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Nota di contenuto	Contributed Talks of APPROX -- Designing Networks with Existing Traffic to Support Fast Restoration -- Simultaneous Source Location -- Computationally-Feasible Truthful Auctions for Convex Bundles -- Randomized Approximation Algorithms for Set Multicover Problems with Applications to Reverse Engineering of Protein and Gene Networks -- On the Crossing Spanning Tree Problem -- A 3/4-Approximation Algorithm for Maximum ATSP with Weights Zero and One -- Maximum Coverage Problem with Group Budget Constraints and Applications --

The Greedy Algorithm for the Minimum Common String Partition Problem -- Approximating Additive Distortion of Embeddings into Line Metrics -- Polylogarithmic Inapproximability of the Radio Broadcast Problem -- On Systems of Linear Equations with Two Variables per Equation -- An Auction-Based Market Equilibrium Algorithm for the Separable Gross Substitutability Case -- Cost-Sharing Mechanisms for Network Design -- Approximating Max  $k$  CSP Using Random Restrictions -- Approximation Schemes for Broadcasting in Heterogenous Networks -- Centralized Deterministic Broadcasting in Undirected Multi-hop Radio Networks -- Convergence Issues in Competitive Games -- Cuts and Orderings: On Semidefinite Relaxations for the Linear Ordering Problem -- Min-Max Multiway Cut -- Contributed Talks of RANDOM -- The Chromatic Number of Random Regular Graphs -- Estimating the Distance to a Monotone Function -- Edge Coloring with Delays -- Small Pseudo-random Families of Matrices: Derandomizing Approximate Quantum Encryption -- The Sketching Complexity of Pattern Matching -- Non-Abelian Homomorphism Testing, and Distributions Close to Their Self-convolutions -- Robust Locally Testable Codes and Products of Codes -- A Stateful Implementation of a Random Function Supporting Parity Queries over Hypercubes -- Strong Refutation Heuristics for Random  $k$ -SAT -- Counting Connected Graphs and Hypergraphs via the Probabilistic Method -- Improved Randomness Extraction from Two Independent Sources -- The Diameter of Randomly Perturbed Digraphs and Some Applications -- Maximum Weight Independent Sets and Matchings in Sparse Random Graphs -- Estimating Frequency Moments of Data Streams Using Random Linear Combinations -- Fooling Parity Tests with Parity Gates -- Distribution-Free Connectivity Testing -- Testing the Independence Number of Hypergraphs -- A Note on Approximate Counting for  $k$ -DNF.

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#### Sommario/riassunto

This volume contains the papers presented at the 7th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX 2004) and the 8th International Workshop on Randomization and Computation (RANDOM 2004), which took place concurrently at Harvard University, Cambridge, on August 22-24, 2004. APPROX focuses on algorithmic and complexity issues surrounding the development of efficient approximate solutions to computationally hard problems, and this year's workshop was the seventh in the series after Aalborg (1998), Berkeley (1999), Saarbrücken (2000), Berkeley (2001), Rome (2002), and Princeton (2003). RANDOM is concerned with applications of randomness to computational and combinatorial problems, and this year's workshop was the eighth in the series following Bologna (1997), Barcelona (1998), Berkeley (1999), Geneva (2000), Berkeley (2001), Harvard (2002), and Princeton (2003). Topics of interest for APPROX and RANDOM are: design and analysis of approximation algorithms, inapproximability results, approximation classes, - line problems, small space and data streaming algorithms, sub-linear time algorithms, embeddings and metric space methods in approximation, math programming in approximation algorithms, coloring and partitioning, cuts and connectivity, geometric problems, network design and routing, packing and covering, scheduling, game theory, design and analysis of randomized algorithms, randomized complexity theory, pseudorandomness and derandomization, random combinatorial structures, random walks/Markov chains, expander graphs and randomness extractors, probabilistic proof systems, random projections and embeddings, error-correcting codes, average-case analysis, property testing, computational learning theory, and other applications of

approximation and randomness. The volume contains 19+18 contributed papers, selected by the two program committees from 54+33 submissions received in response to the call for papers.

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