

Preface

This joint volume of proceedings gathers the papers from the workshops, Doctoral Program (DP) and Work in Progress (WiP) section of the 11th Conference on Intelligent Computer Mathematics (CICM), held August 13-17 2018 in RISC, Hagenberg, Austria. CICM has been held annually since 2008. Papers from the four main tracks at CICM 2018 (CALCULEMUS, Digital Mathematical Libraries, Mathematical Knowledge Management, Systems & Projects) are planned to be published in Springer Lecture Notes on Artificial Intelligence (LNAI).

This joint volume collects selected papers for six workshops held at CICM 2018:

- Computer Mathematics in Education - Enlightenment or Incantation (CME-EI), considering recent developments in computer mathematics while discussing potential impact of respective tools and reconsidering developers' responsibility for such impact. Members of the program committee include:
 - Karl-Josef Fuchs, University of Salzburg
 - Zoltan Kovacs, Private University of Education Diocese Linz
 - Walther Neuper, Graz University of Technology
 - Barbara Sabitzer, Johannes Kepler University Linz
 - Wolfgang Schreiner, Johannes Kepler University Linz
- Formal Mathematics for Mathematicians (FMM), allowing mathematicians interested in computer assistance and researchers in formal and computer-understandable mathematics to meet and exchange ideas. Members of the program committee include:
 - Yves Bertot, Inria
 - Marco Caminati, University of St Andrews
 - Cezary Kaliszyk, University of Innsbruck
 - Michael Kohlhase, FAU Erlangen-Nürnberg
 - Adam Naumowicz, University of Białystok
 - Aleksy Schubert, University of Warsaw
 - Josef Urban, Czech Technical University in Prague
- Computer Algebra in the Age of Types (CAAT), inviting practicing researchers in computer algebra, formal methods, and programming languages to present and discuss approaches and form a common vision for the next generation of computer algebra. Members of the program committee include:

- Markus Pfeiffer, University of St Andrews
- Gabriel Dos Reis, Microsoft Research
- Formal Verification of Physical Systems (FVPS), focusing on formal verification techniques for the modeling, analysis, and verification of safety and security critical physical systems.
 - Aaron Dutle, NASA Langley Research Center, U.S.A.
 - Jacques Fleuriot, University of Edinburgh, U.K.
 - Hubert Garavel, INRIA Grenoble, France
 - Atif Mashkoo, SCCH and JKU, Austria
 - Sergio Mover, University of Colorado Boulder, U.S.A.
 - Julien Narboux, University of Strasbourg, France
 - Peter Csaba Ölveczky, University of Oslo, Norway
 - Shinichi Shiraiishi, Toyota InfoTechnology Center, U.S.A.
- Mathematical Models and Mathematical Software as Research Data 2018 (M3SRD), presenting and discussing ideas, concepts, standardization, and service development for important classes of mathematical research data, especially mathematical models and mathematical software. Members of the program committee include:
 - Neil Chue Hong, Software Sustainability Institute, Great Britain
 - Roberto Di Cosmo, Inria, France
 - Thomas Koprucki, WIAS Berlin, Germany
 - Florian Rabe, FAU Erlangen, Germany
 - Wolfram Sperber, FIZ Karlsruhe, Berlin
- 29th OpenMath Workshop, focusing on new research about and description of new content dictionaries for OpenMath, a language for exchanging mathematical formulas across systems. Members of the program committee include:
 - James Davenport, Bath, UK
 - Michael Kohlhase, FAU Erlangen-Nürnberg, Germany

CICM also gives the opportunity for researchers to present Work in Progress (WiP) papers that are not yet ready for formal presentation but are of interest to the community.

Finally, CICM traditionally organizes a “Doctoral Program (DP)”, where doctoral students can present their achievements and future plans to the community and receive mentoring by experienced members of the CICM community.

The workshop programs were managed independently by the respective organizers, and were coordinated by the Workshop Chair. The total number of papers accepted at CICM 2018 workshops is fourteen. The General CICM PC Chair and the four CICM track PC Chairs selected the WiP papers and the DP Chair managed the DP papers. Please see the individual prefaces for more details.

Editors

Osman Hasan: Joint volume editor

Zoltan Kovacs, Walther Neuper, Wolfgang Schreiner: CME-EI editors

Cezary Kaliszyk, Adam Naumowicz: FMM editors

Markus Pfeiffer, Gabriel Dos Reis: CAAT editors

Sofiene Tahar, Osman Hasan, Umair Siddique: FVPS editors

Thomas Koprucki, Wolfram Sperber: M3SRD editors

James Davenport, Michael Kohlhase: OpenMath editors

Diane Gallois-Wong: DP editor

Abdou Youssef: Systems & Projects Track Chair

Bill Farmer: Mathematical Knowledge Management Track Chair

Grant Passmore: Calculemus Track Chair

Florian Rabe: General CICM PC Chair

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