symmetry

IMPACT FACTOR 2.7

CITESCORE 4.9

an Open Access Journal by MDPI

Symmetrical Mathematical Computation in Fluid Dynamics

Guest Editors:

Dr. Yifei Guan
Department of Mechanical Engineering, Rice University, Houston, TX 77005, USA

Prof. Dr. Jian Wu
Heilongjiang Key Laboratory of Micro- and Nanoscale Fluid Flow and Heat Transfer, School of Energy Science and Engineering, Harbin Institute of Technology, Harbin 150001, China

Deadline for manuscript submissions:
30 April 2024

Message from the Guest Editors

Dear Colleagues,

Symmetry is a ubiquitous phenomenon in natural and engineered complex systems. This phenomenon emerges from the physical laws of nature and serves as an important mathematical tool for understanding the properties of physics-based dynamical systems, such as fluid mechanics.

Computational fluid dynamics has in recent years experienced extensive progress due to the rapid growth of computational power and the fast-changing development of mathematical algorithms. Leveraging high-fidelity models and fine resolution, symmetric evolutions can be observed in flow simulations. In return, symmetry-preserving and symmetry-constrained models provide extra guarantees in accurate and effective reduced-order modelings.

This Special Issue emphasizes phenomena based on the combinatory concepts of symmetry and the mathematical computation of fluid dynamics. For example, the manifestation of symmetries and symmetry breaking in the route to the turbulence of convective flows have driven the study of flow stability and bifurcation. Symmetry constraints added to reduced-order models enhance the predictive capabilities of large-scale coherent structures in complex flows.

mdpi.com/si/114000

Special Issue

symmetry

IMPACT FACTOR 2.7

CITESCORE 4.9

an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Sergei D. Odintsov
ICREA, P. Lluis Companyas 23, 08010 Barcelona and Institute of Space Sciences (IEEC-CSIC), C. Can Magrans s/n, 08193 Barcelona, Spain

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.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.
High Visibility: indexed within Scopus, SCIE (Web of Science), CAPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.
Journal Rank: JCR - Q2 (*Multidisciplinary Sciences*) / CiteScore - Q1 (*General Mathematics*); Q1 (*Physics and Astronomy*); Q1 (*Computer Science*)

Contact Us

Symmetry Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/symmetry
symmetry@mdpi.com
𝕏@Symmetry_MDPI