

Special Issue

Symmetry in Quantum Optics Models

Message from the Guest Editor

Prototypical quantum optics models, such as the Jaynes–Cummings, Rabi, Tavis–Cummings, and Dicke models, are commonly analyzed with diverse techniques, including analytical exact solutions, mean-field theory, exact diagonalization, and the like. The analysis of these systems strongly depends on their symmetries, ranging, e.g., from a $U(1)$ group in the Jaynes–Cummings model to a \mathbb{Z}_2 symmetry in the full-fledged quantum Rabi model. In this Special Issue, we intend to gather a series of articles related to symmetry in quantum optics models, possibly including, but not exclusively, the Jaynes–Cummings, Rabi, Tavis–Cummings, and Dicke models. We will also consider their generalizations to, e.g., inhomogeneous light-matter couplings, bias terms, time-dependent couplings, as well as all possible regimes of the light-matter interaction. We welcome papers on mathematical physics, related either to spectral analysis or time dynamics, as well as more applied articles with proposals for implementations of and/or experiments with these or related models in quantum platforms.

Guest Editor

Prof. Dr. Lucas Lamata

Departamento de Física Atómica, Molecular y Nuclear, Universidad de Sevilla, 41080 Sevilla, Spain

Deadline for manuscript submissions

closed (31 July 2019)



Symmetry

an Open Access Journal
by MDPI

Impact Factor 2.2
CiteScore 5.3



mdpi.com/si/21221

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

[mdpi.com/journal/
symmetry](https://mdpi.com/journal/symmetry)





Symmetry

an Open Access Journal
by MDPI

Impact Factor 2.2
CiteScore 5.3



[mdpi.com/journal/
symmetry](https://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
ICREA, 08010 Barcelona and 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)