

Contents

Invited Talks

- Mining the Archive of Formal Proofs 3
*Jasmin Christian Blanchette, Maximilian Haslbeck, Daniel Matichuk,
and Tobias Nipkow*
- Math Search for the Masses: Multimodal Search Interfaces
and Appearance-Based Retrieval 18
Richard Zanibbi and Awelemdy Orakwue

Calculus

- Towards Formal Fault Tree Analysis Using Theorem Proving. 39
Waqar Ahmad and Osman Hasan
- Optimizing a Certified Proof Checker for a Large-Scale
Computer-Generated Proof 55
Luis Cruz-Filipe and Peter Schneider-Kamp
- A First Class Boolean Sort in First-Order Theorem Proving and TPTP 71
Evgenii Kotelnikov, Laura Kovács, and Andrei Voronkov
- Type Inference for ZFH 87
Steven Obua, Jacques Fleuriot, Phil Scott, and David Aspinall
- Generic Literals 102
Florian Rabe
- Ranking/Unranking of Lambda Terms with Compressed de Bruijn Indices . . . 118
Paul Tarau

Digital Mathematics Libraries

- A Flexiformal Model of Knowledge Dissemination and Aggregation
in Mathematics 137
Mihnea Iancu and Michael Kohlhase

Mathematical Knowledge Management

- Structure Formation in Large Theories 155
Serge Autexier and Dieter Hutter

Formal Logic Definitions for Interchange Languages	171
<i>Fulya Horozal and Florian Rabe</i>	
Math Literate Knowledge Management via Induced Material	187
<i>Mihnea Iancu and Michael Kohlhase</i>	
Strategies for Parallel Markup.	203
<i>Bruce R. Miller</i>	
Readable Formalization of Euler’s Partition Theorem in Mizar	211
<i>Karol Pąk</i>	
Automating Change of Representation for Proofs in Discrete Mathematics . . .	227
<i>Daniel Raggi, Alan Bundy, Gudmund Grov, and Alison Pease</i>	
Performance Evaluation and Optimization of Math-Similarity Search.	243
<i>Qun Zhang and Abdou Youssef</i>	
Projects and Surveys	
Mizar: State-of-the-Art and Beyond.	261
<i>Grzegorz Bancerek, Czesław Byliński, Adam Grabowski, Artur Kornilowicz, Roman Matuszewski, Adam Naumowicz, Karol Pąk, and Josef Urban</i>	
Growing the Digital Repository of Mathematical Formulae with Generic \LaTeX Sources	280
<i>Howard S. Cohl, Moritz Schubotz, Marjorie A. McClain, Bonita V. Saunders, Cherry Y. Zou, Azeem S. Mohammed, and Alex A. Danoff</i>	
Formalizing Physics: Automation, Presentation and Foundation Issues	288
<i>Cezary Kaliszyk, Josef Urban, Umair Siddique, Sanaz Khan-Afshar, Cvetan Dunchev, and Sofiène Tahar</i>	
A Survey on Retrieval of Mathematical Knowledge.	296
<i>Ferruccio Guidi and Claudio Sacerdoti Coen</i>	
Towards the Formalization of Fractional Calculus in Higher-Order Logic. . . .	316
<i>Umair Siddique, Osman Hasan, and Sofiène Tahar</i>	
LeoPARD — A Generic Platform for the Implementation of Higher-Order Reasoners.	325
<i>Max Wisniewski, Alexander Steen, and Christoph Benzmüller</i>	

Systems and Data

TIP: Tons of Inductive Problems. 333
Koen Claessen, Moa Johansson, Dan Rosén, and Nicholas Smallbone

Semantic Enrichment of Mathematics via ‘tooltips’ 338
Ross Moore

Documentation Generator Focusing on Symbols for the HTML-ized Mizar
Library 343
Kazuhisa Nakasho and Yasunari Shidama

Tools for MML Environment Analysis 348
Adam Naumowicz

Enabling Symbolic and Numerical Computations in HOL Light 353
Ons Seddiki, Cvetan Dunchev, Sanaz Khan-Afshar, and Sofiène Tahar

Erratum to: Towards Formal Fault Tree Analysis Using Theorem Proving . . . E1
Waqar Ahmad and Osman Hasan

Author Index 359



<http://www.springer.com/978-3-319-20614-1>

Intelligent Computer Mathematics
International Conference, CICM 2015, Washington, DC,
USA, July 13-17, 2015, Proceedings.
Kerber, M.; Carette, J.; Kaliszyk, C.; Rabe, F.; Sorge, V.
(Eds.)
2015, XXI, 359 p. 84 illus., Softcover
ISBN: 978-3-319-20614-1