Special Issue

Fractional Calculus: Advances and Applications

Message from the Guest Editors

In recent years, fractional calculus (FC) has been shown to be more accurate for describing real processes than the ordinary calculus. FC is the natural generalization of the ordinary calculus, and fractional derivatives are defined by integrals, making them non-local. This means that the fractional time derivative simulates memory effects, and the spatial fractional derivative describes non-local spatial effects. There are several results demonstrating the remarkable advantages of fractional calculus over the ordinary calculus, example.g., the new theory of capacitors, anomalous diffusion, memory mechanisms, bioengineering, electromagnetism, fractional electrical circuits, fractional-order control, and nanotechnology, to mention a few. The Special Issue "Fractional Calculus: Advances and Applications" aims to collate original articles with various contributions, such as new methods for solving fractional differential equations and applications in all areas of science and engineering, such as fractional control, electromagnetic theory, bioengineering, and mechanics. Studies on fractional cosmology are welcome.

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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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