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Nota di contenuto Invited Talks -- Global Development via Local Observational

Construction Steps -- Edge-Colouring Pairs of Binary Trees: Towards a Concise Proof of the Four-Colour Theorem of Planar Maps --Applications of Finite Automata -- Approximability of the Minimum Bisection Problem: An Algorithmic Challenge -- Low Stretch Spanning Trees -- Contributed Talks -- On Radiocoloring Hierarchically Specified Planar Graphs: -Completeness and Approximations -- Finite Domain Constraint Satisfaction Using Quantum Computation -- Fast Algorithms with Algebraic Monge Properties -- Packing Edges in Random Regular Graphs -- A Lower Bound Technique for Nondeterministic Graph-Driven Read-Once-Branching Programs and Its Applications -- Matroid Intersections, Polymatroid Inequalities, and Related Problems --Accessibility in Automata on Scattered Linear Orderings -- On Infinite Terms Having a Decidable Monadic Theory -- A Chomsky-Like Hierarchy of Infinite Graphs -- Competitive Analysis of On-line Stream Merging Algorithms -- Coloring k-Colorable Semirandom Graphs in Polynomial Expected Time via Semidefinite Programming -- On Word Equations in One Variable -- Autoreducibility of Random Sets: A Sharp Bound on the Density of Guessed Bits -- Two-Way Finite State Transducers with Nested Pebbles -- Optimal Non-preemptive Semionline Scheduling on Two Related Machines -- More on Weighted Servers or Fifo is Better than Lru -- On Maximizing the Throughput of

Multiprocessor Tasks -- Some Results on Random Unsatisfiable k-Sat Instances and Approximation Algorithms Applied to Random Structures -- Evolutive Tandem Repeats Using Hamming Distance -- Subgraph Isomorphism, log-Bounded Fragmentation and Graphs of (Locally) Bounded Treewidth -- Computing Partial Information out of Intractable One — The First Digit of 2n at Base 3 as an Example -- Algorithms for Computing Small NFAs -- Space-Economical Construction of Index Structures for All Suffixes of a String -- An Explicit Lower Bound of 5n? o(n) for Boolean Circuits -- Computational Complexity in the Hyperbolic Plane -- On a Mereological System for Relational Software Specifications -- An Optimal Lower Bound for Resolution with 2-Conjunctions -- Improved Parameterized Algorithms for Planar Dominating Set -- Optimal Free Binary Decision Diagrams for Computation of EARn -- Unification Modulo Associativity and Idempotency Is NP-complete -- On the Complexity of Semantic Equivalences for Pushdown Automata and BPA -- An Improved Algorithm for the Membership Problem for Extended Regular Expressions -- Efficient Algorithms for Locating the Length-Constrained Heaviest Segments, with Applications to Biomolecular Sequence Analysis -- Derivation of Rational Expressions with Multiplicity -- Hypothesis-Founded Semantics for Datalog Programs with Negation -- On the Problem of Scheduling Flows on Distributed Networks -- Unit Testing for Casl Architectural Specifications --Symbolic Semantics and Analysis for Crypto-CCS with (Almost) Generic Inference Systems -- The Complexity of Tree Multicolorings -- On Verifying Fair Lossy Channel Systems -- Parameterized Counting Problems -- On the Construction of Effective Random Sets -- On the Structure of the Simulation Order of Proof Systems -- Comorphism-Based Grothendieck Logics -- Finite Test-Sets for Overlap-Free Morphisms -- Characterizing Simpler Recognizable Sets of Integers --Towards a Cardinality Theorem for Finite Automata -- An Approximation Semantics for the Propositional Mu-Calculus.

## Sommario/riassunto

This book constitutes the refereed proceedings of the 27th International Symposium on Mathematical Foundations of Computer Science, MFCS 2002, held in Warsaw, Poland in August 2002. The 48 revised full papers presented together with 5 invited papers were carefully reviewed and selected from 108 submissions. All relevant aspects of theoretical computer science are addressed, ranging from discrete mathematics, combinatorial optimization, graph theory, algorithms, and complexity to programming theory, formal methods, and mathematical logic.