*Pure and Applied Functional Analysis*
Volume 8, Number 4, 2023, i–ii

Yokohama Publishers
ISSN 2189-3764 ONLINE JOURNAL


# PREFACE: OPTIMIZATION THEORY

SIMEON REICH, VLADIMIR SHIKHMAN, OLIVER STEIN,
AND ALEXANDER J. ZASLAVSKI

This special issue on Optimization Theory is dedicated to Professor Hubertus Th. Jongen on the occasion of his 75th birthday.

Hubertus Th. Jongen became a full professor at the RWTH Aachen University in 1987 and a professor at the Universiteit Maastricht in 2001. He received a Doctor honoris causa from Shanxi University (P. R. China) and is Miembro Honorario de la Sociedad Colombiana de Investigacion de Operaciones (Colombia) as well as Visitante Distinguido de la Ciudad Puebla (Mexico). From 1965 to 1972 he served as an officer in the Royal Dutch Navy. In the 1970s, H. Th. Jongen introduced a new approach to the investigation of nonlinear optimization problems in finite dimensional spaces. He considered the homotopy type of the lower level sets of the objective function on the feasible region as the level varies and studied optimization problems within the framework of Morse Theory. H. Th. Jongen is the pioneer of this important research direction which has completely changed the development of all of optimization theory. Professor Jongen is an author of 5 books and around 100 research papers and has had 17 PhD students. He was an associate editor of Journal of Global Optimization, Journal of Convex Analysis, Mathematical Methods of Operations Research, Optimization, Journal of Applied Functional Analysis, Global Journal of Pure and Applied Mathematics and Optimization Letters.

In this special issue we present papers authored by a select group of experts in the area of Optimization Theory. Most of the papers collected here have been contributed by friends and colleagues of Professor Jongen, who were influenced by his scientific work. This special issue contains thirteen papers contributed by researchers in Optimization from Bulgaria, Canada, China, Croatia, Germany, Israel, Italy, Poland, Spain, The Netherlands and Vietnam. These papers cover a wide spectrum of important problems and topics of current research interest, including characterizations of directional openness for set-valued mappings, an extended convergence framework applied to complementarity systems with degenerate and nonisolated solutions, advances in multiobjective convex semi-infinite optimization, Minkowski-Rådström-Hörmander spaces, minimum quasi pancyclic multipartite tournaments, cardinality-constrained optimization problems in general position, proof verification in real number complexity, proportionate change of outputs and of inputs in Data Envelopment Analysis, hierarchical Nash solutions for $n$-person bargaining problems, density and genericity of well-posed vector optimization problems, superiorization techniques with a projected subgradient method for games, the Roman domination of Kautz digraphs and generalized Kautz digraphs, and Banach's fixed point theorem and vacant points.

Therefore we feel that this special issue will be highly important for many mathematicians, who are interested in recent developments in Optimization Theory, as well as in its numerous applications.

S. Reich
Department of Mathematics, The Technion – Israel Institute of Technology, 32000 Haifa, Israel
*E-mail address*: sreich@technion.ac.il

V. Shikhman
Faculty of Mathematics, Technical University of Chemnitz
*E-mail address*: vladimir.shikhman@mathematik.tu-chemnitz.de

O. Stein
Institute for Operations Research, Karlsruhe Institute of Technology
*E-mail address*: stein@kit.edu

A. J. Zaslavski
Department of Mathematics, The Technion – Israel Institute of Technology, 32000 Haifa, Israel
*E-mail address*: ajzasl@tx.technion.ac.il