Preface

This volume contains a selection of papers presented at the Ninth Workshop on Membrane Computing, WMC9, which took place in Edinburgh, UK, from July 28 to July 31, 2008. 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 five workshops were organized in Tarragona, Spain, in July 2003, in Milan, Italy, in June 2004, in Vienna, Austria, in July 2005, in Leiden, The Netherlands, in July 2006, and in Thessaloniki, Greece, in June 2007, with the proceedings published as volumes 2933, 3365, 3850, 4361, and 4860 of *Lecture Notes in Computer Science*.

The 2008 edition of WMC was organized at Heriot-Watt University, by the School of Mathematical and Computer Sciences, under the auspices of the European Molecular Computing Consortium (EMCC) and IEEE Computational Intelligence Society (Emergent Technologies Technical Committee, Molecular Computing Task Force). This time most of invited talks were given by speakers from outside the membrane computing community. The goal of this planing was to provide an opportunity for distinguished researchers from the bioinformatics and systems biology communities to learn about and to appreciate membrane systems as modeling platforms, while at the same time to allow the membrane computing community to learn about current challenges of bioinformatics and systems biology, especially those where membrane systems could be potentially useful.

The six invited speakers were: Vincent Danos (Edinburgh, UK), David Gilbert (Glasgow, UK), Paulien Hogeweg (Utrecht, The Netherlands), Markus Kirkilionis (Warwick, UK), Francisco-José Romero-Campero (Nottingham, UK), Stephen Wolfram (Champaign, IL - USA). Extended abstract or full papers related to most of these invited talks are included in the present volume.

All papers presented at the workshop were collected in a pre-proceedings volume, published by Heriot-Watt University; the volume was available during the workshop. Each of these papers was subject of at least three referee reports. The program committee consisted of Artiom Alhazov (Turku, Finland, and Chişinău, Moldova), David Corne (Edinburgh, UK) – Co-chair, Pilar De La Torre (Durham, USA), George Eleftherakis (Thessaloniki, Greece), Miguel-Angel Gutiérrez-Naranjo (Sevilla, Spain), Oscar H. Ibarra (Santa Barbara, CA, USA), Fairouz Kamareddine (Edinburgh, UK), Lila Kari (London, Canada), Alica Kelemenová (Opava, Czech Republic), Jetty Kleijn (Leiden, The Netherlands), Natalio Krasnogor (Nottingham, UK), Van Nguyen (Adelaide,

Australia), Linqiang Pan (Wuhan, China), Gheorghe Păun (Bucharest, Romania) – Chair, José Maria Sempere (Valencia, Spain), Gyorgy Vaszil (Budapest, Hungary), Sergey Verlan (Paris, France), Claudio Zandron (Milano, Italy).

A selection of 22 papers are included in the present volume. Most of them were significantly reworked after the meeting, taking also in the account discussions that took place during the workshop.

Two prizes were awarded during WMC9: one for the *best paper*, and another for *important contributions to membrane computing*.

Three papers were nominated for the first prize:

1. P.A. Abdulla, G. Delzano, L. Van Begin: On the qualitative analysis of conformon P Systems
2. M. Cardona, M.A. Colomer, M.J. Pérez-Jiménez, D. Sanuy, A. Margalida: Modeling ecosystems using P systems: the bearded vulture, a case study
3. V. Nguyen, D. Kearney, G. Gioiosa: A hardware implementation of nondeterministic maximally parallel object distribution in P systems

The jury (consisting of D. Corne, P. Frisco, and Gh. Păun) chose the first paper for the award.

The prize for *important contributions to membrane computing* was awarded to Mario J. Pérez-Jiménez, from Sevilla University, Spain, "for his continuous and successful enrichment of this field through his exemplary work". The prize consisted of a one year subscription to *Natural Computing* journal, published by Springer.

The Organizing committee consisted of Pierluigi Frisco – Chair, David Corne – Co-Chair, Elizabeth Bain Andrew – Secretary and David Li – web page developer.

The most complete source of information about membrane computing is the P systems web page from `http://ppage.psystems.eu`, and its mirror in China `http://bmc.hust.edu.cn/psystems`. The address of the workshop web site (designed by David Li) is `http://macs.hw.ac.uk/wmc9`. The logo of the workshop was designed by Anna Stoutjesdijk.

The workshop was sponsored by the School of Mathematical and Computer Sciences at Heriot-Watt University, the Engineering and Physical Sciences Research Council (EPSRC), the *International Journal on Natural Computing* by Springer, Oxford University Press, and the Scottish Bioinformatics Forum.

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