Special Issue

Quantum Logics and Quantum Measurements

Message from the Guest Editors

One of the great foundational problems of quantum mechanics is the so-called measurement problem. The measurement problem can be considered the starting point of quantum logics that, on the basis of Von Neumann and Birkoff's pioneering ideas, aims to provide a logical characterization to the measurement process. In more recent years, however, new approaches to quantum logic have been proposed, especially in the research area of quantum computing and more generally of quantum information science. The purpose of this special issue is to take stock of contemporary research on the problem of quantum measurement, both from the foundation of physics point of view (e.g. the alternative theories to the Copenhagen interpretation) and from the formal logical point of view. The topics of the special issue are:

- Quantum Logics and the Copenaghen interpretation
- Quantum Logics and the many worlds interpretation
- Logics for quantum computing
- Extensions of quantum logics
- Proof theory of quantum logics
- category theories for quantum mechanics/computing
- modal logics for quantum mechanics/computing.

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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