Filomat 32:20 (2018)

Published by Faculty of Sciences and Mathematics,
University of Niš, Serbia
Available at: http://www.pmf.ni.ac.rs/filomat

# Preface

The International Conference APPROXIMATION AND COMPUTATION – THEORY AND APPLICATIONS (ACTA 2017), jointly organized by the Serbian Academy of Science and Arts (SASA), the University of Belgrade (Faculty of Mechanical Engineering, Faculty of Mathematics, School of Electrical Engineering), the University of Niš (Faculty of Sciences and Mathematics), the University of Kragujevac (Faculty of Science), the University of Novi Sad (Faculty of Sciences), and the Mathematical Institute of SASA, was held in Belgrade from November 30 until December 2, 2017. The conference was dedicated to Professor Walter Gautschi on the the occasion of his 90th Birthday, who is one of the the world leading scientists in the field of numerical analysis, special functions and approximation theory. He is one of the founders of modern numerical analysis and a longtime professor at Purdue University (now emeritus professor).

Walter Gautschi during the conference ACTA2017, Belgrade

Walter Gautschi was born on December 11, 1927 in Basel, Switzerland. In 1953 he received his Ph.D. degree from the University of Basel, with a thesis on graphical integration of ordinary differential equations, under supervision of Alexander Ostrowski. Soon after his Ph.D. exam, Walter Gautschi spent one year at the National Institute for Application and Computation (Istituto Nazionale per le Applicazioni del Calcolo) in Rome, founded and directed by Mauro Picone, and then moved to the States. He spent first at the Harvard Computation Laboratory and then he joined the staff of the Computation Laboratory at the National Bureau of Standards in Washington, D. C. (now the National Institute of Standards and Technology).

In 1963, Gautschi started his permanent academic career at Purdue University. He developed the so-called *constructive theory of orthogonal polynomials* on the real line, including effective algorithms for

numerically generating orthogonal polynomials with respect to an arbitrary measure, a rigorous and detailed stability analysis of such algorithms, as well as several new applications of orthogonal polynomials. Moreover, he provided software necessary for implementing these algorithms: the method of (modified) moments, the discretized Stieltjes-Gautschi procedure, and the Lanczos algorithm. It opened the door for extensive work on orthogonal polynomials and their applications in diverse areas of applied and numerical analysis (numerical integration, interpolation processes, integral equations, moment-preserving spline approximation, summation of slowly convergent series, approximation theory, etc.), as well as in many other areas of applied and computational science. He had 8 Ph.D. students.

In 2001, Walter Gautschi was elected a Foreign and Corresponding Member of two European Academies, respectively the Bavarian Academy of Sciences in Munich and the Turin Academy of Sciences. He was also named a SIAM Fellow in 2012. Walter has published 4 books, 34 book chapters, 170 refereed journal papers, 7 refereed papers in conference proceedings, translated 3 books, and edited 5 conference proceedings.

The aim of the conference ACTA 2017 was to bring together leading scientists of the international numerical and applied mathematics community and young researchers from all over the world working in mathematics and its applications to present their researches, to exchange new ideas, to discuss challenging issues, to foster future collaborations and to interact with each other. Five plenary speakers and more than 60 participants from 12 countries attended the conference and presented their research results.

This issue of FILOMAT contains eleven papers presented at the ACTA 2017 conference. They were accepted for publication after having been subjected to the usual strict reviewing process of the journal. The editors are exceedingly delighted to thank all of the participating authors and the referees for their invaluable contributions toward the remarkable success of this Special Issue. We do also greatly appreciate the editorial help and assistance provided efficiently and generously by Prof. Dragan S. Djordjević and many colleagues and associates in the Editorial Office of FILOMAT, especially Dr. Milica Z. Kolundžija.

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