



Czech Mathematical Society  
the scientific section of the Union of Czech Mathematicians and Physicists

awarded

**honorary medal**

to

**prof. RNDr. Radim Blaheta, CSc.**

for his lifelong merit  
in Czech applied mathematics

In Prague on December 20, 2021

Prof. RNDr. Luboš Pick, CSc., DSc.  
chairman

Professor Radim Blaheta is a well-known researcher interested in numerical mathematics, computer sciences, geotechnical and environmental real-world problems and other scientific disciplines. He has been working at the Institute of Geonics of the Czech Academy of Sciences (formerly the Mining Institute) since 1979. He has been the Head of the Department of Applied Mathematics and Computer Science since 1993 and he was the Director of the Institute from 2006 to 2017.

Radim Blaheta's scientific career has been influenced significantly by Professor Ivo Marek, who was his supervisor at the Charles University in Prague. Under his leadership, Radim Blaheta began to deal with iterative methods for solving large-scale linear algebraic systems of equations. He achieved his first international recognition with his doctoral dissertation focused on the method of algebraic multi-grids. Subsequently, he was successful in the development and analysis of various types of preconditioners of linear systems. He proposed the so-called displacement decomposition method and suggested several improvements to the overlapping Schwarz domain decomposition approach. Many of his results have been supported by cooperation with world-renowned experts, especially his cooperation with Professor Owe Axelsson, starting in the 1990s, which has been very fruitful and long-term.

That aspect of Radim Blaheta's research which focuses on geo-applications is motivated by socially important topics related to human activities in the Earth's crust. It is a very complex and multidisciplinary research field with many uncertainties. In particular, he is interested in the solution of large-scale problems of elasticity, plasticity, porous flow, contact on fractures, as well as multi-scale and coupled thermo-hydro-mechanical problems. He has also focused on finite element software development, high-performance computing, stochastic and inverse analysis.

Radim Blaheta has participated significantly in the preparation and resolution of two major projects: a) the IT4Innovations Center of Excellence project, which enabled the establishment of the National Supercomputer Center IT4Innovations at the VŠB-Technical University of Ostrava; and b) the international project -- High Performance Computing in Geosciences II. Since 2007, he has been interested intensively in the issue of the deep storage of spent nuclear fuel and has participated in three series of international projects under DECOVALEX - DDevelopment of Coupled models and their VALidation against EXperiments. Currently, he is working on the Horizon 2020 European Joint Program on Radioactive Waste Management - EURAD. In this field, he cooperates with many foreign experts and with the Czech Radioactive Waste Repositories Authority.

As concerns the Czech and international numerical community, Radim Blaheta has contributed significantly to the organization of conferences, which are popular not only for their strong scientific level, but also for their friendly atmosphere. A series of MODELLING and SNA conferences are among these events. The international conferences called MODELLING - Mathematical Modelling and Computational Methods in Applied Sciences and Engineering - are held over a five-year period. Radim Blaheta was the principal organizer of the last three MODELLING events, held in 2009, 2014 and 2019. The SNA-Seminars on Numerical Analysis help in creating a Czech numerical community and to increase its scientific level. These seminars have been organized since 2003 and Radim Blaheta has been a co-founder and the main organizer of all these biennial events.

Furthermore, Radim Blaheta has been involved for a long time in pedagogical activities and the supervision of Master or Doctoral students at the VŠB-TU Ostrava. In addition, he makes multiple efforts in editorial and popularization activities, and is a member of several international scientific committees and professional boards. He has written more than 160 scientific papers, and about 70 of them are indexed in the Web of Science database. His life's work has contributed significantly to the Czech and international scientific community. He is an inspiration to many of us with his hard work, his passion for science and, not least, his warm social style.