Preface

This volume contains papers selected from those presented at the 15th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC) held in Timișoara, Romania from 23 to 26 September 2013. SYNASC is a series of annual events that aim to stimulate the interaction between the two scientific communities of symbolic and numeric computing and to present interesting applications of the algorithms developed in the areas both in theory and in practice. The choice of the symposium topic was motivated by the belief of the organizers that the dialogue between the two communities is very necessary for accelerating the progress in making the computer a truly intelligent aid for mathematicians and engineers.

Started in 1999 as a workshop, SYNASC has established itself as an international forum for researchers and practitioners interested in symbolic and numeric computing. It has been organized by Department of Computer Science at West University of Timișoara in cooperation with Research Institute for Symbolic Computation at Johannes Kepler University of Linz, Austria and with Research Institute e-Austria from Timișoara. Having its unique venue in Timișoara, a historical and multicultural city, SYNASC has become a fixed meeting point where researchers from Romania and the rest of the world get together to present, to discuss, and to exchange their research results, new findings, and work in progress. It has helped promote scientific research and development in Romania and enhance the contacts between foreign and Romanian researchers, in addition to its significant contributions to international scientific exchange in computer science.

SYNASC 2013 has been structured with six tracks (Symbolic Computation, Logic and Programming, Artificial Intelligence, Numerical Computing, Distributed Computing and Advances in the Theory of Computation). Each track had its own program subcommittee chaired by at least two experts who coordinated the paper reviewing process. As well as the six tracks, five related workshops have been organized: Workshop on Agents for Complex Systems, Workshop on HPC for Scientific Problems, Workshop on Management of Resources and Services in Cloud and Sky Computing, Workshop on Iterative Approximations of Fixed Points and Workshop on Natural Computing and Applications.

A total of 155 papers have been submitted (94 submissions for the six tracks and 56 for the workshops) and 379 referee reports were provided by the reviewers. Based on these reports, 86 papers have been accepted for presentation at the symposium. From the presented papers, 66 have been selected for publication in the present volume.

At each edition the organizers tried to attract representative researchers in fields related to the main topics of the symposium. This year the invitation has been honored by seven well-known scientists who gave remarkable plenary talks: Ivona Brandic, Gabriel Ciobanu, Tetsuo Ida, Jose Torres-Jimenez, Leonardo de Moura, Grigore Rosu, Dan A. Simovici.
The symposium program included also three highly appreciated tutorials given by Adrian Jackson (HPC tutorial), Ileana Streinu (Origami design with Lang’s Universal Molecule), and Stephen M. Watt (An Introduction to Modern Symbolic-Numeric Computation).

We thank all the people who have contributed to SYNASC 2013 and to the publication of these proceedings, as authors, reviewers, speakers, organizers, or attendees, either on their own initiative or by invitation. It is their contributions that made the symposium a remarkable success and this volume a valuable reference.

Nikolaj Björner  
SYNASC 2013 Program and Proceedings Chair

Viorel Negru  
SYNASC 2013 General Chair

Tetsuo Ida, Tudor Jebelean, Dana Petcu, Stephen M. Watt, Daniela Zaharie  
Members of the SYNASC 2013 Steering Committee