor Baranowski. He was the pioneer in systematic searches of pressure induced phase transitions in metal hydrides and their compressibility. He also has initiated the use of high pressure in synthesis of organic compounds. He has applied the high pressure technique together with the scanning calorimetry to investigations of phase transitions in ionic crystals.

Scientific activity of Professor Baranowski has been honored by numerous awards, beginning from 1956 when he received the Award of the Polish Chemical Society. In following years, he has been honored by numerous medals, among which the most prestigious are: the Award of Marie Curie-Skłodowska (1973) by the Polish Academy of Sciences, the Burke Medal and the Burke Lecture (1973) by the Faraday Society, the Medal of Jędrzej Śniadecki (1984) by the Polish Chemical Society and the Award of the Prime Minister of the Republic of Poland (1994). His contributions to the high pressure physical chemistry were awarded by the Bridgman Medal (1995), which is the highest prize of the high pressure community in the world.

In 1990 Professor Baranowski was distinguished by the German Chemical Society as an Honorary Member and in 1983 He was elected *Doctor Honoris Causa* at the Technical University in Goeteborg.

Professor Baranowski was and still is active in various learned societies. Since 1951 he is member of the Polish Chemical Society. Between 1974 and 1979 he was the President, since 1987 he is the Honorary Member and in 1997 he was elected the Honorary President of the Polish Chemical Society. Scientific high pressure community elected him to be the Vice-President for the period 1981–1985 and next the President for the period between 1989–93 of the International Association for Advancement of High Pressure Science and Technology (AIRAPT). Since 1981 he is the member of the Committee on Chemical Sciences of the Polish Academy of Sciences, which was chaired by him in the period 1981–1983. He is the member of the International Academy of Sciences (since 1986) and the Deutsche Bunsen-Gesellschaft für Physikalische Chemie (since 1989).

For a long time Professor Baranowski was a member of the Editorial Board of the Polish chemical journal “Roczniki Chemii”, which since 1991 changed the name to the “Polish Journal of Chemistry” when he became the Chief Editor. He is also the member of Editorial Boards of “Journal of Non-Equilibrium Thermodynamics”, “Journal of Alloys and Compounds” and “High Pressure Research”.

Professor Baranowski is author or co-author of more than 340 original scientific papers and monographs. He was the supervisor of more than 20 doctor’s thesis, in which interesting research problems have been solved. Some of his disciples have been nominated to the positions of professors in chemistry.

Prof. Baranowski was invited to the Vice-Director position at the Bergakademie in Freiberg (1971–1972), and He was the Vice-Director of the Institute of Physical Chemistry of the Polish Academy of Sciences during one tenure (1973–1977).

Professor Baranowski is still active in science, publishing brilliant papers. As Professor Baranowski's disciple, the author of this article joins his friends, co-workers and disciples from Poland, as well from all over the world, in the most warmly wishes to celebrate similar occasion after next 20 years.

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