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Special issue: Editorial [13th Joint Czech-German-Slovak Conference on Mathematical Methods in Economy and Industry]

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SPECIAL ISSUE: EDITORIAL

This Special Issue of *Kybernetika* collects extended and revised versions of selected papers presented at the 13th Joint Czech–German–Slovak Conference on “Mathematical Methods in Economy and Industry”, organised to honour the 85th birthday of Prof. Dr. Dr. h. c. František Nožička. The meeting was a joint project of the Technical University of Liberec, the Faculty of Mathematics and Physics of Charles University Prague, the Institute of Mathematics of Humboldt University, Berlin and the Czech Society for Operations Research, and it took place in Hejnice near Liberec from May 26th to 30th, 2003.

František Nožička initiated this series of conferences and led them over many years. Their objective is representative of Nožička’s life-long endeavours: to bring together scientists of different countries and different disciplines, old and young, researchers and students; to create and support applications of mathematical methods; and, most importantly, to investigate and teach mathematics in all its strength, precision and beauty.

Nožička received his mathematical education at Charles University in Prague, and became Full Professor of Mathematics there in 1960. In addition, he was visiting professor at the Mathematical Institute of Humboldt University from 1966 to 1988. Afterwards he joined the Technical University of his home-town Liberec. At first his main interests lay in Classical Analysis and Differential Geometry, and the mathematical background of the Theory of Relativity. At the end of the 1950s, when confronted with the development of computers and the related new mathematical disciplines, Nožička’s interests shifted to optimisation problems that were in high demand by economists at that time. He searched for efficient methods (“Every problem requires its specific method”) and was particularly interested in a solid mathematical foundation of the theory. He is the author of more than sixty original contributions, including monographs on Linear Optimisation, Linear Parametric Optimisation and The Geometry of Convex Functions and Convex Analysis.

Nožička, following Humboldt’s classical idea, has always been devoted to connecting research and teaching. He has presented and discussed ongoing research in his lectures and seminars as well as when supervising students and postgraduates. Many of his students occupy leading positions in science, economy and politics. Moreover, Nožička has also actively promoted and even organised scientific life: as Vice-rector of Charles University in the 1960s, Chairman of the Czech Mathematical Society in the 1980s and 90s, and, up to now, as a member of the Scientific Council of the Technical University, Liberec.

In 1978, Nožička was awarded a Dr.h.c. by the Humboldt University for building up the optimisation department, which became an internationally acknowledged mathematical school. The town Liberec awarded him honorary citizenship in 1998.

It is unnecessary to point out that also now in his eighties he still has the air of a young man if he meets mathematics, be it in a book, at conferences or in working out new ideas.

December 22, 2003.

Klaus Lommatzsch

POSTSCRIPTUM:

During preparation of this issue Professor Nožička died in Prague on May 29, 2004. It is with deep sorrow that we learned about the passing of an inspiring and productive mathematician who remained active until his last days.

Throughout his life, he frankly addressed the problem, fought injustice and stood up for his fellow beings. Even under the most cruel conditions as in the concentration camp in Sachsenhausen 1939–42 or under the difficult circumstances in communist Czechoslovakia, he never gave up his deep humanists ideals.

We would like to express our deep gratitude for his commitments, reliability and vivid interest as a teacher and a friend. His vitality and optimism will continue to accompany us.

SCANNING THE ISSUE

The following eight papers of this special issue were selected from the communications presented at the Conference.

— B. Bank, M. Giusti, J. Heintz and L. M. Pardo generalize the notion of (classic) polar variety of a given closed algebraic subvariety of the n -dimensional space over complex or real numbers. The geometric properties of this generalization are explored in order to design a new, highly efficient algorithm for real elimination.

— S. Allende Allionso, J. Guddat and D. Nowack propose a modification of standard embedding for solving the linear complementarity problem, formulated as a special one-parametric optimization problem.

— C. Grossmann, D. Klatte and B. Kummer characterize completely the convergence of the logarithmic barrier method under a standard second order condition, strict (multivalued) complementarity and only MFCQ at a local minimizer.

— J. V. Outrata studies a two-level hierarchical game, where the players on each level behave noncooperatively.

— M. Knobloch studies technical aspects of dual decomposition approaches for a general convex large-scale optimization problem.

— I. Marek analyzes some computational means to approximate solving of a class of problems appearing in biological and chemical networks.

— V. Kaňková and M. Šmíd study approximative solution schemes in multistage stochastic (in general, nonlinear) programming problems under Markov dependence.

— P. Volf studies applications of the nonparametric version of the Cox regression model to the analysis and modeling of the failure rate of technical devices.