

## Preface to the Proceedings of MathUI 2014

It is our pleasure to present the proceedings of the 2014 Mathematical User Interfaces international workshop. The workshop aims to gather researchers, developers, and end-users of mathematical software into a discussion around the user-interfaces which allow them to be manipulated. The MathUI workshop series stimulates new perspectives and the exchange of ideas in a semi-formal way: using a formal submission and review system, followed by a round of presentations and discussions, then a fair-like demonstration session.

MathUI has been running for ten years alongside the Mathematical Knowledge Management Conference and the Conferences on Intelligent Computer Mathematics. It started in Bialowieza, Poland, in 2004. Since then, it has taken place in: Wokingham (United Kingdom) in 2006, Linz (Austria) in 2007, Birmingham (UK) in 2008, Grand Bend (Canada) in 2009, Paris (France) in 2010, Bremen (Germany) in 2011, and Bath (UK) in 2013. This edition of the workshop is the 9<sup>th</sup>. The papers from previous workshops can be found at <http://cermat.org/events/MathUI>.

This year, the workshop's contributions have been reviewed by the programme committee team composed of: David Aspinall (Edinburgh, Scotland), Paul Cairns (York, UK), Olga Caprotti (Helsinki, Finland), Andrea Hoffkamp (Berlin, Germany), Patrick Ion (Rhode Island, USA), Andrea Kohlhase (Bremen, Germany), Christoph Lange (Bonn, Germany), Paul Libbrecht (Weingarten, Germany), Helena Mihaljevic-Brandt (Berlin, Germany), Elena Smirnova (USA), Marco Pollanen (Trent, Canada), Frédéric Wang (Paris, France). We wish address our thanks to the constructive critiques made during the intense review process.

This year, the MathUI workshop will discuss the following themes:

- **Access to Mathematical Libraries:** Following the current trend of a growing production of mathematical knowledge everywhere on earth, there is a stringent need of organizing the knowledge so that it is accessed in the most relevant fashion. The papers by Helena Mihaljevic-Brandt, Fabian Müller and Nicolas Roy (*Author Profile Pages in zbMATH Improving Accuracy through User*), Andrea Kohlhase (*Design of Search Interfaces for Mathematicians*), as well as Carmela Acevedo and Michael Kohlhase (*OpenMathMap: Interaction*) contribute to this direction.
- **Orientation to Understand Mathematical Relations:** The long quest of a better visualization to depict mathematical concepts has always been a topic of the workshop. This theme is discussed in the papers by Ou Yamamoto and Masatoshi Kokubu (*Visualization of tangent developables on a volumetric display*), Carmela Acevedo and Michael Kohlhase (*OpenMathMap: Interaction*). Moreover, two papers explore the display of relationships in a spreadsheet programme, now becoming an important topic of this workshop as it is an important mathematical software for its wide usage: Andrea Kohlhase and Alexandru Toader (*FEncy: Spreadsheet*

*Formulae Exploration*) and Roxanne Leitão and Chris Roast (*Developing Visualisations for Spreadsheet Formulae: Towards Increasing the Accessibility of Science, Technology, Engineering and Maths Subjects*).

- **Mathematics Education Remains a Focus:** this is the focus of the paper by Paul Libbrecht and Kerstin Schneider (*Formula Collection Mobile Apps Realized by Teachers*) and the applications for it are somewhat discussed in the paper by Roxanne Leitão and Chris Roast (*Developing Visualisations for Spreadsheet Formulae: Towards Increasing the Accessibility of Science, Technology, Engineering and Maths Subjects*).
- **Mobile Mathematics:** The emerging applications for mathematics on mobile devices are becoming a more and more important subject covered in the survey paper by Frédéric Wang and Raniere Silva (*Firefox OS Web Apps for Science*), in the paper by Marco Pollanen, Jeff Hooper, Bruce Cater and Sohee Kang (*Towards a Universal Interface for Real-Time Mathematical Communication*), and in the paper by Paul Libbrecht and Kerstin Schneider (*Formula Collection Mobile Apps Realized by Teachers*).
- **Input of Mathematical Formulae:** Finally, a topic that used to be at the forefront of this workshop is concerned with the input of mathematical formulae. This year it is covered in the paper by Frédéric Wang and Raniere Silva (*Firefox OS Web Apps for Science*) and by Marco Pollanen, Jeff Hooper, Bruce Cater and Sohee Kang (*Towards a Universal Interface for Real-Time Mathematical Communication*).

We wish the reader a pleasant read of these brand new ideas in user interfaces for mathematical software.

Weingarten and Bremen, July 1<sup>st</sup>, 2014  
Paul Libbrecht and Andrea Kohlhase