Preface

This Special Issue of JOTA is dedicated to the Annual Conference of the Italian Operations Research Society (AIRO 2012), which took place in the beautiful landscape of the Amalfi Coast, Vietri sul Mare (Salerno), Italy, during September 2012.

The AIRO (Italian Association of Operations Research—Optimization and Decision Sciences) was founded in 1961 by a group of scholars, engineers and industrial managers coming from major public and private companies, universities and research institutions. AIRO counts today more than 400 members from both Academia and Industry. Its goal is to promote the use and the dissemination of the Operations Research in Italy.

The annual conference was aimed at providing a high-level forum for scientific exchange and cooperation. The Scientific and the Organizing Committees of AIRO 2012 were chaired by Raffaele Cerulli, Monica Gentili and Francesco Carrabs (University of Salerno). The conference program was enriched by four plenary lectures held by outstanding invited scientists, covering diverse areas ranging from optimization theory in its relationship with theoretical computer science to modeling and optimization in applied areas such as health care and finance. About 130 talks across 34 contributed and invited sessions were given.

In this Special Issue, we present selected papers on topics related to Nonlinear Programming and addressed during the Conference. The Issue has been organized into two groups, the former, constituted by the first 12 papers, is made up by papers with prevalent methodological content, while the latter contains papers mostly oriented to modeling or applications.

As for the former group, topics are in areas such as equilibrium problems, variational inequalities, local and global optimization algorithms, mixed integer nonlinear programming, robust optimization, derivative free methods, interior point methods and nonsmooth optimization.

In the modeling and applications group several fields such as transportation, routing, logistics, machine learning, stochastic programming, biology and economic forecast are covered.
While the preparation work was ongoing, we were informed of the untimely death of Professor Vladimir Fedorovich Demyanov, one of the fathers of modern optimization. We decided, together with Professor Giannessi, to dedicate him this Special Issue.

We wish finally to thank Springer-Verlag for the kind opportunity, the authors for submitting such high-quality articles and the referees for their excellent reviews. We would also like to thank all people, who have helped to organize the conference and to contribute to its success.

Francesco Carrabs, Raffaele Cerulli and Manlio Gaudioso.

In Memory of Professor Vladimir Fedorovich Demyanov

Professor Vladimir Fedorovich Demyanov passed away on April 18th, 2014 in Saint Petersburg.

He was one of the fathers of the Mathematical Programming community both for the prominent scientific contributions he gave during his long career and for the enthusiastic efforts he lavished on diffusion of the optimization ideas and on creation of bridges between people and countries.

He was born in 1938 in Dniepropetrovsk and graduated in 1960 at the Mathematics Department of the Leningrad State University. In 1970 he became Professor at the Applied Mathematics Department of the same University.

Starting from the strong belief that the classical smooth analysis was no longer sufficient for facing the challenges coming from modern decision making in the real world and from emerging problems in mathematics itself, he oriented his entire activity to the study of nonsmooth functions, being able to provide outstanding results in theory as well as in design of numerical algorithms.

The book Vladimir Fedorovich wrote in 1972 together with Vasili N. Malozemov on minmax problems is a milestone in the development of nonsmooth optimization and it is still impressing for profoundness and clarity.

In his subsequent works, going beyond standard Convex Analysis, he did introduce innovative approximations of the “min+max” type for wide classes of nonsmooth nonconvex functions, being also able to provide complete calculus rules.

He was an inspiring personality for many mathematicians in several countries and his vivid imagination was an impulse for the young scientists who had the opportunity of meeting him.

Vladimir’s generosity, humor and humanity will be unforgettable for friends and colleagues.

He has served for many years in the Editorial Board of JOTA.