Preface

Li-Qun Qi¹ · Zong-Ben Xu² · Qing-Zhi Yang³

Published online: 8 March 2017

© Operations Research Society of China, Periodicals Agency of Shanghai University, Science Press, and Springer-Verlag Berlin Heidelberg 2017

Tensor optimization has been developing rapidly since the past decade. In its current stage, tensor optimization means those optimization problems, for which the functions involved contain the tensors as variables or known quantities. Since a matrix is a second-order tensor, matrix optimization, even quadratic program, can be regarded as a part of tensor optimization, so is the polynomial optimization. In addition, various research topics related to matrices, such as matrix decomposition\approximation and matrix eigenvalue\singular value problems, including theory and algorithms, and graph theory, its theory as well as algorithms, are all extended to the tensor situation as long as it is possible, while in the current big-data time, it seems that all of these generalizations are meaningful and can be put into a new called tensor optimization range. From this point of view, tensor optimization will be a rather comprehensive new area of applied mathematics. In fact, just due to the efforts of scholars from various distinct fields, such as optimization, matrix theory and graph theory, in the past ten years, tensor optimization has made great progress. As the flagship journal of Operations Research Society of China, it looks like reasonable and natural that *Journal of the Operations Research Society of China* organizes this special issue to intensively reflect some advances in tensor optimization, especially the work done by Chinese

✉ Qing-Zhi Yang
qz-yang@nankai.edu.cn

Li-Qun Qi
liquan.qi@polyu.edu.hk

Zong-Ben Xu
zbxu@mail.xjtu.edu.cn

¹ Department of Applied Mathematics, The Hong Kong Polytechnic University, Hong Kong, China

² School of Mathematics and Statistics, Xi'an Jiaotong University, Xi'an 710049, China

³ School of Mathematical Sciences, Nankai University, Tianjin 300071, China

scholars. We believe that through this issue, this new research area will attract more attention from operations research community, even wider academic community, and find its new connections with more research fields, in order to prompt the further development of tensor optimization and make it play an important role in more real-world problems.

This issue contains eight articles on tensor optimization. We would like to thank the authors of papers for submitting their manuscripts to this special issue, as well as the referees for their rigorous reviewing. Finally, we are certainly grateful to the great support from the editorial board of this journal.

February 2017