Special Issue

Applied Mathematics for Cosmology and Gravitation

Message from the Guest Editors

Einstein's gravitational field equations describing the evolution of the universe are a complicated system of coupled partial differential equations. Solving such equations usually involves assumptions of some sort of symmetry. The study of large-scale structure formation also involves perturbative techniques that need harmonic decomposition and analysis. Dynamical analysis techniques are also becoming increasingly popular in the qualitative descriptions of cosmological solutions. Recent cosmological data have shown that the standard cosmological model based on Einstein's general relativity theory is somehow incomplete, leading to the formulation of a plethora of modified gravity theories. Any analytical and computational analysis of their cosmological solutions, as these examples seek to demonstrate, ultimately requires the use of applied mathematics. In this Special Issue, original research and review articles related to the use of applied mathematics in the study of GR-based gravitation and cosmology as well as modified gravitational models will be considered for publication.

Guest Editors

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About the Journal

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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