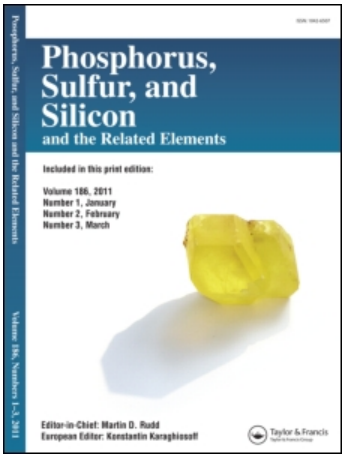

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Professor Marian Mikołajczyk—a Tribute

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Professor Marian Mikołajczyk—a Tribute

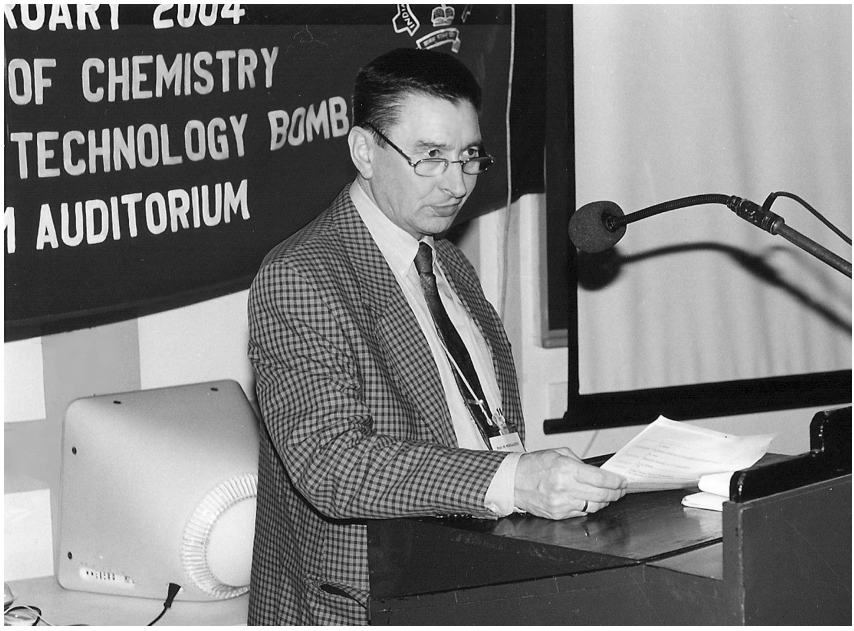
Professor Marian Mikołajczyk.

Professor Marian Mikołajczyk was born on December 7, 1937, in Kłodawa (Poland). He graduated from the Faculty of Chemistry, Technical University of Łódź in 1959, where he also obtained his PhD in 1963 (under the supervision of Professor Jan Michalski) and habilitation in 1967. From 1960 to 1963 he worked as assistant at the Technical University of Łódź. Then he moved to the Department of Organic Synthesis, Polish Academy of Sciences, where he was appointed as Assistant Professor (1963–1967) and Associate Professor (1967–1972). When

From left: Prof. M. Mikołajczyk, Prof. H. Kagan, Prof. I. Beletskaya as participants of the conference organized on a boat in Moscow, Russia, 1996.

the Centre of Molecular and Macromolecular Studies, Polish Academy of Sciences, CM&MS PAS, in Łódź, was founded in 1972, he was appointed there, first as Associate Professor (1972–1974) and later as Full Professor (from 1974). He has been employed at the CM&MS PAS for 35 years, and during this time he held the positions of: Head of the Department of Organic Sulfur Compounds (1972–2001), Head of the Department of Heteroorganic Chemistry (2001–2007), Head of the Laboratory of Spectroscopic Techniques (1973–1987), Deputy Director of CM&MS PAS, for Scientific Affairs (1981–1990) and Director of CM&MS PAS (1991–2007). Since January 2008, he has been Professor Emeritus. He was also Deputy Secretary of the Third Division of the Polish Academy of Sciences (1981–1983). In 1991, he was elected member of the Polish Academy of Sciences (PAS) and then was President of the Łódź Branch of the PAS and member of the Presidium of the PAS (1999–2006).

