Editorial

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Biographical notes: Stefka Fidanova received her PhD in Computer Science at the Sofia University, Bulgaria. She is an Associate Professor at the Institute of Information and Communication Technology – Bulgarian Academy of Science. Her research interests include combinatorial optimisation, metaheuristics, mathematical modelling, and parallel computing. She is an author of a great deal of research studies published at international journals, conference proceedings as well as books and book chapters.

Gabriel Luque received his PhD in Computer Science from the University of Málaga. He is a PhD Assistant Professor at the University of Málaga. His major research interests include the design of new metaheuristics, specifically on parallel algorithms, and their application to complex problems. He is also currently working on the design of theory-driven algorithms and on the application of parallel technique to solve dynamic optimisation problems. He is the co-author of more than 50 international publications and the co-author of a recent book about parallel genetic algorithms. He has also co-chaired several special sessions and workshops about metaheuristics.

Many real world problems arising in real life and industry can be formulated as optimisation tasks. Everyday we solve optimisation problems. Optimisation occurs in minimising time and cost or the maximisation of the profit, quality and efficiency. Such problems are frequently characterised by non-convex, non-differentiable, discontinuous, noisy or dynamic objective functions and constraints which ask for adequate computational methods.

This issue is a result of very vivid and fruitful discussions held during the special session on 'metaheuristics for large optimisation problems' which was a part of the large-scale scientific computing conference.

The participants have agreed that the relevance of the conference topic and quality of the contributions have clearly suggested that a more comprehensive collection of extended contributions devoted to the area would be very welcome and would certainly

contribute to a wider exposure and proliferation of the field and ideas. The issue includes important real problems such as parameter settings for controlling processes in bioreactor, problems arising in wireless sensor nets development, energy consumption and so on. They cannot be solved applying traditional numerical methods because they need a huge amount of computational resources. Therefore, for them it is more appropriate to develop an algorithms based on some metaheuristic methods such as evolutionary computation, ant colony optimisation, constrain programming, free search, etc.