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# Membrane Computing

14th International Conference, CMC 2013  
Chişinău, Republic of Moldova, August 20-23, 2013  
Revised Selected Papers

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# Preface

This volume contains a selection of papers presented at CMC 14, the 14<sup>th</sup> International Conference on Membrane Computing, held in Chişinău, Republic of Moldova, during August 20-23, 2013 (<http://www.math.md/cmc14/>).

The CMC series was initiated by Gheorghe Păun as the Workshop on Multi-set Processing in the year 2000. Then two workshops on Membrane Computing were organized in Curtea de Argeş, Romania, in 2001 and 2002. A selection of papers from these three meetings were published as volume 2235 of the *Lecture Notes in Computer Science* series, as a special issue of *Fundamenta Informaticae* (volume 49, numbers 1–3, 2002), and as volume 2597 of *Lecture Notes in Computer Science*. 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* as volumes 2933, 3365, 3850, 4361, 4860, and 5391, respectively. The 10<sup>th</sup> workshop returned to Curtea de Argeş in August 2009 (LNCS volume 5957).

From the year 2010, the series of meetings on membrane computing continued as the Conference on Membrane Computing with the 2010, 2011, and 2012 editions held in Jena, Germany (LNCS volume 6501), Fontainebleau, France (LNCS volume 7184) and Budapest, Hungary (LNCS volume 7762). Today a Steering Committee takes care of the continuation of the CMC series, which is organized under the auspices of the European Molecular Computing Consortium (EMCC). A regional version of CMC, the Asian Conference on Membrane Computing, ACMC, started with the 2012 edition in Wuhan, China, and continued with the 2013 edition in Chengdu, China.

CMC 14 was organized by the Institute of Mathematics and Computer Science (IMCS) of the Academy of Sciences of Moldova Republic in conjunction with the International Conference on Intelligent Information Systems, IIS 2013. These two conferences represent the starting point of a series of events dedicated to the 50th anniversary of IMCS, celebrated in April 2014. A special session organized in connection with IIS was dedicated to the memory of Prof. Yuri Pechersky, the founder of artificial intelligence research at IMCS. These two conferences obtained extensive media coverage in the Republic of Moldova. On August 20 the major news program of the national broadcasting television station started with comprehensive reportage on the opening session of CMC 14 and IIS 2013. Other radio and television stations also provided news and presented interviews with organizers and participants of the conferences. On August 22, “Literatura și Arta” (Literature and Art), the weekly main cultural newspaper in Moldova, published an article about these conferences as well as about Artiom Alhazov’s Doctor habilitation defence.

On the first day a special session with invited speakers from both CMC 14 and IIS 2013 was organized for the participants. In the afternoon, Dr. Artiom Alhazov defended his Doctoral habilitation thesis, “Small Abstract Machines” (<http://www.cnaa.md/en/thesis/24558/>), in front of a panel with scientists from six countries.

The Program Committee of CMC 14 invited lectures from Jozef Gruska (Brno, Czech Republic), Gheorghe Păun (Bucharest, Romania/Seville, Spain), Marian Gheorghe (Sheffield, UK), Alberto Leporati (Milan, Italy), Petr Sosik (Opava, Czech Republic), and Sergey Verlan (Paris, France). Based on the votes of the CMC 14 participants, the Best Paper Award of this year’s CMC conference was given to Alberto Leporati, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron for their paper “Enzymatic Numerical P Systems Using Elementary Arithmetic Operations”.

In addition to the texts of the invited talks, this volume contains 16 papers out of 26 presented at the conference. Each paper was subject to at least two referee reports for the conference and of an additional one for this volume.

The editors warmly thank the Program Committee, the invited speakers, the authors of the papers, the reviewers, and all the participants for their contributions to the success of CMC 14.

November 2013

Artiom Alhazov  
Svetlana Cojocaru  
Marian Gheorghe  
Yurii Rogozhin  
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