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Coordination Mechanisms -- Graph Algorithms -- Equitable Colorings of Bounded Treewidth Graphs -- The Bidimensional Theory of Bounded-Genus Graphs -- Parallel Knock-Out Schemes in Networks -- Online Algorithms for Disk Graphs -- Approximations -- Protein Folding in the HP Model on Grid Lattices with Diagonals -- Optimization, Games, and Quantified Constraint Satisfaction -- Approximating Boolean Functions by OBDDs -- On Approximation Hardness of the Minimum 2SAT-DELETION Problem -- Graphs and Complexity -- Group Coloring and List Group Coloring Are ?2 P -Complete -- Complexity Results in Graph Reconstruction -- Generating Paths and Cuts in Multi-pole (Di)graphs -- Packing Directed Cycles Efficiently -- Circuits -- The Complexity of Membership Problems for Circuits over Sets of Integers -- Some Meet-in-the-Middle Circuit Lower Bounds -- The Enumerability of P Collapses P to NC -- On NC1 Boolean Circuit Composition of Non-interactive Perfect Zero-Knowledge -- General Complexity -- All Superlinear Inverse Schemes Are coNP-Hard -- The Complexity of Equivalence and Isomorphism of Systems of Equations over Finite Groups -- Generation Problems -- One Query Reducibilities Between Partial Information Classes -- Automata -- A New Dimension Sensitive Property for Cellular Automata -- Captive Cellular Automata -- Simulating 3D Cellular Automata with 2D Cellular Automata -- Graph Exploration by a Finite Automaton -- Parametrized and Kolmogorov Complexity -- On Polynomially Time Bounded Symmetry of Information -- Scaled Dimension and the Kolmogorov Complexity of Turing-Hard Sets -- A Geometric Approach to Parameterized Algorithms for Domination Problems on Planar Graphs -- Polynomial Time Approximation Schemes and Parameterized Complexity -- Semantics -- Epistemic Foundation of the Well-Founded Semantics over Bilattices -- Structural Model Checking for Communicating Hierarchical Machines -- Compositional Verification: Decidability Issues Using Graph Substitutions -- Event Structures for Resolvable Conflict -- Scheduling -- Optimal Preemptive Scheduling for General Target Functions -- The Price of Anarchy for Polynomial Social Cost -- Agent-Based Information Handling in Large Networks -- Approximating Earliest Arrival Flows with Flow-Dependent Transit Times -- Algebraic Theory of Languages -- A Hierarchy of Irreducible Sofic Shifts -- Membership and Reachability Problems for Row-Monomial Transformations -- On Pseudovarieties of Semiring Homomorphisms -- An Algebraic Generalization of ?-Regular Languages -- Games -- A Protocol for Serializing Unique Strategies -- A Combinatorial Strongly Subexponential Strategy Improvement Algorithm for Mean Payoff Games -- When Can You Play Positionally? -- Languages -- The Dual of Concatenation -- Computational Aspects of Disjunctive Sequences -- Decidability of Trajectory-Based Equations -- Geometry -- Efficient View Point Selection for Silhouettes of Convex Polyhedra -- Angles and Lengths in Reconfigurations of Polygons and Polyhedra -- Improved Bounds and Schemes for the Declustering Problem -- Crossing Number Is Hard for Cubic Graphs -- Languages and Complexity -- A Reducibility for the Dot-Depth Hierarchy -- Sublogarithmic Ambiguity -- An Elementary Proof for the Non-parametrizability of the Equation xyz=zvx -- A Generalization of Repetition Threshold -- Quantum Computing -- An Algorithmic Argument for Nonadaptive Query Complexity Lower Bounds on Advised Quantum Computation -- Universal Test for Quantum One-Way Permutations -- A Common Algebraic Description for Probabilistic and Quantum Computations -- XML -- Extraction and Implication of Path Constraints -- Schema Evolution for XML: A Consistency-Preserving Approach -- Complexity of Decision Problems for Simple Regular

Expressions.

Sommario/riassunto

This volume contains the papers presented at the 29th Symposium on Mat- matical Foundations of Computer Science, MFCS 2004, held in Prague, Czech Republic, August 22–27, 2004. The conference was organized by the Institute for Theoretical Computer Science (ITI) and the Department of Theoretical Com- terScienceandMathematicalLogic (KTIML)oftheFacultyofMathematicsand Physics of Charles University in Prague. It was supported in part by the Eu- pean Association for Theoretical Computer Science (EATCS) and the European Research Consortium for Informatics and Mathematics (ERCIM). Traditionally, the MFCS symposia encourage high-quality research in all branches of theoretical computer science. Ranging in scope from automata, f- mal languages, data structures, algorithms and computational geometry to c- plexitytheory,modelsofcomputation, andapplicationsincludingcomputational biology, cryptography, security and arti?cial intelligence, the conference o?ers a unique opportunity to researchers from diverse areas to meet and present their results to a general audience. The scienti?c program of this year's MFCS took place in the lecture halls of the recently reconstructed building of the Faculty of Mathematics and P- sics in the historical center of Prague, with the famous Prague Castle and other celebratedhistoricalmonumentsinsight. Theviewfromthewindowswasach- lengingcompetitionforthespeakersinthe? ghtfortheattentionoftheaudience. But we did not fear the result: Due to the unusually tough competition for this year's MFCS, the admitted presentations certainly attracted considerable in- rest. The conference program (and the proceedings) consisted of 60 contributed papers selected by the Program Committee from a total of 167 submissions.