Preface

This volume originated in the **Workshop on Membrane Computing, WMC-CdeA 2002**, which took place in Curtea de Argeş, Romania, during August 19–23, 2002. This was the third annual workshop held in Curtea de Argeş. The first one, **Workshop on Multiset Processing, WMP-CdeA 2000**, took place in August 2000, and the proceedings were published in Lecture Notes in Computer Science, volume 2235. The second one, **Workshop on Membrane Computing, WMC-CdeA 2001**, took place in August 2001, and selected papers were published as a special issue of *Fundamenta Informaticae*, volume 49, numbers 1–3, 2002.

The aim of these workshops is to provide a stimulating environment for researchers working in the area covered by a given workshop, so that existing scientific collaborations can be strengthened, and new collaborations (and friendships) can be initiated. Indeed, all three workshops held up to now were of such character, with very international attendance and collaboration taking place across national and scientific boundaries.

The 2002 Workshop, WMC-CdeA 2002, was the first workshop of the Molecular Computing Network (MolCoNet) funded by the EU Commission in the Fifth Framework program Information Society Technologies (project number IST–2001–32008). The preproceedings of WMC-CdeA 2002, Publication No. 1 of MolCoNet, were available at the meeting. The current volume differs considerably from the preproceedings: some of the papers from the preproceedings were not selected for this volume, while some papers were invited for this volume although they did not appear in the preproceedings. Moreover, all the papers from the preproceedings that were selected for this volume are significantly improved – the new versions reflect discussions that took place in Curtea de Argeş and the scientific collaborations that were initiated there (also, these papers went through an additional refereeing round).

Most of the papers are of a mathematical (theoretical computer science) nature, dealing with: the computational power (D. Besozzi et al.; F. Bernardini and V. Manca; M. Cavaliere; R. Freund and A. Păun; P. Frisco and H.J. Hoogeboom; M. Madhu and K. Krithivasan) and efficiency (E. Czeizler; M.J. Perez-Jimenez et al.) of membrane systems, applications (A. Atanasiu; G. Bel Enguix; G. Ciobanu et al.) and computer implementations/simulations (F. Arroyo et al.; D. Balbontin-Noval et al.), and links with other research areas (T. Bălănescu et al.). Some papers solve open problems from the literature (P. Sosík and R. Freund), or formulate new research topics (S. Marcus) or new approaches (R. Ceterchi and C. Martin-Vide; R. Freund and M. Oswald; P. Frisco and S. Ji; A. Obtulowicz). A number of papers provide mathematical (J.-L. Giavitto et al.; M. Kudlek and V. Mitrana) and biological backgrounds (I.I. Ardelean; R. Vasilco et al.). The original motivation for membrane systems came from the functioning of biological membranes, and although most of the current research

is oriented towards natural computing (more specifically, human-designed computing inspired by nature), it is hoped that in the long run the research on membrane computing will provide concepts and results useful for the understanding of the biology of membranes, and the role that membranes play in the functioning of living cells, and in communication between cells. Therefore, it is a nice alphabetical coincidence that the first and the last papers of the volume are authored by biologists, providing in this way the "biological bracketing" of the contents of this volume.

The fact that the WORKshop was really a place of interaction is witnessed by many papers with several co-authors. A convincing testimony to the creative atmosphere of the workshop is the number of papers co-authored by Rudi Freund. All these papers are the result of the intensive work that took place in Curtea de Argeş, in spite of the temptations for Rudi to spend more time with his daughter, Magdalena Franziska Patricia, 15 months in August 2002. In the "official diploma" that she received during the workshop dinner, she was qualified as "the most sensible result of the Workshops of Membrane Computing."

This MolCoNet workshop was organized by the Institute of Mathematics of the Romanian Academy, Bucharest, the University of Milano-Bicocca, Italy, and the "Vlaicu Vodă" National College of Curtea de Argeş, under the auspices of the European Molecular Computing Consortium. The workshop was also supported by the Institute of Microtechnology, Bucharest (grant PNCDI-MATNANTECH No. 68/2001 BIONANONET). The program committee consisted of Carlos Martin-Vide (Tarragona, Spain), Giancarlo Mauri (Milano, Italy), Gheorghe Păun (Bucharest, Romania, and Tarragona, Spain), Grzegorz Rozenberg (Leiden, The Netherlands), and Arto Salomaa (Turku, Finland).

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November 2002   Gheorghe Păun
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