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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Preface -- Organization -- Abstracts of Invited Talks -- Two Dimensional Cellular Automata and Computational Complexity -- Fixed Points in Boolean Networks -- Contents -- Invited Papers -- Strict Asymptotic Nilpotency in Cellular Automata -- 1 Introduction -- 2 Nilpotency on Multidimensional Full Shifts -- 3 Nilpotency from a Subset of Configurations -- 4 Nilpotency on Multidimensional Subshifts -- 4.1 SFTs -- 4.2 Sofics (and Beyond) -- 5 Nilpotency as Uniform Convergence to a Point -- 6 Cellular Automata on Graphs and Groups

-- 6.1 What Works on General Groups? -- 7 CA with Very Sparse Spacetime Diagrams -- References -- Regular Papers -- Infinite Two-Dimensional Strong Prefix Codes: Characterization and Properties -- 1 Introduction -- 2 Preliminaries -- 3 Two-Dimensional Codes -- 4 Infinite Strong Prefix Codes -- 5 Measure of Two-Dimensional Languages and Codes -- References -- Restricted Binary Strings and Generalized Fibonacci Numbers -- 1 Introduction -- 2 A Simple Bijection and Some Applications -- 3 Number of 1's in the Strings of  $F_n(k)$  -- 4 Conclusion -- References -- Von Neumann Regular Cellular Automata -- 1 Introduction -- 2 Regular Cellular Automata -- 3 Regular Finite Cellular Automata -- 4 Regular Linear Cellular Automata -- References -- Enumerative Results on the Schroder Pattern Poset -- 1 Introduction -- 2 The Covering Relation in the Schroder Pattern Poset -- 3 Enumerative Results on Pattern Avoiding Schroder Paths -- 3.1 The Pattern  $(UD)k$  -- 3.2 The Pattern  $Uk Dk$  -- 3.3 The Pattern  $H_2 k$  -- 3.4 The Pattern  $UH_2 k-1D$  -- 3.5 The Pattern  $H_2 k-1UD$  -- 4 Suggestions for Further Work -- References -- Canonical Form of Gray Codes in  $N$ -cubes -- 1 Introduction -- 2 Canonical Form of Gray Codes -- 2.1 Isomorphic Cycles -- 2.2 Preliminary Tools -- 2.3 Canonical Form -- 2.4 Examples of Application of  $C$ . 2.5 Discussion over the Interest of the Canonical Form -- 3 Balanced Gray Codes Generation Algorithm -- 4 Application -- 4.1 Validation of the Canonical Form and the Generation Algorithm -- 4.2 Application of the Balanced Gray Code Generation Algorithm -- 5 Conclusion -- References -- Equicontinuity and Sensitivity of Nondeterministic Cellular Automata -- 1 Introduction -- 2 Preliminaries -- 2.1 Cellular Automata -- 2.2 Nondeterministic Cellular Automata -- 3 Equicontinuity -- 4 Sensitivity -- 5 Transitivity -- 6 Conclusions -- References -- Diploid Cellular Automata: First Experiments on the Random Mixtures of Two Elementary Rules -- 1 Introduction -- 2 Definitions -- 3 First Steps in the Space of Diploids -- 3.1 Experimental Protocol -- 3.2 Mixtures with the Null Rule (ECA 0) -- 3.3 Mixtures with the Identity Rule: -asynchronous ECA -- 3.4 Mixtures with the Inversion Rule (ECA 51) -- 4 Discussion -- References -- On the Computational Complexity of the Freezing Non-strict Majority Automata -- 1 Introduction -- 2 Preliminaries -- 3 A Characterization of Stable Sets -- 4 The Algorithm -- 5 Conclusion -- References -- Distortion in One-Head Machines and Cellular Automata -- 1 Introduction -- 2 Definitions -- 2.1 Subshifts and Cellular Automata -- 2.2 Neighborhoods and Radii -- 2.3 Distortion -- 3 Distorted One-Head Machines -- 3.1 One-Head Machines -- 3.2 Speed Trichotomy -- 3.3 Aperiodic Machines -- 3.4 Distortion on Sofic Shifts -- 3.5 Undecidability of Distortion -- 4 Unbalanced Distortion in General Subshifts -- 5 Future Work -- References -- Fast One-Way Cellular Automata with Reversible Mealy Cells -- 1 Introduction -- 2 Preliminaries and Definitions -- 3 The Computational Capacity of One-Way Mealy Cellular Automata with Weakly Reversible Cells -- 4 Reversible One-Way Partitioned Cellular Automata -- 5 Conclusions -- References.

Enumerating Orthogonal Latin Squares Generated by Bipermutive Cellular Automata -- 1 Introduction -- 2 Preliminaries -- 2.1 Basic Definitions -- 2.2 Latin Squares Generated by Cellular Automata -- 3 Main Results -- 4 Enumeration of Pairwise Balanced Bipermutive Rules -- 5 Conclusions -- References -- Filling Curves Constructed in Cellular Automata with Aperiodic Tiling -- 1 Introduction -- 2 Constructions and Fillings -- 2.1 Cellular Automata -- 2.2 Tile Set -- 3 Aperiodic Tile Set -- 3.1 From Tile Set Determinism to Cellular Automaton -- 3.2 A NW-Deterministic Aperiodic Tile Set -- 4 Aperiodic

Filling -- 4.1 Linear Functions -- 4.2 Over-Logarithmic Growth Functions -- 5 Conclusions and Perspectives -- References -- Some Computational Limits of Trellis Automata -- 1 Introduction -- 2 Trellis Automaton -- 3 Factors Diagram for a Language -- 4 Trellis Automaton Patterns and Language Patterns -- 5 Counting Argument -- 6 Some Non Trellis Language -- 7 Conclusion -- References -- Turing-Completeness of Asynchronous Non-camouflage Cellular Automata -- 1 Introduction -- 2 Preliminaries -- 2.1 Asynchronous CA -- 2.2 Requirements -- 2.3 Priese System -- 3 Proposing Asynchronous Non-camouflage CA -- 3.1 Proposed CA M -- 3.2 Simulation of s-automaton -- 4 Discussion -- References -- Author Index.

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## Sommario/riassunto

This volume constitutes the thoroughly refereed proceedings of the 23rd IFIP WG 1.5 International Workshop on Cellular Automata and Discrete Complex Systems, AUTOMATA 2017, held in Milan, Italy, in June 2017. The 14 full papers presented together with one full-length invited paper and 2 invited talk abstracts were carefully reviewed and selected from a total of 28 submissions. The papers feature research on correlated models of automata. The topics include aspects and features of such models: dynamics; topological, ergodic, and algebraic aspects; algorithmic and complexity issues; emergent properties; formal languages; symbolic dynamics; tilings; models of parallelism and distributed systems; timing schemes; synchronous versus asynchronous models; phenomenological descriptions; scientific modelling; practical applications. .

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