

# Table of Contents

## Invited Lectures

Three Small Universal Turing Machines . . . . .	1
<i>Claudio Baiocchi</i>	
Computation in Gene Networks . . . . .	11
<i>Asa Ben-Hur, Hava T. Siegelmann</i>	
Power, Puzzles and Properties of Entanglement . . . . .	25
<i>Jozef Gruska, Hiroshi Imai</i>	
Combinatorial and Computational Problems on Finite Sets of Words . . . . .	69
<i>Juhani Karhumäki</i>	
Computing with Membranes (P Systems): Universality Results . . . . .	82
<i>Carlos Martín-Vide, Gheorghe Păun</i>	
A Simple Universal Logic Element and Cellular Automata for Reversible Computing . . . . .	102
<i>Kenichi Morita</i>	
Some Applications of the Decidability of DPDA's Equivalence. . . . .	114
<i>Géraud Sénizergues</i>	
The Equivalence Problem for Computational Models: Decidable and Undecidable Cases . . . . .	133
<i>Vladimir A. Zakharov</i>	
Two Normal Forms for Rewriting P Systems . . . . .	153
<i>Claudio Zandron, Claudio Ferretti, Giancarlo Mauri</i>	

## Technical Contributions

On a Conjecture of Kůrka.	
A Turing Machine with No Periodic Configurations . . . . .	165
<i>Vincent D. Blondel, Julien Cassaigne, Codrin Nichitui</i>	
On the Transition Graphs of Turing Machines . . . . .	177
<i>Didier Caucal</i>	
JC-Nets . . . . .	190
<i>Gabriel Ciobanu, Mihai Rotaru</i>	
Nonterminal Complexity of Programmed Grammars . . . . .	202
<i>Henning Fernau</i>	

On the Number of Non-terminal Symbols in Graph-Controlled, Programmed and Matrix Grammars . . . . .	214
<i>Rudolf Freund, Gheorghe Păun</i>	
A Direct Construction of a Universal Extended H System . . . . .	226
<i>Pierluigi Frisco</i>	
Speeding-Up Cellular Automata by Alternations . . . . .	240
<i>Chuzo Iwamoto, Katsuyuki Tateishi, Kenichi Morita, Katsunobu Imai</i>	
Efficient Universal Pushdown Cellular Automata and Their Application to Complexity . . . . .	252
<i>Martin Kutrib</i>	
Firing Squad Synchronization Problem on Bidimensional Cellular Automata with Communication Constraints . . . .	264
<i>Salvatore La Torre, Margherita Napoli, Mimmo Parente</i>	
P Systems with Membrane Creation: Universality and Efficiency . . . . .	276
<i>Madhu Mutyam, Kamala Krithivasan</i>	
On the Computational Power of a Continuous-Space Optical Model of Computation . . . . .	288
<i>Thomas J. Naughton, Damien Woods</i>	
On a P-optimal Proof System for the Set of All Satisfiable Boolean Formulas (SAT) . . . . .	300
<i>Zenon Sadowski</i>	
D0L System + Watson-Crick Complementarity=Universal Computation . .	308
<i>Petr Sosík</i>	
<b>Author Index</b> . . . . .	321

Machines, Computations, and Universality  
Third International Conference, MCU 2001 Chisinau,  
Moldava, May 23-27, 2001 Proceedings  
Margenstern, M.; Rogozhin, Y. (Eds.)  
2001, VIII, 328 p., Softcover  
ISBN: 978-3-540-42121-4