Professor Mikołajczyk started his scientific activity in the field of organophosphorus chemistry. Using optically active phosphorus compounds, he was able to determine the mechanism of formation of unsymmetrical monothiopyrophosphates (PhD thesis, 1963). His further work was devoted to the mechanism of the nucleophilic substitution at the phosphorus atom (Habilitation, 1967).

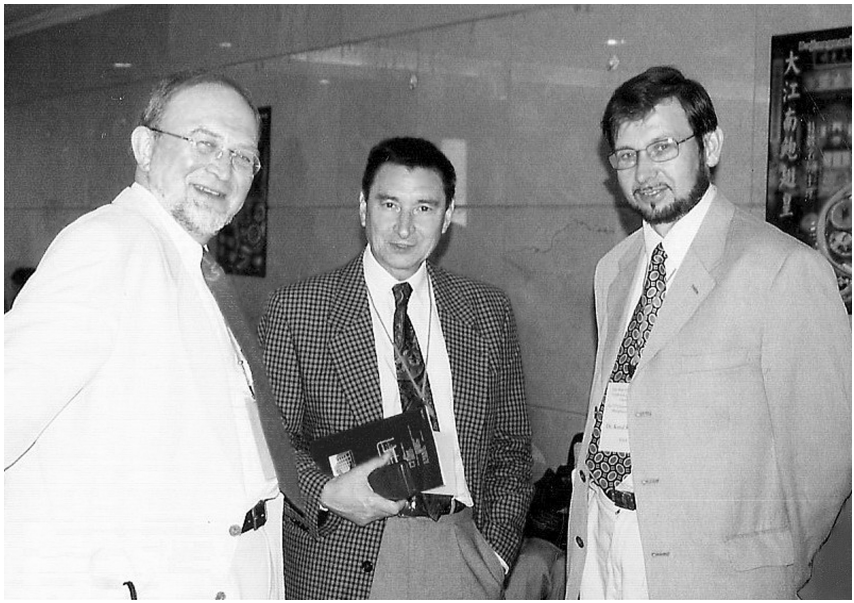


Prof. M. Mikołajczyk lecturing at the IXth International Conference on the Chemistry of Selenium and Tellurium, Bombay, India, 2004.

In 1968–1969, he became a Research Fellow of the Max Planck-Institute of Experimental Medicine in Göttingen. Later on, he continued the work on the stereochemistry of organophosphorus compounds (absolute configuration of phosphorus thioacids as well as conformation and structure of heterocyclic phosphorus derivatives). The retention of configuration in the nucleophilic substitution at phosphorus in five- and six-membered cyclic compounds and the influence of a leaving group and of the ring size on the stereochemistry of these reactions, which were detected by Professor Mikołajczyk, were at that time the first proof of the addition–elimination mechanism in organophosphorus compounds and corroborated Westheimer's concept of pseudorotation of pentacovalent phosphoranes. Moreover, a convenient method of determining the optical purity and absolute configuration of organic phosphorus thioacids was developed, which was based on the observation of a magnetic nonequivalence of diastereomeric thioacid salts with chiral amines in the NMR spectra. Those achievements resulted in the fact that already in the 1970s Professor M. Mikołajczyk was widely recognized as one of the leading organophosphorus chemists. It should be stressed that during the next decade, Professor M. Mikołajczyk also performed creative investigations connected with organosulfur chemistry,

Prof. M. Mikołajczyk conveying the greeting from IUPAC for the participants of the XVth International Conference on Phosphorus Chemistry, Sendai, Japan, 2001.

