Special Issue

Quantum Computing Algorithms and Quantum Computing Simulators

Message from the Guest Editors

Quantum computing is a hot field of research at the intersection of mathematics, computer science, and physics that promises to significantly revolutionize many technological aspects associated with medicine, ML, AI, and operations research, among others. Investors and governments from all over the world promote its development, assuming beyond any doubt its strategic importance. In this sense, they dedicate a lot of resources to developing quantum computing in countries such as China, India, the US, etc. Nevertheless, its level of development does not correspond to that of a mature discipline, especially at the hardware level where the decoherence quantitatively hinders the implementation of universal quantum computing without restrictions. The above reason reinforces the importance of quantum computing simulation as a platform for learning, training, and testing quantum algorithms. Quantum computing simulators necessarily involve aspects of high-performance computing, as well as applied mathematics. We dedicate this Special Issue to quantum computing and some related aspects:

- Quantum algorithms
- Quantum computing
- Computational complexity
- Quantum computing simulation.

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Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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