
Preface

Ali Rıza Yıldız

Department of Mechanical Engineering,
Bursa Technical University,
Yıldırım/Bursa, 16330, Turkey
Email: aliriza.yildiz@btu.edu.tr

Biographical notes: Ali Rıza Yıldız is a Professor at the Department of Mechanical Engineering, Bursa Technical University (BTU). He has received his BSc, MSc and PhD in Mechanical Engineering from Uludağ University, Turkey. He worked on ‘multi-component topology optimisation of the automotive structures’ as a Research Associate at Department of Mechanical Engineering, University of Michigan, Ann Arbor, USA. He also worked on a NSF and the U.S. Department of Energy funded research project at the Center for Advanced Vehicular Systems (CAVS) in the Bagley College of Engineering, Mississippi State University, Starkville, USA. He was a winner of the TÜBA-GEBİP Young Scientist Outstanding Achievement Award given by the Turkish Academy of Sciences. He has served as an Associate Editor of Elsevier’s *Information Sciences* journal and Springer’s *Journal of Intelligent Manufacturing*. He has been on the editorial boards of Springer’s *International Journal of Advanced Manufacturing Technology* and Wiley’s *Expert Systems: The Journal of Knowledge Engineering*. His research interests are vehicle design, vehicle crashworthiness, vehicle and pedestrian safety, shape, topology and topography optimisation of vehicle components, metaheuristic optimisation techniques and sheet metal forming.

This special issue on ‘Recent Advances in Optimisation Algorithms for Vehicle Design and Manufacturing Processes’ aims to bring together researchers to report the latest on optimisation algorithms and to explore new applications in design and manufacturing processes for solving real-world problems.

Since energy consumption has become a major concern for both industry and consumers in recent years, a significant amount of research is now being carried out to save fuel and reduce production costs. Developing and/or optimising lightweight vehicle components without compromising performance criteria and international safety regulations is a method of reducing fuel usage, particularly in transportation-related industries. In addition to reducing energy consumption and costs, vehicle designers have to reduce the amount of expensive material tests, mechanical tests, crash tests and other time consuming tests covering a wide variety of environmental and loading conditions imposed by international institutions.

Optimisation methods provide a significant opportunity for designers and manufacturers to reduce the cost of products much more than can be examined through experiments without the need for traditional trial-and-error methods.

This special issue covers advances in the fields of multi-objective design, manufacturing, crashworthiness, and shape and topology optimisation of automobile

components with evolutionary approaches. The issue provides a platform for promoting innovative ideas emerging about the development of new optimisation algorithms for vehicle design and manufacturing processes.

We received 130 high quality papers which have been considered for this special issue. After the strict review process, 12 papers were selected to be included in this special issue.

As Guest Editor, I thank the Editor-in-Chief of IJVD, Dr. M. Dorgham, for providing the opportunity to publish this special issue. I am grateful to the reviewers who helped us during the reviewing process and selection of the papers. I thank the authors for their contributions, and the reviewers and IJVD Journal Manager and IJVD Submission Managers and Editors for their help in bringing this issue to its current form.

I sincerely hope that readers will find this special issue very useful.