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TO THE MEMORY OF PROFESSOR GISBERT STOYAN

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Professor Gisbert Stoyan was born in Berlin in 1942. After graduation he started his career in the Institute of Applied Mathematics and Mechanics in Berlin. In the period 1967-1971 he was an aspirant at the Lomonosov University in Moscow. His supervisor was professor Samarskii, a leading member of the of the world famous soviet numerical mathematics school. Professor Samarskii followed his career with attention, and had a high opinion on Gisbert Stoyan's scientific accomplishments. After earning the candidate degree in Moscow he worked for the Weierstrass Institute in Berlin until 1983. Thereafter he began his more than three decades long professional career at the Eötvös Loránd University (ELTE), Budapest. In 1983 he accepted a position in the Computer Center of the university. His work there was connected to significant areas of computer applications, and numerical solutions of differential equations. Having spent ten years at the Computer Center, he became professor at Department of Numerical Analysis. After a 20 years long service as educator and scientist at the department he continued his activity as professor emeritus in 2012.

Gisbert Stoyan might have seemed to be a withdrawn person to people knowing him only from a distance. In fact, he was not aloof at all. He helped everyone with pleasure, who contacted him with a mathematical or educational problem. His attitude could be best characterized as strict professional consistency. This attitude of him was appreciated and respected in applied mathematical circles. He expressed his opinion on educational issues briefly, clearly, and openly. He maintained a good relationship with his colleagues, and was in a closer and more personal relationship with his colleagues who he worked together with. His behavior served as a model for his environment and his students.

The scientist

Gisbert Stoyan professor's international recognition was earned by his high standard research activity in the fields of numerical mathematics and applied mathematics. He achieved particularly notable results in connection with partial differential equations. These results can be characterized by rich insights and elegant solutions.

His research interest, that includes numerical analysis, was wide. He dealt with numerical methods of solving differential equations with especially interest in numerical methods of partial differential equations. He also achieved valuable results in the conservation laws of numerical solutions of differential equations, such as positivity, monotonicity. His accomplishments related to the so-called inverse problems or parameter estimation methods, are examples that show his strong commitment for applications. Besides, many of his highly ranked publications were born in the area of the multigrid methods.

He invented a method for the integration of almost elliptical parabolic equations, a problem which had seemed to be an almost unsolvable task for a long time. He was engaged in solving the Stokes equation with finite element method, producing numerous articles with interesting results about it. His late publications related to Crouzeix–Velte decomposition, contain remarkable and momentous compositions.

His results made Gisbert Stoyan an internationally well-known and respected researcher.

The teacher

He was respected in the Hungarian mathematical community for his deep and comprehensive knowledge. Due to him new scopes of research were initiated in Hungary. Utilizing his international connections, and reputation he established collaborations between respected research centers, universities, and research groups of our university. In the areas of his scientific activities he announced PhD research topics for talented students. His contributions in raising the new generation of researchers is exemplary. Many of his PhD student, having successfully defended their diploma theses, are already well-known researchers in numerical mathematics. Many of the active numerical mathematics professors and professionals in Hungary can be considered his own students, or students of his former students.

His accomplishment in writing university textbooks is a great example for his outstanding activities in higher education. He will, however, be most certainly remembered as the initiator of the specialization called applied mathematics within the frame of mathematical vocational training at ELTE. In

fact, his insistent organizing work played a key role in the establishment of the specialization. Moreover, he kept taking good care of the program after it had been launched. For instance, the subjects called *Nonlinear Problems in Applied Tasks, Case Studies* was introduced and elaborated by him, and the elaboration and modernization of *Numerical Analysis* was due to him.

It was his strong belief that facing real practical problems is crucial for the students. During diploma theses defenses he examined carefully whether the students had dealt with real problems in industrial practice, and the solutions they provided for the problems can be indeed applied in practice. An iconic example for his intensive textbook writing work is the three volumes *Numerical Methods* monography, written with a co-author. The content of the monography is fascinating by itself, namely, it is a more than 1000 pages long. It has, without doubt, become a fundamental textbook in the Hungarian numerical mathematics education. Due to its modern, up-to-date content and treatment it meets the highest international standards of quality in this area. He wrote the English version of his book under the title *Numerical Mathematics for Engineers and Programmers*, which was issued by Birkhäuser publishing company. The first edition in 2016 proved to be so successful that the publisher offered him a second edition immediately.

In his professional life as professor research and education were always in harmony. His accomplishments were acknowledged in several forms. Conferences dedicated to him were organized. The Hungarian government awarded him the Order of Merit of the Republic of Hungary in 2012. HU-MATHS-IN, Hungarian Service Network for Mathematics in Industry and Innovations, named its seminar after him.

The Hungarian numerical mathematics community will promote his heritage.

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