

# Lecture Notes in Computer Science

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# Approximation, Randomization, and Combinatorial Optimization

Algorithms and Techniques

**4th International Workshop on Approximation Algorithms  
for Combinatorial Optimization Problems, APPROX 2001 and  
5th International Workshop on Randomization  
and Approximation Techniques in Computer Science, RANDOM 2001  
Berkeley, CA, USA, August 18-20, 2001  
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# Foreword

This volume contains the papers presented at the *4th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems* (APPROX'01) and the *5th International Workshop on Randomization and Approximation Techniques in Computer Science* (RANDOM'01), which took place concurrently at the University of California, Berkeley, from August 18–20, 2001. APPROX focuses on algorithmic and complexity issues surrounding the development of efficient approximate solutions to computationally hard problems, and is the fourth in the series after Aalborg (1998), Berkeley (1999) and Saarbrücken (2000). RANDOM is concerned with applications of randomness to computational and combinatorial problems, and is the fifth workshop in the series following Bologna (1997), Barcelona (1998), Berkeley (1999) and Geneva (2000).

Topics of interest for APPROX and RANDOM are: design and analysis of approximation algorithms, inapproximability results, on-line problems, randomization and de-randomization techniques, sources of randomness, average-case analysis, approximation classes, randomized complexity theory, scheduling problems, routing and flow problems, coloring and partitioning, cuts and connectivity, packing and covering, geometric problems, network design, and various applications.

The volume contains 14+11 contributed papers, selected by the two program committees from 34+20 submissions received in response to the call for papers, together with abstracts of invited lectures by Michel Goemans (MIT), Russell Impagliazzo (San Diego), Anna Karlin (Washington), Luca Trevisan (Berkeley), and Salil Vadhan (MIT-Harvard).

We would like to thank all of the authors who submitted papers, our invited speakers, the members of the program committees

## **APPROX'01**

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## **RANDOM'01**

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June 2001

Michel Goemans and Luca Trevisan, Program Chairs  
Klaus Jansen and José D. P. Rolim, Workshop Chairs

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