NEW TRENDS FOR EVOLUTIONARY OPTIMIZATION METHODS APPLIED TO MULTIDISCIPLINARY PROBLEMS

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ABSTRACT

Multidisciplinary optimization problems represent a complex task which requires outstanding model environments, complex analytical solvers and powerful optimization techniques, which combined in a reliable way lead to an effective solution of the problem. From the optimization point of view, Evolutionary Algorithms methodologies have shown its evident benefits in simple and multimodal optimization problems due to their robustness, easy applicability and the fact that they do not need specialized information such as gradient information or smoothness of objective functions.

The aims of this mini-symposium is to provide a forum to join scientists, academicians and practical design engineers in order to explore, discuss and present recent developments in analysis and evolutionary optimization techniques with potential applications to multidisciplinary optimization problems in different engineering disciplines and in science

In this sense, the proposed minisymposium on application of evolutionary optimization techniques in multidisciplinary problems thus offers a unique international forum that should provide an excellent basis for cross-fertilization of ideas and creation of new synergistic approaches and methodologies that will combine advances in computational methods to model and analyze complex problems with powerful optimization techniques based on evolutionary principles in order to create more general, robust, accurate and computationally economical design methods for multidisciplinary applications.

The areas of interests include but are not limited to:
Robust Design, Reliability-Based Design Optimization, Optimization Methods, Sizing and Shape Design, Topology Optimization,
Multidisciplinary Design Optimization, Design Sensitivity Analysis,
Materials Processing Optimization, Hybrid Optimization Algorithms,
Evolutionary Algorithms (Genetic Algorithms, Evolutionary Strategies and so on), Managing the Design Process, Optimization with High Performance Computing, Benchmarking, Testing, and Classification of Optimization Software