

VOLUME 2

Panos M. Pardalos
Ding-Zhu Du
Ronald L. Graham
Editors

Handbook of Combinatorial Optimization

Second Edition



SpringerReference

Editors

Panos M. Pardalos
Department of Industrial and
Systems Engineering
University of Florida
Gainesville, FL, USA

Ronald L. Graham
Department of Computer Science and
Engineering
University of California, San Diego
La Jolla, CA, USA

Ding-Zhu Du
Department of Computer Science
The University of Texas at Dallas
Richardson, TX, USA

ISBN 978-1-4419-7996-4 ISBN 978-1-4419-7997-1 (eBook)
ISBN Bundle 978-1-4614-3975-2 (print and electronic bundle)
DOI 10.1007/978-1-4419-7997-1
Springer New York Heidelberg Dordrecht London

Library of Congress Control Number: 2013942873

1st edition: © Springer Science+Business Media New York 1999 (Volumes 1–3 and Supplement Volume A), 2005 (Supplement Volume B)

2nd edition: © Springer Science+Business Media New York 2013

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed. Exempted from this legal reservation are brief excerpts in connection with reviews or scholarly analysis or material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Duplication of this publication or parts thereof is permitted only under the provisions of the Copyright Law of the Publisher's location, in its current version, and permission for use must always be obtained from Springer. Permissions for use may be obtained through RightsLink at the Copyright Clearance Center. Violations are liable to prosecution under the respective Copyright Law.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

While the advice and information in this book are believed to be true and accurate at the date of publication, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Printed on acid-free paper

Volume 2

Combinatorial Optimization in Transportation and Logistics Networks	673
Chrysafis Vogiatzis and Panos M. Pardalos	
Complexity Issues on PTAS	723
Jianer Chen and Ge Xia	
Computing Distances Between Evolutionary Trees	747
Bhaskar DasGupta, Xin He, Tao Jiang, Ming Li, John Tromp, Lusheng Wang and Louxin Zhang	
Connected Dominating Set in Wireless Networks	783
Hongjie Du, Ling Ding, Weili Wu, Donghyun Kim, Panos M. Pardalos and James Willson	
Connections Between Continuous and Discrete Extremum Problems, Generalized Systems, and Variational Inequalities	835
Carla Antoni, Franco Giannessi and Fabio Tardella	
Coverage Problems in Sensor Networks	899
Mihaela Cardei	
Data Correcting Approach for Routing and Location in Networks	929
Boris Goldengorin	
Dual Integrality in Combinatorial Optimization	995
Xujin Chen, Xiaodong Hu and Wenan Zang	
Dynamical System Approaches to Combinatorial Optimization	1065
Jens Starke	
Efficient Algorithms for Geometric Shortest Path Query Problems	1125
Danny Z. Chen	

Energy Efficiency in Wireless Networks	1155
Hongwei Du, Xiuzhen Cheng and Deying Li	
Equitable Coloring of Graphs	1199
Ko-Wei Lih	
Faster and Space Efficient Exact Exponential Algorithms: Combinatorial and Algebraic Approaches	1249
Dongxiao Yu, Yuexuan Wang, Qiang-Sheng Hua and Francis C. M. Lau	
Fault-Tolerant Facility Allocation	1293
Hong Shen and Shihong Xu	
Fractional Combinatorial Optimization	1311
Tomasz Radzik	