

# Applications of Mathematics

---

Karel Segeth

Professor Michal Křížek, associate editor-in-chief of *Applications of Mathematics*, is seventy

*Applications of Mathematics*, Vol. 67 (2022), No. 2, 125–128

Persistent URL: <http://dml.cz/dmlcz/149561>

## Terms of use:

© Institute of Mathematics AS CR, 2022

Institute of Mathematics of the Czech Academy of Sciences provides access to digitized documents strictly for personal use. Each copy of any part of this document must contain these *Terms of use*.



This document has been digitized, optimized for electronic delivery and stamped with digital signature within the project *DML-CZ: The Czech Digital Mathematics Library* <http://dml.cz>

PROFESSOR MICHAL KŘÍŽEK,  
ASSOCIATE EDITOR-IN-CHIEF OF APPLICATIONS  
OF MATHEMATICS, IS SEVENTY

KAREL SEGETH, Praha



By the Charter of April 7, 1348, King of Bohemia and Holy Roman Emperor Charles IV of Luxembourg, a member of the Czech House of Přemyslid from his mother's side, founded in Prague a university with four faculties (theology, liberal arts, medicine, and law). In 1920, in the Czechoslovak Republic just established in 1918, after several centuries of its successful development, the university was given the name Charles University. The Faculty of Science was established the same year. In 1952, a new faculty separated from this faculty, the Faculty of Mathematics and Physics.

However, this was not the only important event of the year 1952. On March 8, 1952, Michal Křížek was born in Prague.

---

The photo was taken by Jana Žďárská.

Ten years ago, several comprehensive Professor Křížek's curricula vitae appeared on the occasion of his 60th birthday (see, e.g., [4], [5] available from <https://dml.cz>). Let us here recall only some facts from Michal Křížek's fruitful life. He studied numerical analysis (the field is now usually called computational mathematics) at the Faculty of Mathematics and Physics of Charles University in Prague, and received his MS degree in 1975 and RNDr. degree in 1977.

He finished his PhD studies at the Mathematical Institute of the Czechoslovak Academy of Sciences (now Institute of Mathematics of the Czech Academy of Sciences) in Prague in 1980, obtained the PhD degree, called CSc. (Candidate of Sciences) degree in Czechoslovakia at that time, and started his research work at the Mathematical Institute, where he is currently at the post of senior research scientist and, at the same time, the head of the Department of Constructive Methods of Mathematical Analysis.

He received his DrSc. degree from the Czechoslovak Academy of Sciences in 1992. At Charles University, he was appointed Associate Professor in 2000 and Professor in 2003. (Like in some other Central European countries, Professor is not only a university post but also an academic title.) In the Czech Republic, the title of Professor is granted by the President of the Republic.

A good source of information about Professor Michal Křížek is his website <https://users.math.cas.cz/~krizek> or the website of the Institute of Mathematics (<https://math.cas.cz>, buttons People, Researchers, Křížek). On this website, he briefly presents his research interests: the finite element method for solving nonlinear partial differential equations, grid generation, error estimates, superconvergence, variational crimes, number theory, theoretical biology, astronomy, mathematical modeling. Perfect space imagination makes him able to understand and solve various 3D problems, e.g., finite element grid generation and local refinement.

The first website mentioned is much more detailed; it includes the complete list of Michal Křížek's publications. Further, it shows that most of his recent publications have been devoted to astronomy, cosmology and general relativity. Lately, he also published several monographs in English (see [1], [2], [3]) and some further in Czech. According to this website, his Hirsch index is 26 and his Erdős number is 2.

Professor Křížek has been reading lectures for students at several Czech universities, in particular at Charles University in Prague. He has been a mentor to several PhD students. Some of them have already reached remarkable success in computational mathematics.

He also takes part in the popularization of science as well as of history of mathematics, physics, and astronomy. In these activities he aims not only at students but at the general public as well. He writes papers to various Czech journals (together more

than 170 articles, mostly in Czech), translates papers into Czech and reads lectures. The range of his popular papers and lectures includes all the subjects of his interest.

