## Numerical, Mathematical and Machine Learning Models in Science and Technology of Space and Matter

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### Message from the Guest Editors

Dear Colleagues,

During the last decades, and thanks to the advancement of computing capabilities, big data as well as machine and deep learning models have demonstrated their utility in different fields of science and technology. Two areas where these methodologies have arrived to stay are astronomy and particle physics.

This Special Issue is justified as, nowadays, there remain numerous open challenges, including deepening the mathematical foundations of all these methodologies. Not only is the development of new models that can cover real needs required but, also, some theorical aspects are still unclear. Topics such as alternative methods to stochastic gradient for the training of neural networks, development of new cost functions able to reduce overfitting, and methodologies for the selection of the best neural networks topology are examples of some of the issues that remain open.

The objective of this Special Issue is to bring together articles on new theoretical advances and their applications to astronomy and particle physics, giving more light to their theorical foundations.

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# Special Issue

## Editor-in-Chief

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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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