Acta Polytechnica **61**(SI):1–2, 2021
https://doi.org/10.14311/AP.2021.61.0001

Published by the Czech Technical University in Prague

FOREWORD

Tomáš Bodnár, Rudolf Dvořák

prof. RNDr. Karel Kozel, DrSc.

born December 24, 1939
died January 23, 2021

long-standing professor at the Czech Technical University in Prague
and researcher at the Czech Academy of Sciences

Professor Karel Kozel is a prominent Czech mathematician and pedagogue who has devoted his entire life to applied and especially numerical mathematics. He was born on December 24, 1939, studied at the primary school in Pyšely, graduated from the high school in Benešov and then from the Pedagogical University (specializing in mathematics - physics), which he graduated from in 1960. Then he started working as a teacher at the high school in Sedlčany and completed basic military service. In 1964 he moved to the Department of Mathematics, Faculty of Mechanical Engineering at the Czech Technical University in Prague as an assistant professor. Since 1988 he has been an associate professor, and since 1991 a full professor of applied mathematics. He has been working professionally since 1970, defending his candidacy in 1977 (under the leadership of Prof. Polášek), and earning his DrSc. in 1990. He led the tasks of the state plan of basic research since 1972; since 1990 he has led grants and research projects, a total of 10 (GAČR, GA AVČR, VZ MŠMT) in the Czech Republic and 3 (COST, QNET) from the EU. He was the head of the Department of Technical Mathematics for 13 years and twice vice-dean of the Faculty of Mechanical Engineering of the Czech Technical University in Prague.

Professor Karel Kozel devoted himself to applied mathematics throughout his life and became probably the most authentic successor of the school, that was founded at CTU by Professor Polášek, whose goal and purpose was the direct use of mathematics in solving specific problems of technical practice. Professor Kozel further developed this school and, together with his students, made a significant effort to develop and apply numerical methods in computational fluid mechanics. As part of his professional activity, he cooperated with numerous scientific and research institutions in the Czech Republic (MFF UK, ÚT AVČR, MÚ AVČR, FJFI, FEL and FSV ČVUT) and abroad (e.g. Von Kármán Institute in Belgium, University of Toulon in France, TH Darmstadt, University of Stuttgart and TU Chemnitz in Germany, ERCOFTAC). He significantly contributed to the support and development of cooperation among mathematicians, industry and industrial research (Škoda Plzeň, Škoda Auto, VZLÚ Letňany, SVÚSS Běchovice).

His professional activity was mainly focused on mathematical models, the numerical solution of partial differential equations and their application to the simulation of flow models; first subsonic and transonic flow, then flow in the boundary layer of the atmosphere, flow in biomechanics and the so-called "fluid structure interaction". He led 13 projects or grants from the Czech Republic and the EU (COST, QNET-CFD) and worked on at least six other grants. He was a member of the European professional societies GAMM and EUROMECH as well as of the Czech Society for Mechanics and the Union of Czech Mathematicians and Physicists.

Karel Kozel's professional lectures and publications include more than 130 lectures, 16 university texts and monographs, 55 research reports and more than 570 publications in journals and proceedings.

The pedagogical activity of Karel Kozel is also extensive and important. He was a long-term member and later the head of the Department of Technical Mathematics at the Faculty of Mechanical Engineering of the Czech Technical University in Prague. For many years, he also served as the vice dean of the faculty. His colleagues at the department and the faculty have always appreciated his direct and honest conduct. He taught mathematical subjects ranging from basic to doctoral. He was also pedagogically active at the Faculty of Nuclear Science and Physical Engineering of CTU in Prague and at the University of West Bohemia in Pilsen. He also supervised a number of graduates and doctoral students. He was a member of the branch councils for doctoral studies at the Faculty of Mechanical Engineering, the Faculty of Nuclear Science and Physical Engineering of CTU in Prague and the Faculty of Applied Sciences of the University of West Bohemia in Pilsen. Further, he was a member of the scientific council of the Czech Technical University and the Institute of Thermomechanics of the Czech Academy of Sciences. Many of his students have successfully established themselves in the field of applied mathematics and continue their work, at universities, research institutes, and in industry.

At the end of 2019, Professor RNDr. Karel Kozel, DrSc. celebrated an important anniversary. For his extraordinary contribution to the development of technical mathematics, international scientific cooperation and, above all, the education of several generations of scientists, engineers and educators, he received the *Honorary Medal for Mathematics* from the Czech Mathematical Society.

Ad: Eightieth Birthday of Prof. Karel Kozel

The age of eighty is when everyone – willingly or unwillingly – begins to look back and begins to balance their lifelong journey. Happy is the one who can enjoy the feeling of a fully and successfully lived life and the feeling of a job well done. Not everyone can taste this feeling to the same extent as our important jubilant - Professor RNDr Karel Kozel, DrSc.

Graduated from the Faculty of Education as a teacher, he also worked as a teacher for the rest of his life. He spent his first four years at the high school in Sedlčany, then from 1964 until his retirement he taught at the Department of Mathematics, the Faculty of Mechanical Engineering, at the Czech Technical University in Prague. There he received his habilitation in 1988. In 1991 he obtained the rank of doctor of science (DrSc) and in the same year he was appointed full professor and the head of the Department of Technical Mathematics. However, many of us knew him more as an unmissable employee of the Institute of Thermomechanics of the Czech Academy of Sciences, with which he successfully cooperated since 1969. Here he had his corner where he could work undisturbed and meet and discuss with staff members important topics and issues. He then passed them on to his students and co-workers at the faculty. He also significantly participated in the construction of a joint workplace of the Institute of Thermomechanics of the CAS and the Faculty of Mechanical Engineering of the Czech Technical University. This collaboration led him to two issues, which then prevailed in his next work: namely, the numerical simulation of transonic flow in vane lattices and mathematical modeling in fluid dynamics. Over time, cooperation with the staff of the department has expanded to the problematics of turbulent flow in internal and external aerodynamics, flow in the boundary layer of the atmosphere (e.g. pollution dispersion), selected problems of fluid-structure interaction and biomechanics (e.g. vocal cord movement). In addition to these problems, the Institute of Thermomechanics had original and detailed experimental results available, which enabled him and the staff of the institute to verify the suitability of mathematical models and to find the correct interpretation of the results of their numerical simulation. It was a collaboration that enriched all involved and showed how the concept of "applied mathematics" can really be fulfilled. In addition, it significantly contributed to the gradual building of a "school" of mathematical modeling in fluid mechanics, which soon became known beyond the borders of the Czech Republic. His cooperation with foreign universities was extensive and many of his successful doctoral students also received a PhD degree from a foreign university as part of a joint doctoral study. Professor Kozel himself has been a visiting professor at the University of Toulon, France, every year since 1996.

In addition to his own professional and pedagogical work, Professor Kozel also devoted himself to scientific and organizational work. He made a significant contribution to the establishment of the ERCOFTAC Czech Pilot Center at the Institute of Thermomechanics. He is a member of the GAMM and EUROMECH Society and a Czech representative on the board of the von Kármán Institute for Fluid Dynamics in Rhode-Saint-Genèse, Belgium.

On behalf of all his friends and current or former collaborators, I would like to thank Professor Kozel for all his professional activities and commitments so far and wish him good health and well-being for all the years to come.

The preparation of this special issue of Acta Polytechnica started already in 2019. Although Professor Karel Kozel passed away in the beginning of 2021 before this issue appeared we let the forewords in the original form.

Authors of the special issue