Michal Křížek is a worldwide recognized scientist. His international scientific contacts are very widespread and fruitful. He has been awarded several medals, prizes, and honors in the Czech Republic as well as abroad. Let us mention, e.g., that he was elected a member of the Learned Society of the Czech Republic in 2000 and a member of the Hall of Fame for Engineering, Science and Technology (International Technology Institute, San Diego, California, 2001), he received the Josef Hlávka Award for Scientific Literature in 2010 and 2019, and in 2012 he got the Medal of the University of Jyväskylä (Finland).

Even the grant support he has obtained, especially at home and in the U.S., confirms his researcher quality. He has got a plenty of invitations for lectures at universities as well as conferences in many countries.

A part of his publications has coauthors who work in different fields of Professor Křížek's interest and in different countries. Let us mention Pekka Neittaanmäki (Finland), Jan Brandts (the Netherlands), Sergej Korotov (Norway), Lawrence Somer (U.S., now Czech Republic), Liping Liu (Canada), Florian Luca (South African Republic), and the late Ivan Hlaváček (Czech Republic).

Michal Křížek is an expert on the mathematical background of the Prague astronomical clock mechanism. His deep knowledge of computational mathematics was an important factor in the cooperation of the Institute of Mathematics with several Czech industrial enterprises in solving various engineering problems.

Professor Křížek became associate editor-in-chief of *Applications of Mathematics* in 2004 and editor-in-chief in 2009. Since 2014 he again continues his work in the journal as associate editor-in-chief. The journal was founded as *Aplikace matematiky* by Ivo Babuška in 1956 and is published, with the 2020 impact factor 0.881, by the Institute of Mathematics of the Czech Academy of Sciences.

Michal Křížek was born in a family of mathematicians and physicists. Both his parents graduated in mathematics and physics at Charles University and so did his grandfather Bedřich Šofr. Michal and his wife Lea have two sons, Pavel and Filip, who have got their PhD degrees in cybernetics and nuclear physics, respectively. Moreover, Michal and Lea have two grandsons, František (\*2017) and Vítek (\*2019), who are the sons of Pavel Křížek and his wife Hana.

On the occasion of Professor Křížek's anniversary, the Institute of Mathematics of the Czech Academy of Sciences organizes the international conference Applications of Mathematics 2022 in Prague, March 31–April 1.

It is our honor and privilege to congratulate him sincerely on his 70th birthday. We wish him personal happiness, good health, an optimistic mind, and numerous future scientific achievements.

## References

- [1] *J. Brandts, S. Korotov, M. Křížek*: Simplicial Partitions with Applications to the Finite Element Method. Springer Monographs in Mathematics. Springer, Cham, 2020. [zbl](#) [MR](#) [doi](#)
- [2] *M. Křížek, F. Křížek, L. Somer*: Antigravity - Its Origin and Manifestations. Lambert Academic Publishing, Saarbrücken, 2015.
- [3] *M. Křížek, L. Somer, A. Šolcová*: From Great Discoveries in Number Theory to Applications. Springer, Cham, 2021. [zbl](#) [MR](#) [doi](#)
- [4] *K. Segeth*: Professor Michal Křížek, editor-in-chief of Applications of Mathematics, is sixty. Appl. Math., Praha 57 (2012), 93–96. [MR](#) [doi](#)
- [5] *K. Segeth, et al.*: Preface. Applications of Mathematics 2012: Proceedings of International Conference. Institute of Mathematics, Czech Academy of Sciences, Prague, 2012, pp. i–iv. [zbl](#) [MR](#)

*Author's address:* Karel Segeth, Institute of Mathematics, Czech Academy of Sciences, Žitná 25, 115 67 Praha 1, Czech Republic, e-mail: [segeth@math.cas.cz](mailto:segeth@math.cas.cz).