Special Issue

The Many-Worlds Interpretation of Quantum Mechanics

Message from the Guest Editor

The many-worlds interpretation of quantum mechanics (MWI) solves the measurement problem, avoids action at a distance and indeterminism, and does not contradict empirical evidence. Why, then, it is not in the consensus? This Special Issue will aim to promote the ongoing debate on the foundations of quantum mechanics by dealing with the major open questions regarding the MWI and its alternatives. The issues to be discussed include:

- What is the ontology?
- Who am I, what is our world?
- What is the structure of the physical universe?
- Does self-location uncertainty solve the probability problem?
- Can the Born rule be derived?
- What are advantages of alternative interpretations?
- Do we need to modify the MWI of QM in view of field theory, string theory, etc.?

Guest Editor

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About the Journal

Message from the Editor-in-Chief

We get more and more evidence that quantum theory is the correct description of nature. It was born a century ago by explaining a few paradoxical results that could not be understood in the framework of classical physics. Today, quantum physics leads technological revolution in metrology, communication, computation, and the design of novel materials. Still it needs more solid foundations, and we need to develop a deeper understanding of how it can be used for new applications.

Quantum Reports is an online, open-access journal providing an advanced forum for clarifying foundations of quantum theory and developing its applications in all fields of physics and technology. *Quantum Reports* is inviting innovative and insightful contributions from the growing community of researchers of quantum science.

Editor-in-Chief

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 18.5 days after submission; acceptance to publication is undertaken in 2.9 days (median values for papers published in this journal in the first half of 2025).