Special Issue

Shortcuts to Adiabaticity with and without PT Symmetry Systems: Theory, Experiments and Applications

Message from the Guest Editors

Shortcuts to adiabaticity are alternative fast processes which reproduce the same final state as the adiabatic process in a finite or even shorter time. In addition, shortcuts to adiabaticity are also fast routes to the final results of a system, where slow and adiabatic changes are produced by controlling the parameters of a system. In recent years, shortcuts to adiabaticity have been extended from Hermitian systems to non-Hermitian systems with non-Hermitian off-diagonal elements without parity–time (PT) symmetry. Because of their possible applications in quantum information processing and quantum control, shortcuts to adiabaticity with quantum open systems have attracted widespread attention. This Special Issue will attempt to cover the whole field of shortcuts to adiabaticity with quantum open systems in its widest sense, together with the related theory, experiments, and applications in various facets.

Guest Editors

Dr. Hongzhi Shen

Center for Quantum Sciences and School of Physics, Northeast Normal University, Changchun 130024, China

Dr. Yehong Chen

Theoretical Quantum Physics Laboratory, Riken, Tokyo, Japan

Deadline for manuscript submissions

closed (30 April 2025)

Symmetry

an Open Access Journal by MDPI

Impact Factor 2.2
CiteScore 5.3

mdpi.com/si/143075

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