

PROFESSOR IVO MAREK (1933–2017)

RADIM BLAHEA, Ostrava, MIROSLAV TŮMA, Praha

Ivo Marek, Professor at Charles University and the Czech Technical University in Prague, was for many decades one of the best-known Czech mathematicians, who contributed significantly to the development of computational methods and numerical analysis. At the same time, he was a teacher and a leading personality that integrated and influenced the Czech mathematical community.



Ivo Marek was born on January 24, 1933 in Prague. In 1956 he graduated at the newly founded Faculty of Mathematics and Physics of Charles University in Prague. Then he started his first job in the Nuclear Research Institute in Řež near Prague, that time a new and rapidly developing institution, where he got acquainted applied mathematics and his work developed from analytical solutions to functional analysis, theory of operators and analysis of deep and important problems of reactor physics.

Having decided to be an all-life mathematician, Ivo began his post-doctoral studies at Charles University and obtained PhD in 1962 with the dissertation “Iteration of Nonlinear Bounded Operators and Iterative Processes in Non-Selfadjoint Eigenvalue Problems” showing his new mathematical orientation. Soon after that, in 1968, he became Doctor of Sciences. From 1963 he got a new job at Charles University, where he spent most of his active career. He started there to work at the Mathematical Institute, passed his habilitation in 1965. In 1971 he was appointed head

of the Department of Numerical Mathematics, and in 1977 he became full Professor of Mathematics. His later years are also connected with the Faculty of Civil Engineering of the Czech Technical University in Prague, where he got new impulses for applied mathematics, new students and co-workers. Even after formal retirement he remained active and continued in research work, giving seminars and supervising students, attending and giving talks at conferences. His research activity continued right up to the time when he passed away on August 18, 2017.

The period of very fast Ivo Marek's scientific growth is also connected with the beginning of his fruitful foreign contacts. In 1967 Ivo Marek visited Novosibirsk and met there a number of distinguished scientists. Let us mention primarily G. I. Marchuk and G. E. Forsythe, who later invited him to the USA. This led him to getting a position of visiting professor at the Case Western Reserve University, Cleveland, Ohio (1968–1970) and the University of Wisconsin (1970), the Novosibirsk State University, Novosibirsk, USSR (1971). In USA, Ivo Marek was hosted by Richard Varga well known for his beautiful book “Matrix Iterative Analysis”, which supported his interest in iterative methods, and met there a lot of other famous mathematicians. The international contacts and friendships from that period continued and further flourished. This provided to Ivo perfect knowledge of the new scientific achievements worldwide and influenced his research being at the same time also passed to his students and the Czech mathematical community. Later Ivo held visiting positions at several universities abroad as the Polytechnic University of Madrid (repeatedly most of 80's), the University of Konstanz (first half of 90's), Purdue University, Indiana (1991), Hamburg University (1995).

Ivo Marek was an important Czech numerical analyst. He has influenced both the numerical analysis and the operator theory, in particular numerical solution of operator equations and numerical methods for non-selfadjoint eigenvalue problems. He is the author of monographs on Analytic Theory of Matrices for Applied Sciences (two volumes 1983 and 1986 with K. Žitný) and Mathematical Problems of Kinetic Transport Theory (1986 with U. M. Sultangazin). Ivo was best known for his contributions to understanding principles that drive real-world application problems as applications of neutron transport theory and material homogenization. Moreover, Ivo also significantly extended our knowledge of iterative methods and special matrices. In this direction, let us at least mention new approaches and theoretical results that deal with iterative aggregation techniques for solving problems with stochastic matrices. All Ivo's work was truly interdisciplinary, often crossed narrow field boundaries and truly contributed to applications and solving practical problems. As a consequence, the mathematical legacy of Ivo is highly appreciated and widely used across both mathematics and engineering. Ivo Marek was an outstanding mathematician, who authored or coauthored over 170 papers and 3 monographs on a wide range of topics.

The quality of the work of Ivo was recognized by various honours. He was awarded the Czechoslovak National Prize in Science, the Bolzano Medal for Merits in Mathematics granted by the Czechoslovak Academy of Sciences in 1983, the Medal of the Charles University in 1988, and the Gold Felber Medal of Czech Technical University in 2008. He was also Honorary Professor of the Polytechnic University of Madrid and head of the Czech section of GAMM. The worldwide scientific reputation of Ivo Marek resulted in his membership in editorial boards of several scientific journals; the most prestigious of them being Numerical Linear Algebra with Applications, Numerical Functional Analysis, and Numerical Methods for Partial Differential Equations, Integral Transforms and Special Functions. Three special issues of Numerical Linear Algebra with Applications 10(2003), 16(2009) and 22(2015) were devoted to Ivo Marek.

Ivo collaborated with others on a large scale. He supervised and encouraged many students and research fellows. Many of them went on to make major contributions. He was also in great demand to make visits and to give seminars and talks at conferences. Ivo was also active as an organizer of many seminars and conferences. Extremely important for the development of the Czech numerical mathematics was the series of Summer Schools on Software and Algorithms of Numerical Mathematics, known as Marek's School, which started in 1975 at Zadov and was held biannually for thirty years. Another series of events SNA Seminar on Numerical Analysis started in 2003 in connection with Ivo's seventieth birthday and continues to these days, being all the time connected with Ivo's influence.

Ivo was a generous personality and excellent company with a special sense of humour and many friends in the Czech Republic as well as all over the world. He was a man with wide general interests and special hobbies. When younger he used to play tennis both for pleasure and competitions, he and his wife became champions of the Czech Republic in tennis mixed double. The enthusiasm for tennis was also shared with many mathematicians as e.g. M. Zlámal or G. Strang. Ivo was enormously interested in music. His knowledge of classical music, both interprets and composers, where Mozart was probably his absolute favourite, was incredible. He was able to determine opus numbers from only a few hints. Ivo Marek will be remembered with deep gratitude and respect by all his colleagues, students and friends who were influenced by his enthusiasm for the beauty of science and extraordinary broad and deep knowledge of mathematics. This special issue of the Journal of Applications of Mathematics is devoted to his memory.

Authors' addresses: Radim Blaheta, Faculty of Electrical Engineering and Computer Science, Technical University of Ostrava, 17. listopadu 15, 708 00 Ostrava-Poruba, Czech Republic, e-mail: radim.blaheta@ugn.cas.cz; Miroslav Tůma, Faculty of Mathematics and Physics, Charles University in Prague, Sokolovská 83, 186 75 Praha 8, Czech Republic, e-mail: mirektuma@karlin.mff.cuni.cz.