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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Invited Papers -- Well-Founded and Partial Stable Semantics Logical Aspects -- The Reachability Problem over Infinite Graphs -- Kolmogorov Complexity and Model Selection -- Automatic Verification of Heap-Manipulating Programs Using Separation Logic -- Accepted Papers -- Canonical Calculi: Invertibility, Axiom Expansion and (Non)-determinism -- Integrality Property in Preemptive Parallel Machine Scheduling -- Characterizing the Existence of Optimal Proof Systems

and Complete Sets for Promise Classes -- k-SAT Is No Harder Than Decision-Unique-k-SAT -- Unique Decipherability in the Monoid of Languages: An Application of Rational Relations -- Concurrently Non-malleable Black-Box Zero Knowledge in the Bare Public-Key Model -- Approximability Distance in the Space of H-Colourability Problems -- On Random Ordering Constraints -- Depth Reduction for Circuits with a Single Layer of Modular Counting Gates -- A Feebly Secure Trapdoor Function -- Partitioning Graphs into Connected Parts -- Structural Complexity of AvgBPP -- Lower Bounds for the Determinantal Complexity of Explicit Low Degree Polynomials -- Simulation of Arithmetical Circuits by Branching Programs with Preservation of Constant Width and Syntactic Multilinearity -- One-Nonterminal Conjunctive Grammars over a Unary Alphabet -- Concatenation of Regular Languages and Descriptional Complexity -- Approximability of the Maximum Solution Problem for Certain Families of Algebras -- Complete Complexity Classification of Short Shop Scheduling -- Compressed Word Problems in HNN-Extensions and Amalgamated Products -- Variations on Muchnik’s Conditional Complexity Theorem -- An Optimal Bloom Filter Replacement Based on Matrix Solving -- Aperiodicity Measure for Infinite Sequences -- On the Complexity of Matroid Isomorphism Problems -- Breaking Anonymity byLearning a Unique Minimum Hitting Set -- The Budgeted Unique Coverage Problem and Color-Coding -- Formal Verification of Gate-Level Computer Systems -- On Models of a Nondeterministic Computation -- New Plain-Exponential Time Classes for Graph Homomorphism -- Languages Recognized with Unbounded Error by Quantum Finite Automata.

Sommario/riassunto

The 4th International Computer Science Symposium in Russia (CSR 2009) was held August 18-23,2009 in Novosibirsk,Russia, hosted by the Sobolev Institute of Mathematics and Novosibirsk State University. It was the fourth event in the series of regular international meetings, following CSR 2006 in St. Petersburg, CSR 2007 in Ekaterinburg, and CSR 2008 in Moscow. The opening lecture was given by Andrei Voronkov, and four other invited plenary lectures were given by Sergei Odintsov, Wolfgang Thomas, Nikolai Vereshchagin, and Hongseok Yang. This volume contains all the accepted papers and some of the abstracts of the invited speakers. The scope of the proposed topics for the symposium was quite broad and covered basically all areas of computer science. We received 66 papers in total, and the Program Committee selected 29. Yandex provided the Best Student Paper Awards; the recepients of these awards were selected by the Program Committee: - Dmitry Itsykson, "Structural complexity of AvgBPP" - Yuri Pritykin and Julya Ulyashkina, "Aperiodicity measure for in'nite sequences." The reviewing processwasorganizedusing the EasyChairconferencesystem, created by Andrei Voronkov. We are grateful to our sponsors: - Russian Foundation for Basic Research - Yandex (the largest Russian Internet portal providing key Web services). We also thank the group of local organizers and in particular Pavel Salimov.