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Nota di contenuto	Invited Talks -- Self-Adjusting Computation -- The Past, Present, and Future of Web Search Engines -- What Do Program Logics and Type Systems Have in Common? -- Feasible Proofs and Computations: Partnership and Fusion -- Grammar Compression, LZ-Encodings, and String Algorithms with Implicit Input -- Testing, Optimizaton, and Games -- Contributed Papers -- Deciding Knowledge in Security Protocols Under Equational Theories -- Representing Nested Inductive Types Using W-Types -- Algorithms for Multi-product Pricing -- Exponential Lower Bounds for the Running Time of DPLL Algorithms on Satisfiable Formulas -- Linear and Branching Metrics for Quantitative Transition Systems -- Learning a Hidden Subgraph -- Optimal

Reachability for Weighted Timed Games -- Wavelength Assignment in Optical Networks with Fixed Fiber Capacity -- External Memory Algorithms for Diameter and All-Pairs Shortest-Paths on Sparse Graphs -- A ?-Calculus for Resource Separation -- The Power of Verification for One-Parameter Agents -- Group Spreading: A Protocol for Provably Secure Distributed Name Service -- Further Improvements in Competitive Guarantees for QoS Buffering -- Competition-Induced Preferential Attachment -- Approximating Longest Directed Paths and Cycles -- Definitions and Bounds for Self-Healing Key Distribution Schemes -- Tree-Walking Automata Cannot Be Determinized -- Projecting Games on Hypercoherences -- An Analog Characterization of Elementarily Computable Functions over the Real Numbers -- Model Checking with Multi-valued Logics -- The Complexity of Partition Functions -- Comparing Recursion, Replication, and Iteration in Process Calculi -- Dynamic Price Sequence and Incentive Compatibility -- The Complexity of Equivariant Unification -- Coordination Mechanisms -- Online Scheduling of Equal-Length Jobs: Randomization and Restarts Help -- Efficient Computation of Equilibrium Prices for Markets with Leontief Utilities -- Coloring Semirandom Graphs Optimally -- Sublinear-Time Approximation for Clustering Via Random Sampling -- Solving Two-Variable Word Equations -- Backtracking Games and Inflationary Fixed Points -- A PTAS for Embedding Hypergraph in a Cycle -- Towards an Algebraic Theory of Typed Mobile Processes -- Ecological Turing Machines -- Locally Consistent Constraint Satisfaction Problems -- Quantum Query Complexity of Some Graph Problems -- A Domain Theoretic Account of Picard’s Theorem -- Interactive Observability in Ludics -- Easily Refutable Subformulas of Large Random 3CNF Formulas -- On Graph Problems in a Semi-streaming Model -- Linear Tolls Suffice: New Bounds and Algorithms for Tolls in Single Source Networks -- Bounded Fixed-Parameter Tractability and log2 n Nondeterministic Bits -- Exact (Exponential) Algorithms for Treewidth and Minimum Fill-In -- Fast Parameterized Algorithms for Graphs on Surfaces: Linear Kernel and Exponential Speed-Up -- Selfish Unsplittable Flows -- A General Technique for Managing Strings in Comparison-Driven Data Structures -- Greedy Regular Expression Matching -- A Time Algorithm for d-Dimensional Protein Folding in the HP-Model -- Nash Equilibria in Discrete Routing Games with Convex Latency Functions -- Improved Results for Data Migration and Open Shop Scheduling -- Deterministic M2M Multicast in Radio Networks -- Syntactic Control of Concurrency -- Linear-Time List Decoding in Error-Free Settings -- A Categorical Model for the Geometry of Interaction -- Testing Monotonicity over Graph Products -- The Minimum-Entropy Set Cover Problem -- Communication Versus Computation -- Optimal Website Design with the Constrained Subtree Selection Problem -- Simple Permutations Mix Well -- Closest Pair Problems in Very High Dimensions -- Universality in Quantum Computation -- Approximation Algorithms for the Capacitated Minimum Spanning Tree Problem and Its Variants in Network Design -- Fairness to All While Downsizing -- A Generalisation of Pre-logical Predicates to Simply Typed Formal Systems -- A Faster Algorithm for Minimum Cycle Basis of Graphs -- The Black-Box Complexity of Nearest Neighbor Search -- Regular Solutions of Language Inequalities and Well Quasi-orders -- A Calculus of Coroutines -- Almost Optimal Decentralized Routing in Long-Range Contact Networks -- Word Problems on Compressed Words -- Complexity of Pseudoknot Prediction in Simple Models -- Property Testing of Regular Tree Languages -- Entropy as a Fixed Point -- Transparent Long Proofs: A First PCP Theorem for -- A Time Lower Bound for Satisfiability --

Some Results on Effective Randomness -- A Polynomial Quantum Query Lower Bound for the Set Equality Problem -- Succinct Representations of Functions -- A Note on Karr's Algorithm -- The Existence and Efficient Construction of Large Independent Sets in General Random Intersection Graphs -- Efficient Consistency Proofs for Generalized Queries on a Committed Database -- A -Approximation Algorithm for Rectangle Tiling -- Extensional Theories and Rewriting -- Hardness of String Similarity Search and Other Indexing Problems -- A Syntactic Characterization of Distributive LTL Queries -- Online Scheduling with Bounded Migration -- On the Expressive Power of Monadic Least Fixed Point Logic -- Counting in Trees for Free -- Games with Winning Conditions of High Borel Complexity -- Propositional PSPACE Reasoning with Boolean Programs Versus Quantified Boolean Formulas -- LA, Permutations, and the Hajós Calculus -- A Calibration of Ineffective Theorems of Analysis in a Hierarchy of Semi-classical Logical Principles -- Efficiently Computing Succinct Trade-Off Curves -- On Randomization Versus Synchronization in Distributed Systems -- A New Algorithm for Optimal Constraint Satisfaction and Its Implications -- On the Power of Ambainis's Lower Bounds.

Sommario/riassunto

The 31st International Colloquium on Automata, Languages, and Programming (ICALP 2004) was held from July 12 to July 16 in Turku, Finland. This volume contains all contributed papers presented at ICALP 2004, together with the invitedlecturesbyPhilippeFlajolet(INRIA), RobertHarper(CarnegieMellon), Monika Henzinger (Google), Martin Hofmann (Munich), Alexander Razborov (Princeton and Moscow), Wojciech Rytter (Warsaw and NJIT), and Mihalis Yannakakis (Stanford). ICALP is a series of annual conferences of the European Association for Theoretical Computer Science (EATCS). The ?rst ICALP took place in 1972 and the ICALP program currently consists of track A (focusing on algorithms, automata, complexity, and cryptography) and track B (focusing on databases, logics, semantics, and principles of programming). Inresponsetothecallforpapers, theprogramcommitteereceived379papers, 272 for track A and 107 for track B. This is the highest number of submitted papersinthehistoryofICALPconferences. Theprogramcommitteesselected97 papersforinclusionintothescienti? cprogram.Theprogramcommitteefortrack A met on March 27 and 28 in Barcelona and selected 69 papers from track A. TheprogramcommitteefortrackBselected28papersfromtrackBinthecours e of an electronic discussion lasting for two weeks in the second half of March. The selections were based on originality, quality, and relevance to theor- ical computer science. We wish to thank all authors who submitted extended abstracts for consideration, the program committee for its hard work, and all referees who assisted the program committee in the evaluation process.