



an Open Access Journal by MDPI

Quantum Algorithm Design in Symmetry

Guest Editors:

Dr. Bujiao Wu

Shenzhen Institute for Quantum Science and Engineering, Southern University of Science and Technology, Shenzhen 518055, China

Dr. Said Mikki

Zhejiang University/University of Illinois at Urbana-Champaign Institute, International Campus, Zhejiang University, Haining 314400, Zhejiang, China

Deadline for manuscript submissions:

30 September 2024



mdpi.com/si/199556

Message from the Guest Editors

Dear Colleagues,

The development of quantum algorithms is pivotal for advancing classical computing capabilities, offering unique advantages over traditional methods. Embracing nearterm quantum hybrid, quantum machine learning, and fault-tolerance algorithms marks a significant stride in accelerating problem-solving capacities. These advancements not only streamline processes but also enable the handling of increasingly intricate tasks with heightened efficiency.

This Special Issue aims to delve into the realm of quantum algorithms, exploring both near-term and fault-tolerant variations, along with quantum machine learning algorithms, from a quantum mechanics perspective. Through this lens, it seeks to unravel the distinctive symmetrical behaviors inherent in quantum algorithms or to solve problems with symmetric properties. By illuminating methodologies tailored for solving complex physical and chemical problems, as well as predicting symmetry-breaking phenomena, this endeavor promises to deepen our understanding of quantum algorithms and their practical applications.







an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Sergei D. Odintsov

 Institució Catalana de Recerca i Estudis Avançats (ICREA), Passeig Luis Companys, 23, 08010 Barcelona, Spain
Institute of Space Sciences (ICE-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