and he substantially contributed to the developments of static and dynamic stereochemistry and physicochemistry of organic sulfur compounds. His pioneering work on the asymmetric synthesis of chiral, non-racemic sulfinyl derivatives resulted in the first syntheses of new classes of these compounds, such as sulfinates, amidosulfites, and amidothiosulfites. One of the important achievements in this field was the elaboration of a new general type of asymmetric synthesis of heteroorganic compounds based on the use of optically active amines as chiral inducers. His most important contributions are his investigations on the mechanism and stereochemistry of nucleophilic substitution at a chiral sulfinyl center. It was proven that the alkoxy group exchange at the sulfinyl sulfur atom proceeds with inversion of configuration. An unusual stereochemical course of an acid-catalyzed alcoholysis of optically active sulfinamides, observed by Professor Mikołajczyk and his co-workers, led to formulation of a general mechanism of the nucleophilic substitution at sulfur involving participation of sulfuranes as intermediates. The results obtained thus far allowed the discovery of new synthetic applications for sulphur- and phosphorus-based



From left: Prof. G. M. Blackburn, Prof. M. Mikołajczyk, and Prof. K. Bruzik as participants of the XVIIth International Conference on Phosphorus Chemistry, Xiamen, China, 2007.

reagents. Of particular importance was the development of a new strategy of the synthesis of cyclopentenone derivatives. It was illustrated by total syntheses of biologically active products—cyclopentanoid antibiotics, prostaglandins, and carbocyclic nucleosides. Another general approach was based on asymmetric reactions using the sulfinyl group as a chiral auxiliary. This approach resulted in the synthesis of enantiopure aminophosphonic acids and conformationally constrained analogs of bioactive compounds.

The scientific achievements of Professor M. Mikołajczyk are notable. They comprise more than 350 original papers published mainly in world-recognized journals (*J. Am. Chem. Soc.*, *J. Org. Chem*., *J. Chem. Soc*., *Angew. Chem*., and so on), 40 review articles, 35 monographic chapters, 3 books, and 18 patents. His publications are among the most frequently cited papers from those published by Polish chemists.

Professor Mikołajczyk's scientific work has been honored both at home and abroad. He is a member of the German Academy of Sciences Leopoldina, and he received honorary doctorates at the Technical University of Łódź and the Paul Sabatier University in Toulouse, France. He was awarded the State Prize, the Maria Skłodowska-Curie

From left: Prof. M. Yoshifuji (Chairman), Prof. M. Mikołajczyk (representative of IUPAC), and Prof. Hiizu Iwamura (President of the Chemical Society of Japan) at the opening ceremony of the XVth International Conference on Phosphorus Chemistry, Sendai, Japan, 2001.

Award of the Polish Academy of Sciences and the Śniadecki and Kostanecki Medal of the Polish Chemical Society. He also received the Prime Minister of Poland Award for his achievements in chemistry and the Alexander von Humboldt Research Award. Since 1985, Professor M. Mikołajczyk has been a member of the Organic Chemistry Division of IUPAC. He has been a member of the editorial boards of *Heteroatom Chemistry*; *Phosphorus, Sulfur, and Silicon*; *Polish Journal of Chemistry*; *Topics in Stereochemistry*; *Chemistry Letters*; *Egyptian Journal of Chemistry*; and *Chemistry International*.

Professor Mikołajczyk was a member of scientific boards of many international conferences (International Symposium on the Organic Chemistry of Sulfur, International Conference on Phosphorus Chemistry, International Conference on the Chemistry of Selenium and Tellurium, and International Conference on Heteroatom Chemistry). He was also Chairman of the Organizing Committees of many international and domestic scientific conferences, including the 14th International Symposium on the Organic Chemistry of Sulfur (Łódź, 1990), The Sixth International Conference on Heteroatom Chemistry (Łódź,

2001), and the Tenth International Conference on the Chemistry of Selenium and Tellurium (Łódź, 2007).

Professor Mikołajczyk has been invited as plenary (and section) lecturer to major international conferences on the chemistry of phosphorus and sulfur and organic synthesis. He has also been invited as visiting professor to many universities: University of Hamburg (1980), University Paris-Sud, Centre D'Orsay (1987), University of Utah, Salt Lake City (1988), Ben-Gurion University of the Negev, Beer-Sheva (1991), Sao Paulo University (1993), University Paul Sabatier, Toulouse (1994), Technical University, Braunschweig (1995, 1997, 1999).

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