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ISSN 1868-8969

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This volume contains the papers presented at the 22nd International Conference on Rewriting Techniques and Applications (RTA 2011) which was held from May 30 to June 1, 2011, in Novi Sad, Serbia as part of the RDP 2011 Federated Conference on Rewriting, Deduction, and Programming, together with the 10th Typed Lambda Calculi and Applications (TLCA 2011). Workshops associated with RTA 2011 were the Workshop on Compilers by Rewriting, Automated (COBRA 2011), the Annual Meeting of the IFIP Working Group 1.6 on Term Rewriting, the workshop “Two Faces of Complexity” (2FC 2011), the 10th International Workshop on Reduction Strategies in Rewriting and Programming (WRS 2011), and the workshop on Theory and Practice of Delimited Continuations (TPDC 2011).

RTA is the major forum for the presentation of research on all aspects of rewriting. Previous RTA conferences were held in Dijon (1985), Bordeaux (1987), Chapel Hill (1989), Como (1991), Montreal (1993), Kaiserslautern (1995), Rutgers (1996), Sitges (1997), Tsukuba (1998), Trento (1999), Norwich (2000), Utrecht (2001), Copenhagen (2002), Valencia (2003), Aachen (2004), Nara (2005), Seattle (2006), Paris (2007), Hagenberg (2008), Brasilia (2009), and Edinburgh (2010). For RTA 2011, 20 regular research papers and eight system descriptions were accepted out of 46 submissions. Each paper was reviewed by at least three members of the Program Committee, with the help of 72 external reviewers, and an electronic meeting of the Program Committee was held using Andrei Voronkov’s EasyChair system, which was invaluable in the reviewing process, the electronic Program Committee meeting, and the preparation of the conference schedule, and for gathering the papers for this proceedings.

The Program Committee gave the award for the Best Contribution to RTA 2011 to Aaron Stump, Garrin Kimmell and Roba El-Haj Omar for their paper “Type Preservation as a Confluence Problem”. In addition to the contributed papers, the RTA program contained an invited talk by Sophie Tison with title “Tree Automata, (Dis-)Equality Constraints and Term Rewriting: What’s New?”, by Ashish Tiwari on “Rewriting in Practice”, and also the common invited talk of RDP, given by Stephanie Weirich on “Combining Proofs and Programs”.

Many people helped to make RTA 2011 as part of RDP 2011 a success. Thanks to all of them: the Members of the Organizing Committee of RDP are: Siniša Crvenković (University of Novi Sad), Ilija Ćosić (University of Novi Sad), Kosta Došen (Mathematical Institute, Belgrade), Silvia Ghilezan (University of Novi Sad), Predrag Janičić (University of Belgrade), Zoran Marković (Mathematical Institute, Belgrade), Zoran Ognjanović (Mathematical Institute, Belgrade), Jovanka Pantović (University of Novi Sad), Zoran Petrić (Mathematical Institute, Belgrade), Miroslav Popović (University of Novi Sad), Nataša Sladoje (University of Novi Sad), Miroslav Vesković (University of Novi Sad); and the Local Organizers: Sandra Buhmiler, Biljana Carić, Jelena Čolić, Ksenija Doroslovački, Tatjana Grbić, Gabrijela Grujić, Vladimir Ilić, Jelena Ivetić, Svetlana Jakšić, Tibor Lukić, Petar Maksimović, Bojan Marinčković, Biljana Mihailović, Aleksandar Nikolić, Zoran Ovcin, Dragiša Žinić.

For their kind help in preparing the proceedings and supporting me in questions concerning LaTeX thanks go the David Sabel and Conrad Rau. I would like to thank Marc Herbstritt from Schloss Dagstuhl, Leibniz Center for Informatics, for his very helpful and always prompt support during production of the LIPIcs proceedings.

RDP was hosted by the Faculty of Technical Sciences and the Mathematical Institute SASA at the University of Novi Sad, Serbia. Support by the conference sponsors: – Provincial Secretariat of Science and Technological Development, Province of Vojvodina, the Ministry of
Preface

Education and Science, Republic of Serbia, the City of Novi Sad (http://www.novisad.rs/en), RT-RK Computer Based Systems, FIMEK, Faculty of Economy and Engineering Management, Telvent DMS LLC Novi Sad, Embassy of France in Serbia and Embassy of the USA in Serbia – is gratefully acknowledged.

April 2011

Manfred Schmidt-Schauß