

Foreword about Zdenek Dostal, Professor at VSB–Technical University of Ostrava, Faculty of Electrical Engineering and Computer Science, Department of Applied Mathematics:

Zdenek Dostal was born in Olomouc, Czech Republic. He received his M.Sc. in Computer Science from Palacky University at Olomouc in 1970 and finished Ph.D. under the supervision of Professor Vlastimil Ptak in Mathematical Institute of the Czechoslovak Academy of Science, Prague in 1979. In 1978, he was appointed Head of Department of Mathematical Modelling at the Mining Institute of the Czechoslovak Academy of Science (later Institute of Geonics of the Academy of Science of Czech Republic) in Ostrava. In 1992, he was appointed Head of the newly established Department of Applied Mathematics at the Faculty of Electrical Engineering and Computer Science of VSB–Technical University of Ostrava and became Associate Professor after habilitation at Charles University, Prague. He has been Full Professor at VSB–Technical University of Ostrava since 1994. In 2005, he defended the DSc. degree at the Academy of Science of Czech Republic, Prague. He served also as Associate Professor at the University of Zambia (1987-1988), Lusaka, and as Visiting Research Professor at the University of Campinas (1996, 1998). Zdenek Dostal participated in the preparation of the project IT4Innovation which supported the establishment of the National Supercomputer Center. In 2011-2014, he took part in its management as Scientific Director. Since then, he splits his activities between the Department of Applied Mathematics, where he is Professor, and the National Supercomputing Center, where he is Senior Researcher.



Zdenek Dostal

Research interests of Zdenek Dostal include numerical linear algebra, optimization, development of massively parallel algorithms, and computational mechanics. His main results include early results on preconditioning by conjugate projector (deflation), development of in a sense optimal algorithms for the solution of important classes of quadratic programming problems, and development of scalable algorithms for the solution of elliptic variational inequalities, such as those describing the equilibrium of the elastic bodies in mutual contact. The results were published in some hundred papers in refereed journals and conference proceedings and in two research monographs published by Springer. The results were also the subjects of a number of invited plenary and keynote lectures at important conferences.

Dear Readers, I am happy to have an opportunity to write a foreword to this edition of Advances in Electrical and Electronic Engineering with the papers of some of my colleagues from the Department of Applied Mathematics of Faculty of Electrical Engineering and Computer Science, VSB–Technical University of Ostrava and National Supercomputing Center. The collection includes the papers which illustrate the mathematical research of the above institutions. The papers are related not only to the fields of research which is well developed in both institutions, such as development of algorithms for the solution of the large problems arising in computational mechanics and electromagnetism, parallel algorithms, or new applications of boundary element method, but also to the fields that are new to both institutions, such as mathematical problems related to the modelling of electronic structures, problems described by stochastic partial differential equations, and inverse problems, local eigenvalue analysis with applications, or the analysis of dynamical systems. There are also papers on the application of recently developed methods to new problems, such as implementation of heterogeneous image registration by means of Total Finite Element Tearing and Interconnecting (TFETI) method or transient finite-boundary element simulation of electromagnetic forming of metal sheets, or papers on interesting mathematical problems motivated by the real world problems.