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EDITORIAL

Preface to the special issue on advances in continuous optimization on the occasion of EUROPT 2016

Wlodzimierz Ogryczak[1] · **Andrzej Stachurski**[1]

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This special issue of MMOR contains carefully peer-reviewed papers presented at the 14th EUROPT Workshop on Advances in Continuous Optimization which was held on July 1–2, 2016, in Warsaw, organized by Andrzej Stachurski. The workshop is part of a series of annual events of EUROPT, the EURO working group on Continuous Optimization. EUROPT aims to promote and to facilitate communication links among researchers in continuous optimization.

The EUROPT workshop in Warsaw was attended by 92 participants from 26 countries. The scientific program consisted of 20 contributed sessions, comprising 86 talks as well as four plenary talks by Andreas Griewank, Jiri Outrata, Anatoly Zhigljavsky, and the EUROPT fellow of the year 2016, Yaroslav Sergeyev.

The focus of the present Special issue on advances in continuous optimization on the occasion of EUROPT 2016 is on continuous optimization theory, algorithms, software and applications. A brief overview of this special issue is as follows.

H. Gfrerer and J.V. Outrata present a new sharp condition ensuring the Aubin property of solution maps to a class of parameterized variational systems. It requires computation of directional limiting coderivatives of the normal-cone mapping for the so-called critical directions. The respective formulas have the form of a second-order chain rule and extend the available calculus of directional limiting objects.

F. Lara introduces a second-order asymptotic cone for the minimization problem of a noncoercive convex function in a reflexive Banach space. This provides the nec-

✉ Wlodzimierz Ogryczak
W.Ogryczak@elka.pw.edu.pl

Andrzej Stachurski
A.Stachurski@ia.pw.edu.pl

[1] Institute of Control and Computation Engineering, Warsaw University of Technology, Warsaw, Poland

essary and sufficient conditions for the existence of solutions for noncoercive convex minimization problems.

E.M. Bednarczuk and A. Tretyakov investigate description of the tangent cone to the null set of a mapping in the case when the mapping is degenerate at a given point. They derive new optimality conditions for a wide class of optimization problems with equality constraints.

M. Al-Baali, A. Caliciotti, G. Fasano and M. Roma propose the use of damped techniques within Nonlinear Conjugate Gradient (NCG) methods in large scale unconstrained optimization in order to possibly improve the efficiency and robustness of both unpreconditioned and Preconditioned NCG. In the latter case, they embed damped techniques within a class of preconditioners based on quasi-Newton updates.

A. Stachurski presents the idea of simultaneously running n directional minimizations along the conjugate directions starting from the same point to get the optimal solution of strictly convex QP problems. A special way of generating the conjugate directions is introduced. It produces directly the Cholesky factorization of the inverse of the Hessian.

S. Sagratella proposes a Jacobi-type method for computing solutions of Nash equilibrium problems with mixed-integer variables representing Cournot oligopoly models in which some variables represent indivisible quantities. The algorithm is a generalization of a recently proposed method for the solution of discrete so-called "2-groups partitionable" Nash equilibrium problems.

T.A. Weber investigates the problem of finding the optimal time to switch between two measurable cash-flow streams. A complete characterization of the set of solutions is obtained in terms of adjoint variables which measure the available gain from deviations. An iterative procedure for the computation of the adjoint variables is provided. The results are generalized to multiple switching times and multiple cash-flow streams with switching costs.

Z. Eksi and H. Ku study the portfolio optimization problems in a market with partial information and price impact. They build the model of the drift of the underlying price process as a diffusion affected by a continuous-time Markov chain and the actions of the large investor. For logarithmic and power utility cases they solve the utility maximization problem explicitly and obtain optimal investment strategies in the feedback form.

Finally, W. Ogryczak, M. Przyłuski and T. Śliwiński investigate the reward-risk ratio criterion optimization to search for a risky portfolio offering the maximum increase of the mean return, compared to the risk-free investment opportunities. They introduce alternative linear programming models characterized by the number of structural constraints proportional to the number of instruments thus guaranteeing easy solvability even for large number of scenarios.

As guest editors of the special issue we would like to express our deepest gratitude to the authors for their high quality contributions, and to all the referees for their careful reading and substantial critical remarks which make this special issue an outstanding collection of papers on current trends in continuous optimization. We are indebted to Oliver Stein, the Editor-in-Chief of MMOR for hosting this special issue and for the precious and continuous support.