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Series on
Applied Mathematics
Volume 14

COMBINATORIAL AND GLOBAL OPTIMIZATION

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World Scientific

New Jersey • London • Singapore • Hong Kong

Published by

World Scientific Publishing Co. Pte. Ltd.

P O Box 128, Farrer Road, Singapore 912805

USA office: Suite 1B, 1060 Main Street, River Edge, NJ 07661

UK office: 57 Shelton Street, Covent Garden, London WC2H 9HE

Library of Congress Cataloging-in-Publication Data

Combinatorial and global optimization / editors Panos M. Pardalos, Athanasios Migdalas, Rainer E. Burkard.

p. cm. -- (Series on applied mathematics ; v. 14)

Includes bibliographical references.

ISBN 9810248024 (alk. paper)

1. Combinatorial optimization -- Congresses. 2. Mathematical optimization--Congresses. 3. Nonlinear programming--Congresses. I. Pardalos, P. M. (Panos M.), 1954-- II. Migdalas, Athanasios. III. Burkard, Rainer E. IV. Series.

QA402.5 .C5435 2001

511'.6--dc21

2001046899

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library.

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Printed in Singapore by Mainland Press

Τή γλῶσσα μοῦ δῶσαν ἑλληνική
το σπίτι φτωχικό στίς ἀμμουδιές τοῦ Ὅμηρου.
Μοναχὴ ἔγνοια ἡ γλῶσσα μου στίς ἀμμουδιές τοῦ Ὅμηρου.
Ἐκεῖ σπάροι καὶ πέρκες
ἀνεμόδαρτα ρήματα
ρεύματα πράσινα μέσ τὰ γαλάζια
ὅσα εἶδα στά σπλάχνα μου ν' ἀνάβουνε
σφουγγάρια, μέδουσες
μέ τὰ πρῶτα λόγια τῶν Σειρήνων
ὄστρακα ρόδινα μέ τὰ πρῶτα μαῦρα ρίγη

I was given the Hellenic tongue
my house a humble one on the sandy shores of Homer.
My only care my tongue on the sandy shores of Homer.
The sea-bream and perch
windbeaten verbs
green currents with the cerulean
all that I saw blazing in my entrails
sponges, medusae
with the first words of the Sirens
pink shells with their first dark tremors

(from Axion Esti, 1959) – Odysseas Elytis

Preface

Combinatorial and global optimization problems appear in a wide range of applications in operations research, engineering, biological sciences and computer science. In combinatorial optimization and graph theory many approaches have been developed that link the discrete universe to the continuous universe through geometric, analytic, and algebraic techniques. Such techniques include global optimization formulations, semidefinite programming, and spectral theory. Major recent successes based on these approaches include interior point algorithms for linear and discrete problems, the celebrated Goemans-Williamson Relaxation of the maximum cut problem, and the Du-Hwang solution of the Gilbert-Pollak's Conjecture. Since integer constraints are equivalent to nonconvex constraints, the fundamental difference between classes of optimization problems is not between discrete and continuous problems but between convex and nonconvex optimization problems.

A conference on *Combinatorial and Global Optimization* was held at Chania, Crete, Greece. The conference was sponsored by the Center of Applied Optimization of the University of Florida, USA, and the Center for Information Technology Transfer (CENIIT) of Linköping Institute of Technology in Sweden. The conference provided a forum for researchers working on different aspects of combinatorial and global optimization to present their recent discoveries, and to interact with people working on complementary aspects of mathematical programming. This volume contains a selective collection of refereed papers based on talks presented at the conference.

We would like to take the opportunity to thank the sponsors, the program committee members, the authors of the papers, the anonymous referees, and World Scientific for making the conference successful and the publication of this interesting book possible.

P. M. Pardalos, A. Migdalas, and R. E. Burkard
Chania, Crete
May 2001

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