Special Issue

Cooperative Control of Multi-Agent Systems over Signed Networks: Symmetry and Asymmetry Perspectives

Message from the Guest Editor

In recent years, multi-agent systems (MASs) have emerged as a fundamental architecture for distributed coordination in areas such as unmanned aerial vehicles, robotic swarms, sensor networks, and smart grids. Within this domain, signed networks, where agents interact through both cooperative (positive) and antagonistic (negative) links, offer a powerful modeling framework to capture complex, and often competitive, multi-agent interactions. One of the most intriguing phenomena in signed networks is the emergence of symmetric and asymmetric group behaviors, such as bipartite consensus, flocking with opposing velocities, or clustering into structurally balanced subgroups. These phenomena not only enrich the theoretical landscape of distributed control but also pose novel challenges in terms of stability, convergence, robustness, and system design. We are pleased to invite you to contribute to this Special Issue, which aims to advance the frontier of cooperative control over signed networks by exploring the dual roles of symmetry and asymmetry in multi-agent system behavior...

Guest Editor

Dr. Mengji Shi
School of Aeronautics and Astronautics, University of Electronic Science and Technology of China, Chengdu 611731, China

Deadline for manuscript submissions

30 July 2026

Symmetry

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 5.3

mdpi.com/si/243010

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

mdpi.com/journal/symmetry

Symmetry

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 5.3

mdpi.com/journal/symmetry

About the Journal

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

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within SCIE (Web of Science), Scopus, CAPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.

Journal Rank:

JCR - Q2 (Multidisciplinary Sciences) / CiteScore - Q1 (General Mathematics)

MDPI