## **Preface**

The Eleventh Brainstorming Week on Membrane Computing (BWMC) was organized in Sevilla, from February 4 to February 8, 2013, in the organization of the Research Group on Natural Computing from the Department of Computer Science and Artificial Intelligence of Sevilla University. The first edition of BWMC was organized at the beginning of February 2003 in Rovira i Virgili University, Tarragona, and all the next editions took place in Sevilla at the beginning of February, each year.

In the style of previous meetings in this series, the eleventh BWMC was conceived as a period of active interaction among the participants, with the emphasis on exchanging ideas and cooperation. Several "provocative" talks were delivered, mainly devoted to open problems, research topics, conjectures waiting for proofs, followed by an intense cooperation among the 33 participants – see the list in the end of this preface. The efficiency of this type of meetings was again proved to be very high and the present volume illustrates this assertion.

The papers included in this volume, arranged in the alphabetic order of the authors, were collected in the form available at a short time after the brainstorming; several of them are still under elaboration. The idea is that the proceedings are a working instrument, part of the interaction started during the stay of authors in Sevilla, meant to make possible a further cooperation, this time having a written support.

Selections of the papers from these volumes will be considered for publication in special issues of *International Journal of Unconventional Computing*.

After each BWMC, one or two special issues of various international journals were published. Here is their list:

- BWMC 2003: Natural Computing volume 2, number 3, 2003, and New Generation Computing volume 22, number 4, 2004;
- BWMC 2004: Journal of Universal Computer Science volume 10, number 5, 2004, and Soft Computing volume 9, number 5, 2005;
- BWMC 2005: International Journal of Foundations of Computer Science volume 17, number 1, 2006);

- BWMC 2006: Theoretical Computer Science volume 372, numbers 2-3, 2007;
- BWMC 2007: International Journal of Unconventional Computing volume 5, number 5, 2009;
- BWMC 2008: Fundamenta Informaticae volume 87, number 1, 2008;
- BWMC 2009: International Journal of Computers, Control and Communication volume 4, number 3, 2009;
- BWMC 2010: Romanian Journal of Information Science and Technology volume 13, number 2, 2010;
- BWMC 2011: International Journal of Natural Computing Research volume 2, numbers 2-3, 2011.
- BWMC 2012: International Journal of Computer Mathematics volume 99, number 4, 2013

Other papers elaborated during the eleventh BWMC will be submitted to other journals or to suitable conferences. The reader interested in the final version of these papers is advised to check the current bibliography of membrane computing available in the domain website http://ppage.psystems.eu.

\*\*\*

The list of participants as well as their email addresses are given below, with the aim of facilitating the further communication and interaction:

- Ludek Cienciala, Silesian University in Opava, Czech Republic, ludek.cienciala@fpf.slu.cz
- Lucie Ciencialová, Silesian University in Opava, Czech Republic, ciecilka@gmail.com
- Mari Angels Colomer Cugat, University of Lleida, Spain, colomer@matematica.udl.cat
- 4. Rudolf Freund, Technological University of Vienna, Austria, rudifreund@gmx.at
- 5. Manuel García Quismondo Fernández, University of Seville, Spain, mgarciaquismondo@us.es
- 6. Adolfo Gastalver-Rubio, University of Seville, Spain, adolaurion@hotmail.co.jp
- Marian Gheorghe, University of Sheffield, United Kingdom, m.gheorghe@sheffield.ac.uk
- 8. Carmen Graciani Díaz, University of Seville, Spain, cgdiaz@us.es
- 9. Miguel A. Gutiérrez Naranjo, University of Seville, Spain, magutier@us.es
- 10. Florentin Ipate, University of Bucharest, Romania, florentin.ipate@ifsoft.ro
- 11. Sergiu Ivanov, Université Paris-Est Créteil, France, sivanov@colimite.fr
- 12. Alica Kelemenová, Silesian University in Opava, Czech Republic, alice.kelemenova@fpf.slu.cz
- 13. Miroslav Langer, Silesian University in Opava, Czech Republic, miroslav.langer@i.cz

- 14. Raluca Lefticaru, University of Bucharest, Romania, raluca.lefticaru@gmail.com
- 15. Alberto Leporati, University of Milan Bicocca, Italy, leporati@disco.unimib.it
- 16. Luis Felipe Macías Ramos, University of Seville, Spain, lfmaciasr@us.es
- 17. Miguel A. Martínez del Amor, University of Seville, Spain, mdelamor@us.es
- 18. Giancarlo Mauri, University of Milan Bicocca, Italy, mauri@disco.unimib.it
- 19. Santiago Maza López de los Mozos, University of Seville, Spain, omazalopez@gmail.com
- 20. Niall Murphy, Universidad Politécnica de Madrid, Spain, nmurphy@gmail.com
- 21. David Orellana Martín, University of Seville, Spain, dorelmar@gmail.com
- 22. Adam Obtułowicz, Polish Academy of Sciences, Warsaw, Poland, A.Obtulowicz@impan.pl
- 23. Gheorghe Păun, University of Seville, Spain, and Institute of Mathematics of the Romanian Academy, gpaun@us.es
- 24. Ignacio Pérez Hurtado de Mendoza, University of Seville, Spain, perezh@us.es
- 25. Mario de J. Pérez Jiménez, University of Seville, Spain, marper@us.es
- 26. Antonio Enrico Porreca, University of Milan Bicocca, Italy, porreca@disco.unimib.it
- 27. José Luis Pro Martín, University of Seville, Spain, jlpro@modinem.com
- 28. Agustín Riscos Núñez, University of Seville, Spain, ariscosn@us.es
- 29. Francisco José Romero Campero, University of Seville, Spain, fran@us.es
- 30. Álvaro Romero Jiménez, University of Seville, Spain, romero.alvaro@us.es
- 31. Juan Carlos Soriano Ramírez, University of Seville, Spain, juanki.soriano@gmail.com
- 32. Luis Valencia Cabrera, University of Seville, Spain, lvalencia@us.es
- Claudio Zandron, University of Milan Bicocca, Italy, zandron@disco.unimib.it

As mentioned above, the meeting was organized by the Research Group on Natural Computing from Sevilla University (http://www.gcn.us.es) and all its members were enthusiastically involved in this (not always easy) work.

The meeting was supported from various sources: (i) Ministerio de Economía y Competitividad (grants TIN2008–04487–E, TIN2009 – 13192, TIN2012 – 37434, cofinanced by FEDER funds), (ii) Junta de Andalucía (grant P08 – TIC 04200, also cofinanced by FEDER funds), (iii) Instituto de Matemáticas de la Universidad de Sevilla (IMUS), (iv) Fundación para la Investigación y el Desarrollo de las Tecnologías de la Información en Andalucía (FIDETIA), as well as by the Department of Computer Science and Artificial Intelligence from Sevilla University.

Gheorghe Păun Mario de Jesús Pérez-Jiménez (Sevilla, May 2013)