

Special Issue

Symmetry Techniques for Multiobjective Optimization in Finite and Infinite Dimensions

Message from the Guest Editors

A large number of problems in Bioengineering, Physics and Statistics can be modeled as multiobjective optimization problems. This kind of optimization problems also arise in many mathematical fields. Sometimes, they are very hard to fully solve, that is, a full solution that optimizes all the objective functions at once might not actually exist. This is why Pareto optimality comes into play. However, it may even be hard to find all the Pareto optimal solutions of a multiobjective optimization problem. Therefore, it is sometimes necessary to reformulate the multiobjective optimization problem to obtain a simpler optimization problem that preserves the Pareto optimal solutions. This Special Issue is devoted to collecting all new original results in this trend together with applications to real life situations that show the validity of the theoretical results. A functional analysis approach to multiobjective optimization problems is very welcome in this Special Issue because this kind of approach also works in infinite dimensions, whereas multiobjective optimization problems are typically approached from finite-dimensional settings.

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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