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EIGHT DECADES OF PROFESSOR KAREL SEGETH

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The former director of the Institute of Mathematics (IM) of the Czech Academy of Sciences, Prof. RNDr. Karel Segeth, CSc., turns eighty this year. Since we have already written about his scientific and pedagogical activities in *Applications of Mathematics* ten years ago (see [1]), we will restrict ourselves to the most important facts.



Karel Segeth was born on May 10, 1943 in Prague. At the age of six, he entered the primary school straight into the second class, because he could already read, write and count. So it happened that he successfully graduated from the Faculty of Mathematics and Physics of Charles University at the age of 21. Then he joined the IM, where he worked all his professional life in the Department of Constructive Methods of Mathematical Analysis. His main professional focus has been numerical mathematics, especially the numerical solution of partial differential equations, iterative methods for large sparse systems of algebraic equations in real and complex

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variable, and also applied mathematics. The Mathematical Reviews and Zentralblatt für Mathematik databases record about 60 scientific articles by Karel Segeth. The wideness of his scientific scope is also evidenced by the fact that he publishes in journals focused on geophysics, biology, and archeology. In these fields, he applies his broad knowledge and skills with Fourier analysis and fast numerical methods. Professor Segeth is the coauthor of three monographs, published eight lecture notes, and dozens of articles popularizing mathematics and science, in general. Together with his wife Jitka, he contributed a chapter on numerical methods of linear algebra to the extensive Rektorys' Survey of Applicable Mathematics [2], pp. 594–647. Every year he gives several mathematical lectures for grammar school students or general public.

Professor Segeth is undoubtedly a prominent person in Czech numerical mathematics. He began his scientific career by searching for efficient methods of numerical integration that use the knowledge of the values of the first derivative of the integrand at nodes. He proposed a numerical calculation of the integral of Bessel functions using the fast Fourier transform. He then dealt with the method of lines for evolutionary problems described by partial differential equations of parabolic type, the method of finite differences, the method of cyclic reduction, multigrid methods, adaptive refinement of meshes, hierarchical finite elements, the *hp*-version of the finite element method, a priori and a posteriori estimates of the numerical error, the solution of highly nonlinear semiconductor equations, the Helmholtz equation, the Radon transform, etc. He is currently dealing with the problem of how to effectively interpolate data measured on the surface of a sphere, which has important practical applications in, for example, astronomy, geophysics, and geodesy.

Professor Segeth has excellent organizational skills. For example, he and his colleagues have already organized over 20 conferences in the series Programs and Algorithms of Numerical Mathematics and Karel Segeth is the coeditor of the corresponding proceedings. He was adviser of 4 doctoral students and 10 master students. His teaching activity was positively influenced by his successful scientific work. Later he used his rich pedagogical and teaching experience from Charles University also at Czech Technical University, West Bohemian University in Pilsen, and Technical University of Liberec. His lectures were highly rated by students. He translated several mathematical textbooks and monographs, too. He also performed a number of important and beneficial functions: Secretary of the Scientific College of Mathematics of the Czechoslovak Academy of Sciences, Head of the Department of Constructive Methods of Mathematical Analysis of the IM, Chairman of the Scientific Council of the IM, Director of the IM for two periods, 1996–2000 and 2000–2004, Head of the Department of Mathematics and Didactic of Mathematics and of the Department of Applied Mathematics at the Technical University in Liberec, etc. He also served on the Scientific Council of the West Bohemian University in Pilsen.






Professor Segeth has been a member of the Union of Czech Mathematicians and Physicists since 1996, in 2006 he became a deserving member, and in 2018 he was awarded honorary membership. He has been closely cooperating with the journal *Applications of Mathematics* for many years. He is also the language proofreader of the journals *Applications of Mathematics*, *Mathematica Bohemica*, and *Czechoslovak Mathematical Journal* published by the IM. He is active in the editorial board of the international journal *Neural Network World*. Since 1996, he has been a member of the joint evaluation committee of the Czech Society for Mechanics and the Union of Czech Mathematicians and Physicists for awarding the Babuška Prize for the best student theses in the field of computer science.

Professor Segeth's quite unusual hobby is Prague integrated transport. For more than 50 years, he has been systematically collecting and updating his extensive index of all tram, bus and trolleybus lines. He also owns an extensive library about transport in Prague.

On the beautiful occasion of his 80th birthday, we wish Professor Karel Segeth good health, joy in creative work, optimism in life, and also many new mathematical results. Dear Karel, all the best for your milestone anniversary and many more happy years! Thank you very much for everything you have taught us.

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References

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