

## PREFACE

The First International Conference Mathematics Days in Sofia was organized and conducted by the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences from 7th to 10th of July, 2014.

The main purpose the Conference was to become a traditional meeting of Bulgarian mathematicians working in the country and abroad, with colleagues from established research centers in the world to share the latest scientific advances in mathematics and informatics.

Along with purely scientific aspects of the conference – the exchange of scientific information, the other main goal was through its realisation to strengthen links between the mathematicians in Bulgaria and representatives of the Bulgarian mathematical diaspora.

It has long been known that in the past 25 years a number of prominent Bulgarian mathematicians and computer scientists left the country to continue their work in prestigious research centers in the world. In the same period a large number of young people from Bulgaria completed their education in mathematics and informatics in some of the largest university centers in North America and Europe. A whole new generation of young Bulgarians work successfully abroad. The conference was attended by 60 such compatriots.

As a confirmation of their interest in this prestigious international event for the Conference in Sofia registered nearly 300 scientists and there were presented over 200 reports. The program was attended by about 100 mathematicians from Bulgaria and more than 130 well-known international scholars from a number of leading research centers in over 40 countries such as Belgium, Britain, Germany, Greece, Israel, Italy, Canada, Korea, Poland, Russia, USA, France, Switzerland, Japan and other.

Among them was the world-renowned mathematician Professor Maxim Kontsevich from France, winner of the Fields Medal and the Breakthrough Prize in Mathematics for 2014.

The talks at Conference presented the current state of the art in all areas of mathematics, and were grouped in the following sections:

- Algebra, Logic, and Combinatorics;
- Analysis, Geometry, and Topology;
- Differential Equations and Mathematical Physics;
- Mathematical Modelling (including Approximation Theory, Numerical Mathematics);

- Probability and Statistics, Operations Research, and Biomathematics);
- Mathematical Aspects of Computer Science.

Several mini-symposia were organized in the frames of the Conference:

- Advanced Analytical and Numerical Techniques for Applications;
- Algebraic Methods in Quantum Field Theory;
- Approximation Theory and Special Functions – 2nd series;
- Geometry Days in Sofia;
- Transform Methods and Special Functions '14;
- Variational Analysis.

The event was officially opened by the President of the Republic of Bulgaria, Mr. Rosen Plevneliev, on July 7, 2014 at “Sofia Hotel Balkan”.

Special guest of the conference was Professor Jean-Pierre Bourguignon – President of the European Research Council. He presented the activities of the Council in a lecture on July 8th. The lecture provoked interest among a wide range of scientists and was attended by representatives of all other scientific fields in Bulgaria. One of the purposes of this presentation was to encourage Bulgarian scientists from home and abroad to apply for research projects to be carried out in Europe and, in particular, in Bulgaria.

The present issue of *Serdica Mathematical Journal* contains several research papers based on talks presented at the Conference, and following the standard procedure for publishing in the journal. Detailed information for the Conference can be found in its web site <http://www.math.bas.bg/mds2014/>.