FOREWORD

The *Conference for PhD Students in Mathematics* was organized by the Bolyai Institute of the University in Szeged between the 29th of June and 2nd of July, 2010. It was held in parallel with the Seventh Conference for PhD Students in Computer Science with common invited speakers and common social programs.

The main aim of the conference was, on the one hand, to provide opportunities for PhD students and young researchers to present their field of interest and their results in 25-minute talks in English. On the other hand, students could learn about the most recent research areas from the plenary talks given by renowned invited speakers. An equally important aspect was to provide a social experience for future mathematicians.

The topics of interest of the conference were mathematics and related fields, including theory and applications, e.g. algebra, analysis, differential equations, geometry, numeric and symbolic computation.

The main speakers included *Bruno Buchberger* (University of Linz, Austria), inventor of Groebner bases and the famous Buchberger Algorithm, who delivered two talks. Firstly, he presented some general ideas about the automation of mathematics. Secondly, in a special seminar talk in the Bolyai Institute, he spoke about recent results on Groebner bases and their applications.

The theory of fractional differential equations, which has recently had a renaissance mainly driven by scientists in Physics, Finance, and Hydrolog, has been the main theme of the talk by *Mihály Kovács* (University Otago, New Zealand).

Ágoston E. Eiben (Vrije Universiteit Amsterdam, The Netherlands) spoke about evolutionary algorithms, and *Aurél Galántai*'s talk (Óbuda University, Hungary) on the reliability of numerical algorithms was of wide interest for both mathematicians and computer scientists.

The participants were invited to submit a paper on the research presented in their talk for an issue dedicated to the conference. The contributions in the issue have undergone the standard rigorous refereeing process of Periodica Mathematica Hungarica.

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