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Membrane Computing

12th International Conference, CMC 2011
Fontainebleau, France, August 23-26, 2011
Revised Selected Papers



Springer

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ISSN 0302-9743

e-ISSN 1611-3349

ISBN 978-3-642-28023-8

e-ISBN 978-3-642-28024-5

DOI 10.1007/978-3-642-28024-5

Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2011945291

CR Subject Classification (1998): F.2, F.1, I.6, J.3, C.2, C.2.4, D.2, D.1.3

LNCS Sublibrary: SL 1 – Theoretical Computer Science and General Issues

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Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

This volume contains a selection of papers presented at the 12th International Conference on Membrane Computing (CMC12, <http://cmc12.lacl.fr/>) which took place in Fontainebleau, France, during August 23–26, 2011.

The first three workshops on membrane computing were organized in Curtea de Argeş, Romania – they took place in August 2000 (with the proceedings published in *Lecture Notes in Computer Science*, volume 2235), in August 2001 (with a selection of papers published as a special issue of *Fundamenta Informaticae*, volume 49, numbers 1–3, 2002), and in August 2002 (with the proceedings published in *Lecture Notes in Computer Science*, volume 2597). The next six workshops were organized in Tarragona, Spain (in July 2003), Milan, Italy (in June 2004), Vienna, Austria (in July 2005), Leiden, The Netherlands (in July 2006), Thessaloniki, Greece (in June 2007), and Edinburgh, UK (in July 2008), with the proceedings published in *Lecture Notes in Computer Science*, by Springer, as volumes 2933, 3365, 3850, 4361, 4860, and 5391, respectively. The 10th workshop returned to Curtea de Argeş in August 2009 (*LNCS* volume 5957).

From then on, the workshop continued as the Conference on Membrane Computing, with the 2010 edition, CMC11, held in Jena, Germany (*LNCS* volume 6501). The 12th edition of the meeting, CMC12, was organized in Fontainebleau, France, by the Laboratoire d’Algorithmique Complexité et Logique of the University of Paris Est – Créteil Val de Marne.

The invited speakers for CMC12 were: Artiom Alhazov (Chişinău, Moldova and Milan, Italy), Jacob Beal (Cambridge, MA, USA), Peter Dittrich (Jena, Germany), Jean-Louis Giavitto (Paris, France), Radu Nicolescu (Auckland, New Zealand) and György Vaszil (Budapest, Hungary). Full papers or extended abstracts of these talks are included in this volume.

The volume also incorporates a selection of 19 accepted papers out of 27 papers and 5 posters presented at the conference. Each of them was subject to at least three referee reports. The Program Committee consisted of 21 members: Artiom Alhazov (Chişinău, Moldova and Milan, Italy), Gabriel Ciobanu (Iasi, Romania), Erzsebet Csuhaj-Varju (Budapest, Hungary), Rudolf Freund (Vienna, Austria), Pierluigi Frisco (Edinburgh, UK), Marian Gheorghe (Sheffield, UK) – Co-chair, Thomas Hinze (Jena, Germany), Oscar H. Ibarra (Santa Barbara, USA), Kamala Krithivasan (Chennai, India), Alberto Leporati (Milan, Italy), Vincenzo Manca (Verona, Italy), Maurice Margenstern (Metz, France), Radu Nicolescu (Auckland, New Zealand), Marion Oswald (Budapest, Hungary), Lingqiang Pan (Wuhan, China), Gheorghe Păun (Bucharest, Romania and Seville, Spain), Mario J. Perez-Jimenez (Seville, Spain), Dario Pescini (Milan, Italy), Francisco J. Romero-Campero (Seville, Spain), Petr Sosik (Opava, Czech Republic) and Sergey Verlan (Paris, France) – Co-chair. It was assisted in the selection

process by nine additional reviewers: Oana Agrigoroaiei (Iasi, Romania), Bogdan Aman (Iasi, Romania), Daniela Besozzi (Milan, Italy), Paolo Cazzaniga (Milan, Italy), Gabi Escuela (Jena, Germany), Abderrahman Matoussi (Créteil, France), Ionuț-Mihai Niculescu (Pitești, Romania), Liviu Ștefan (Pitești, Romania), and Cristina Tudose (Pitești, Romania).

The Organizing Committee consisted of Patrick Cégielski (Co-chair), Cătălin Dima, Frédéric Gervais, Pierre Konopacki, Olivier Michel, Antoine Spicher, Pierre Valarcher, and Sergey Verlan (Co-chair).

Continuing the tradition started at the previous edition, the meeting was accompanied by the 5th Workshop on Membrane Computing and Biologically Inspired Process Calculi (MeCBIC). Additionally, a poster session took place, providing an opportunity for young researchers and students, some of them newcomers to the field, to make presentations on late-breaking or preliminary results. A panel discussion about key research topics and open problems as well as the future research directions in membrane computing was led by G. Păun, who invited the participants to contribute to a joint paper on further developments in membrane computing. Finally, the Best Paper Award, identified by the vote of all CMC12 participants, was given to the paper “P Systems Simulating Oracle Computations” by Antonio E. Porreca, Alberto Leporati, Giancarlo Mauri, and Claudio Zandron.

We gratefully acknowledge the financial support of the University of Paris Est Créteil – Val de Marne, IUT de Sénart-Fontainebleau, Laboratoire d’Algorithmique Complexité et Logique, Faculté des Sciences et Technologies of the University of Paris Est – Créteil Val de Marne and Agence Nationale de Recherche (project SYNBIOTIC). We also thank the administration of IUT de Fontainebleau for the perfect infrastructure made available to CMC12. Finally, we would like to thank our secretaries Nathalie Gillet and Flore Tsila for extensive assistance in organizing the event and for smoothly running the conference.

The editors warmly thank the Program Committee members for their prompt and efficient support in reviewing papers, the invited speakers for their inspiring talks, the authors of the submitted papers for their interesting papers and presentations, the additional reviewers for their generosity in helping the conference, and all the participants for their comments and suggestions.

Special thanks are due to Springer for the efficient cooperation in the timely production of this volume.

November 2011

Marian Gheorghe
Gheorghe Păun
Grzegorz Rozenberg
Arto Salomaa
Sergey Verlan

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