

Special Issue

Trends and Prospects in Scientific Computing and Quantum Computing in Astrophysics

Message from the Guest Editor

Computing stands as a cornerstone in modern astrophysics. It is an indispensable tool in modeling intricate dynamics across diverse scales and processing observational data generated at disparate rates and volumes. Advanced and large-scale simulations continuously assist in refining physical and numerical models, establishing observational connections, and understanding astrophysical phenomena—from detailed transport microphysics in star formations and exotic matters in compact objects to the modeling of gravitational waves and the evolution of galaxies and cosmic structures. Distributed and parallel computing infrastructures are also behind big observation projects that propel us toward the age of multimessenger astronomy. The path toward quantum practice certainly requires efforts from both classical and quantum sides. Therefore, the following Special Issue aims to highlight advancements ranging from physical models and formulation to numerical methods and computing aspects, including simulations and data analysis, across various branches of astrophysics. With the hope of inspiring ideas for exploring the quantum computing paradigm

Guest Editor

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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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