Special Issue

Symmetry and Lie Algebras

Message from the Guest Editors

Symmetry is a fundamental concept in physics and mathematics, representing invariance under certain transformations. A Lie algebra is an algebraic structure defined on a vector space through a binary operation called the Lie bracket, satisfying certain properties. Symmetry and Lie algebras are deeply connected: every continuous symmetry of a physical system is associated with a Lie algebra. This association is established through the concept of infinitesimal transformations, which are small, local changes that preserve the symmetry of a system. Lie algebras provide a way to represent these infinitesimal transformations. Each element of the Lie algebra corresponds to a generator of a symmetry transformation. Lie algebras offer a rich and versatile mathematical framework with applications across a wide range of scientific disciplines. Their ability to capture the symmetries of systems makes them an indispensable tool for both theoretical and applied research.

Guest Editors

Prof. Dr. María Alejandra Alvarez

Departamento de Matemáticas, Universidad de Antofagasta, Antofagasta 1240000, Chile

Dr. María del Carmen Rodríguez-Vallarte

Facultad de Ciencias, Universidad Autónoma de San Luis Potosí, San Luis Potosí, Mexico

Deadline for manuscript submissions

31 May 2026

Symmetry

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 5.3

mdpi.com/si/223914

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