Quantum Computing and Scientific Computing

Guest Editor:

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Message from the Guest Editor

The recent development of quantum algorithms has significantly pushed forward the frontier of using quantum computers for solving a wide range of scientific computing problems even in the NISQ era. This Special Issue aims at publishing original scientific articles devoted to advances in quantum computing algorithms for scientific computing. These advances include solving numerical linear algebra tasks, such as solving linear systems, eigenvalue decomposition, singular value decomposition; solving large-scale continuous/discrete optimization problems; and solving certain high dimensional linear and nonlinear differential equations. This Special Issue of /Mathematics/ welcomes academic and industrial research on quantum computing.

- quantum algorithms for numerical linear algebra
- quantum algorithms for optimization
- quantum algorithms for solving ordinary/partial/fractional differential equations
- quantum algorithms for scientific machine learning
- quantum algorithms for simulating complex systems in scientific or engineering problems
- uncertainty quantification in quantum scientific computing algorithms
- quantum simulators for quantum scientific computing

Special Issue

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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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