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Special Issue for 11th International Conference of Iranian Operations Research Society

This is a special issue of the Iranian Journal of Operations Research that includes some of the invited talks presented at the 11th international conference of the Iranian Operations Research Society (IORS), organized jointly by IORS and Razi University of Kermanshah and held at the Razi University, Kermanshah, Iran, May 2-4, 2018. The IORS conference is held annually and is the main event for presentation of new theoretical and applied developments of OR. International participation is enhanced by some invited talks presented by international scholars. There were over 400 participants, 170 accepted talks and 69 poster presentations. The selected papers for this special issue were reviewed going through the usual reviewing process and 6 papers were accepted for publication.

The first paper by Saeed Fallahi, Maziar Salahi and Saeed Ansary Karbasy [1] deals with the extended trust region subproblem for minimization of an indefinite quadratic programming problem constrained by unit ball and a single linear equality constraint. The necessary and sufficient optimality conditions are established and illustrative examples are worked through.

The second paper by Ali Farajzadeh and Parisa Cheraghi [2] is concerned with the necessary optimality conditions for nonsmooth and nonconvex problems, making use of some relations between weak subdifferential and augmented normal cone. Also, a Stampacchia and Minty solution is defined by use of the weak subdifferential and its relation to the minimal point is investigated.

In the third paper, Abolfazl Fathollahzadeh [3] considers modeling an efficient tool for intelligent mapping and presents an algorithm using an effective data structure and a fuzzy metric.

Mehdi Keramatpour, Seyed Taghi Akhavan Niaki and Seyed Hamid Reza Pasandideh [4] present a novel nonlinear model for a two-level inventory control problem considering a stochastic demand in the selling period and service levels for the customers. Order quantities of the products and the needed raw materials at the start of the selling period are found to maximize the expected total profit during the period. The proposed stochastic nonlinear programming problem is solved by a barrier method under a number of scenarios for the demands. A case study concerned with a dairy manufacturing company is worked through to illustrate the applicability of the model and the solution approach.

The fifth paper by Aleš Kresta, Jiří Hozman, Michal Holčapek, Tomáš Tichý and Radek Valášek [5] is concerned with option valuation in markets. A number of numerical techniques are applied to the simple plain vanilla options using the Black and Sholes model and the obtained properties are noted.

The sixth paper by Zhang Wei and Cornelis Roos makes use of Nesterov's excessive gap method as the basic procedure in a recently developed method of Chubanov to solve the homogeneous feasibility problem having positive variables. The iteration bound for the considered basic procedure is reduced to lead to an overall gain in the complexity of the proposed algorithm.

[1] Fallahi, S., Salahi, M. and Ansary, S. (2018), On SOCP/SDP formulation of the extended trust region subproblem, *Iranian Journal of Operations Research*, 9(1), 03-14.

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[2] Farajzadeh, A.P. and Cheraghi, P. (2018), On Optimality Conditions via Weak Subdifferential and Augmented Normal Cone, *Iranian Journal of Operations Research*, 9(1), 15-30.
[3] Fathollahzadeh, A. (2018), Intelligent Mapping, *Iranian Journal of Operations Research*, 9(1), 31-48.
[4] Keramatpour, M., Niaki, S.T.A and Pasandideh, S.H.R (2018), A scenario-based nonlinear programming model for a two-level inventory control: a case study in dairy product industry, *Iranian Journal of Operations Research*, 9(1), 49-79.
[5] Kresta, A., Hozman, J., Holčapek, M., Tichý, T. and Valášek, R. (2018), Comparison of selected advanced numerical methods for Greeks calculation of Vanilla options, *Iranian Journal of Operations Research*, 9(1), 80-93.
[6] Wei, Z. and Roos, C. (2018), Using Nesterov's excessive gap method as basic procedure in Chubanov's method for solving a homogeneous feasibility problem, *Iranian Journal of Operations Research*, 9(1), 94-105.

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