Special Issue

Symmetry in Beam–Plasma Physics

Message from the Guest Editors

This Special Issue on "Symmetry in Beam–Plasma Physics" aims to consolidate and advance our understanding of the intricate roles that symmetry plays in the interaction of particles and laser beams with plasma—a field that intersects with various domains, such as plasma acceleration, inertial fusion, nuclear astrophysics, and strong-field quantum electrodynamics (QED). Symmetry principles are fundamental to the characterization and analysis of various phenomena observed in beam–plasma systems, influencing both theoretical models and experimental approaches. Contributions to this Special Issue will cover a wide range of topics, including the impact of spatial and temporal symmetries on beam stability and plasma dynamics, the role of symmetry in the formation of collective modes and structures, and the implications of gauge symmetries on conservation laws within beam–plasma interactions. Additionally, we will explore how symmetrical considerations inform the design of plasma devices and enhance the efficiency of plasma-based applications.

Guest Editors

Dr. Alessio Del Dotto
Dr. Alessandro Curcio
Dr. Andrei C. Berceanu

Deadline for manuscript submissions

30 June 2026

Symmetry

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 5.3

mdpi.com/si/217771

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