

CONTEMPORARY MATHEMATICS

659

Nonlinear Analysis and Optimization

IMU/AMS Special Session on
Nonlinear Analysis and Optimization
June 16–19, 2014

Bar-Ilan University and Tel Aviv University, Tel Aviv, Israel
Workshop on

Nonlinear Analysis and Optimization
June 12, 2014

Technion–Israel Institute of Technology, Haifa, Israel

Boris S. Mordukhovich
Simeon Reich
Alexander J. Zaslavski
Editors



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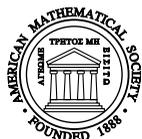
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Preface

A Special Session on Nonlinear Analysis and Optimization was part of the Second Joint International Meeting of the Israel Mathematical Union (IMU) and the American Mathematical Society (AMS), which took place at Bar-Ilan and Tel-Aviv Universities, Israel, during June 16-19, 2014. Boris S. Mordukhovich, Simeon Reich and Alexander J. Zaslavski were the organizers of this special session. The special session brought together a select group of over twenty experts from Israel and the USA. It was devoted to various issues, results and open problems regarding inverse dynamic programming, Denjoy-Wolff theorems, nonlinear input-output equilibrium, analyticity and nonanalyticity of solutions of delay-differential equations, weak convergence in metric spaces, gradient flows of entropy, turnpike properties of solutions to optimal control problems, optimal control of the sweeping process over moving sets, differential variational systems, and proximal alternating linearized minimization for nonconvex and nonsmooth problems.

A one-day Workshop on Nonlinear Analysis and Optimization organized by Simeon Reich and Alexander J. Zaslavski was held at the Technion - Israel Institute of Technology on June 12, 2014. It was a satellite event of the Second Joint International Meeting of the Israel Mathematical Union and the American Mathematical Society.

This volume is the tangible record of both the Special Session on Nonlinear Analysis and Optimization, and the Technion Workshop on Nonlinear Analysis and Optimization. Most of the papers assembled here have been contributed by participants in the session and in the workshop. In some cases, they have chosen to submit manuscripts which depart from the texts of their lectures. Several invited speakers who were unable to attend the meeting also contributed papers to this volume. All submissions have been carefully refereed and revised whenever necessary. The papers collected in this volume cover many different topics in Nonlinear Analysis and Optimization: Taylor domination property for analytic functions in the complex disk, mappings with upper integral bounds for p -moduli, multiple Fourier transforms and trigonometric series in line with Hardy's variation, finite-parameter feedback control for stabilizing damped nonlinear wave equations, implicit Euler approximation and optimization of one-sided Lipschitz differential inclusions, Bolza variational problems with extended-valued integrands on large intervals, first order singular variational problem with nonconvex cost, gradient and extragradient methods for the elasticity imaging inverse problem, discrete approximations of the entropy functional for probability measures on the plane, optimal irrigation scheduling for wheat production, existence of a fixed point of nonexpansive mappings in uniformly convex Banach spaces, strong convergence properties of m -accretive bounded operators, the Reich-Simons convex analytic inequality,

nonlinear input-output equilibrium, differential linear-quadratic Nash games with mixed state-control constraints, and excessive revenue models of competitive markets.

We feel that this volume will be very valuable for many mathematicians and practitioners, who are interested in recent developments in Nonlinear Analysis and Optimization, as well as in their numerous and diverse applications.

The Editors

This volume contains the proceedings of the IMU/AMS Special Session on Nonlinear Analysis and Optimization, held from June 16–19, 2014, at the Second Joint International Meeting of the Israel Mathematical Union (IMU) and the American Mathematical Society (AMS), Bar-Ilan and Tel-Aviv Universities, Israel, and the Workshop on Nonlinear Analysis and Optimization, held on June 12, 2014, at the Technion-Israel Institute of Technology.

The papers in this volume cover many different topics in Nonlinear Analysis and Optimization, including: Taylor domination property for analytic functions in the complex disk, mappings with upper integral bounds for p -moduli, multiple Fourier transforms and trigonometric series in line with Hardy's variation, finite-parameter feedback control for stabilizing damped nonlinear wave equations, implicit Euler approximation and optimization of one-sided Lipschitz differential inclusions, Bolza variational problems with extended-valued integrands on large intervals, first order singular variational problem with non-convex cost, gradient and extragradient methods for the elasticity imaging inverse problem, discrete approximations of the entropy functional for probability measures on the plane, optimal irrigation scheduling for wheat production, existence of a fixed point of nonexpansive mappings in uniformly convex Banach spaces, strong convergence properties of m -accretive bounded operators, the Reich-Simons convex analytic inequality, nonlinear input-output equilibrium, differential linear-quadratic Nash games with mixed state-control constraints, and excessive revenue models of competitive markets.

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