# Special Issue

# Symmetry/Asymmetry in Optimization Algorithms and Systems Control

## Message from the Guest Editors

Optimization algorithms and systems control are fundamental to solving complex decision-making problems in various domains, including logistics, supply chain management, unmanned systems, and intelligent scheduling. Symmetry in optimization can lead to elegant and computationally efficient solutions, enabling better problem decomposition, solution space reduction, and algorithmic robustness. However, real-world systems often exhibit asymmetries due to uncertainties, dynamic environments, and heterogeneous resource constraints, necessitating adaptive and asymmetric optimization strategies. This Special Issue aims to explore the role of symmetry and asymmetry in optimization algorithms and systems control, emphasizing the impact on computational efficiency, decision-making accuracy, and practical applicability. We welcome contributions that investigate novel theoretical advancements, algorithmic innovations, and real-world applications of symmetric and asymmetric optimization in logistics, autonomous systems, multi-objective decision-making, and intelligent modeling. We look forward to receiving your contributions.

## Guest Editors

Dr. Yuhe Shi
School of Management, Guizhou University, Guizhou 550025, China

Dr. Yuanyuan Zhang
School of Aerospace Engineering, Huazhong University of Science and Technology, Wuhan 430074, China

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*Symmetry*
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
symmetry@mdpi.com

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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.

### Editor-in-Chief

Prof. Dr. Sergei Odintsov
1. ICREA, 08010 Barcelona, Spain
2. Institute of Space Sciences (IEEC-CSIC), C. Can Magrans s/n, 08193 Barcelona, Spain

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