Editorial

Feature Cluster "Advances in Continuous Optimization"

On 4–5 July, 2003, *EUROPT* has celebrated its third annual workshop in Istanbul, Turkey (see http://www.iam.metu.edu.tr/contopt03/conf/index.html). The workshop took place right before the EURO/INFORMS Joint International Meeting (Istanbul, 6–10 July, 2003). The organizing committee of the Workshop was composed by Ilkay Boduroglu, Bülent Karasözen, Mustafa Ç. Pınar and Gerhard-Wilhelm Weber. The Workshop was high-lighted by the participation of six invited speakers: Tamás Terlaky (McMaster University), Farid Alizadeh (Rutgers University), Oliver Stein (Technical University of Aachen), Marc Teboulle (Tel-Aviv University), Jean-Louis Goffin (McGill University), Ivo Nowak (Humboldt Univerity, Berlin). More than 40 participants made 14 contributed presentations in the Workshop. This event was made possible by the sponsorship and support of The Association of European Operational Research Societies, the Middle East Technical University, Bogazici University and Bilkent University.

The participants of the EUROPT Workshop "Advances in Continuous Optimization" commited to contribute to a thematic special issue of EJOR. Following the theme of this workshop, the title of the special issue became "*Advances in Continuous Optimization*". Invitations were sent out, the entire organization and initiation of refereeing processes began right after the workshop. The submission confirmed the high scientific level of the Istanbul workshop.

The present EJOR special issue is already the third one in a series edited by our EUROPT working group which was founded in July 2000, Budapest, Hungary. Following the two workshops held in 2000, Budapest, and in 2001, Rotterdam, The Netherlands, two *EJOR special issues* (or *Feature Clusters*) were prepared and published to review the state of the art on the area of continuous optimization. Now we have the privilege to announce the third EJOR special issue on this area. This special issue contains *nine papers*, authored by participants of that workshop and other EUROPT members and friends. More than twenty expert colleagues from all over the world contributed to the careful refereeing process. As a result of their rigor, devotion, and very constructive and fruitful work, all nine papers of this Featured Cluster fulfil the high standards of EJOR, they reflect the state-of-the-art and demonstrate that the theme "*Advances in Continuous Optimization*" covers a rich dynamic research area. The guest editors fullharteadly thank the referees for their devoted efforts, for providing their expertise, and for their positive encouragement of the authors whenever needed. The papers of the issue are as follows:

The paper by M.A. Goberna and M.M.L. Rodríguez, *Analyzing linear systems containing strict inequalities via evenly convex hulls*, is a valuable contribution to the convex analysis and linear optimization in the so-called semi-infinite case of possibly infinitely many inequalities. A consistence theorem is provided and strict inequalities characterized in this article with its careful proofs.

M. Ç. Pınar and W.M. Hartmann in their contribution *Huber approximation for the nonlinear l_1 problem* present a smoothing algorithm for this non-smooth approximation problem in l_1-norm. This paper includes a convergence theorem (under certain assumptions), presents a convergence rate result, and reports computational tests.

The work of S.I. Birbil, G. Bouza, J.B.G. Frenk and G. Still, *Equilibrium constrained optimization problems*, demonstrates a modern and pioneering unified view on continuous problems. In fact, equilibrium constrained problems allow a joint approach and study of bilevel problems, problems with complementarity conditions and generalized semi-infinite optimization problems.

M.U. Akhmet, M. Kirane, M.A. Tleubergenova and G.-W. Weber by their paper *Control and optimal response problems for quasilinear impulsive integro-differential equations* investigate a wide class of processes with jumps, which gives access to optimization theory for many modern applications. Special attention is paid to the optimal control of response.

D.M. Cardoso and L.A. Vieira in their contribution *On the optimal parameter of a self-concordant barrier over a symmetric cone* prove in a more direct and suitable way a result about the Carathéodory number of the cone of squares of a Euclidean Jordan algebra and conclude that the rank of such an algebra is also the self-concordant barrier optimal parameter.

A.G. Hadigheh and T. Terlaky in their paper *Sensitivity analysis in linear optimization: Invariant support set intervals* successfully perform a threefold kind of sensitivity analysis referring to parameter range and value and to optimal solutions. This research was motivated by managerial requirements.

P. Kaelo's and M.M. Ali's *A numerical study of some modified differential evolution algorithms* presents a suggestion to the differential evolution algorithm for global optimization by modifications in mutation and localization in acceptance rule. Numerical experience concludes the paper.

J. Guddat, F. Guerra Vazquez, D. Nowak and Jan.-J. Rückmann in their contribution *A modified standard embedding with jumps in nonlinear optimi-zation* continue their investigation into path following methods for finitely constrained optimization. In fact, they allow a larger set of starting points for the jumps, and they present computational results.

L. Faybusovich in his paper *Semi-definite descriptions of cones defining spectral mask constraints* presents a semi-definite programming description of certain cones of trigonometric polynomials, hence, allowing efficient optimization of linear functionals on these cones. This article contributes to the discipline of conic optimization.

Acknowledgements

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