



PREFACE: OPTIMIZATION AND OPERATOR THEORY

SIMEON REICH AND ALEXANDER J. ZASLAVSKI

This special issue on Optimization and Operator Theory is dedicated to the memory of Professor Lev M. Bregman.

Professor Bregman (1941–2023) was a Soviet-Israeli mathematician, known mainly for the Bregman divergence (Bregman distance) named after him. He received his MSc in mathematics in 1963 at the Leningrad State University and his PhD in 1966 at the same institution, under the direction of his advisor, Professor J. V. Romanovsky. In his dissertation, as well as in one of his most well-known publications, he studied relaxation methods for finding a common point of a family of convex sets. Another influential paper of his (regarding the method of successive projections) was published in 1965. In 1973 Lev Bregman proved a 1963 conjecture of Henryk Minc providing an upper bound on the permanent of a binary matrix.

During the years 1966–1991, Lev Bregman was a senior researcher at the Leningrad State University. From 1992 on he worked at the Institute for Industrial Mathematics, Beer Sheva, Israel. Professor Bregman is the author of several textbooks and dozens of publications in international research journals.

In this special issue we present papers authored by a select group of experts in the areas of Optimization and Operator Theory. Most of the papers collected here have been contributed by friends and colleagues of Lev Bregman, who were influenced by his scientific work. This special issue contains eleven papers contributed by researchers in Optimization and Operator Theory from Brazil, China, France, Germany, Israel, Italy, Ukraine and the USA.

These papers cover a wide spectrum of important topics and significant problems of current research interest, including a characterization of the set of de Branges matrices, a Bregman regularized proximal point method for quasi-equilibrium problems, solving quadratic programming problems with Lagrange multipliers methods, a regularization of DC optimization, multilevel geometric optimization for regularized constrained linear inverse problems, an inertial iterative algorithm for approximating solutions to variational inclusion problems in Banach spaces, local uniqueness of normalized Nash equilibria, a stochastic Bregman primal-dual splitting algorithm for composite optimization, approximation methods for solving constrained variational inequalities and related problems, existence results for strong vector equilibrium problems, and superiorization under a growth condition on an objective function.

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

S. REICH

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

A. J. ZASLAVSKI

Department of Mathematics, The Technion – Israel Institute of Technology, Haifa, Israel
E-mail address: `ajzasl@technion.ac.il`