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Invited Talk Game Semantics: Achievements and Prospects Clique Is Hard to Approximate within n 1-o(1) Approximating the Independence Number and the Chromatic Number in Expected Polynomial Time Closed Types as a Simple Approach to Safe Imperative Multi-stage Programming A Statically Allocated Parallel Functional Language An Optimal Minimum Spanning Tree Algorithm Improved Shortest Paths on the Word RAM Improved Algorithms for Finding Level Ancestors in Dynamic Trees Lax Logical Relations Reasoning about Idealized ALGOL Using Regular Languages The

Transformation as a Conceptual and Formal Framework for System Modeling and Model Evolution -- Monotone Proofs of the Pigeon Hole Principle -- Fully-Abstract Statecharts Semantics via Intuitionistic Kripke Models -- Algebraic Models for Contextual Nets --Asymptotically Optimal Bounds for OBDDs and the Solution of Some Basic OBDD Problems -- Measures of Nondeterminism in Finite Automata -- LTL Is Expressively Complete for Mazurkiewicz Traces --An Automata-Theoretic Completeness Proof for Interval Temporal Logic -- Invited Talk -- Which NP-Hard Optimization Problems Admit Nontrivial Efficient Approximation Algorithms? -- Deterministic Algorithms for k-SAT Based on Covering Codes and Local Search -- Closest Vectors, Successive Minima, and Dual HKZ-Bases of Lattices -- Variable Independence, Quantifier Elimination, and Constraint Representations -- Constraint Satisfaction Problems and Finite Algebras -- An Optimal Online Algorithm for Bounded Space Variable-Sized Bin Packing --Resource Augmentation for Online Bounded Space Bin Packing --Optimal Projective Algorithms for the List Update Problem -- Efficient Verification Algorithms for One-Counter Processes -- On the Complexity of Bisimulation Problems for Basic Parallel Processes --Decidable First-Order Transition Logics for PA-Processes -- Invited Talk -- Non Interference for the Analysis of Cryptographic Protocols --Average Bit-Complexity of Euclidean Algorithms -- Planar Maps and Airy Phenomena -- Analysing Input/Output-Capabilities of Mobile Processes with a Generic Type System -- Information Flow vs. Resource Access in the Asynchronous Pi-Calculus (Extended Abstract) -- Award Talk -- The Genomics Revolution and Its Challenges for Algorithmic Research -- Invited Talk -- Alternating the Temporal Picture for Safety -- Necessary and Sufficient Assumptions for Non-interactive Zero-Knowledge Proofs of Knowledge for All NP Relations -- Fast Verification of Any Remote Procedure Call: Short Witness-Indistinguishable One-Round Proofs for NP -- A New Unfolding Approach to LTL Model Checking -- Reasoning about Message Passing in Finite State Environments -- Extended Notions of Security for Multicast Public Key Cryptosystems -- One-Round Secure Computation and Secure Autonomous Mobile Agents -- Round-Optimal and Abuse-Free Optimistic Multi-party Contract Signing -- On the Centralizer of a Finite Set -- On the Power of Tree-Walking Automata --Determinization of Transducers over Infinite Words -- Invited Talk --Constraint Programming and Graph Algorithms -- Scalable Secure Storage when Half the System Is Faulty -- Generating Partial and Multiple Transversals of a Hypergraph -- Revisiting the Correspondence between Cut Elimination and Normalisation --Negation Elimination from Simple Equational Formulae -- Hardness of Set Cover with Intersection 1 -- Strong Inapproximability of the Basic k-Spanner Problem -- Infinite Series-Parallel Posets: Logic and Languages -- On Deciding if Deterministic Rabin Language Is in Büchi Class -- On Message Sequence Graphs and Finitely Generated Regular MSC Languages -- Invited Talk -- Pseudorandomness -- A Bound on the Capacity of Backoff and Acknowledgement-Based Protocols --Deterministic Radio Broadcasting -- An ?-Complete Equational Specification of Interleaving -- A Complete Axiomatization for Observational Congruence of Prioritized Finite-State Behaviors -- Tight Size Bounds for Packet Headers in Narrow Meshes -- Wavelength Assignment Problem on All-Optical Networks with k Fibres per Link --On the Logical Characterisation of Performability Properties -- On the Representation of Timed Polyhedra -- Invited Talk -- Min-wise Independent Permutations: Theory and Practice -- Testing Acyclicity of Directed Graphs in Sublinear Time -- Computing the Girth of a Planar

Graph -- Lower Bounds Are Not Easier over the Reals: Inside PH -- Unlearning Helps -- Fast Approximation Schemes for Euclidean Multi-connectivity Problems -- Approximate TSP in Graphs with Forbidden Minors -- Polynomial Time Approximation Schemes for General Multiprocessor Job Shop Scheduling -- The Many Faces of a Translation -- Gales and the Constructive Dimension of Individual Sequences -- The Global Power of Additional Queries to p-Random Oracles -- Homogenization and the Polynomial Calculus.

## Sommario/riassunto

This book constitutes the refereed proceedings of the 27th International Colloquium on Automata, Languages and Programming, ICALP 2000, held in Geneva, Switzerland in July 2000. The 69 revised full papers presented together with nine invited contributions were carefully reviewed and selected from a total of 196 extended abstracts submitted for the two tracks on algorithms, automata, complexity, and games and on logic, semantics, and programming theory. All in all, the volume presents an unique snapshot of the state-of-the-art in theoretical computer science.