Special Issue

Calculus of Variations, Fractional Calculus and Their Applications

Message from the Guest Editor

The calculus of variations has been one of the main branches of analysis for more than two centuries. It is applied to a wide range of problems in pure and applied mathematics and has played a central role in theoretical physics. Moreover, since seminal pioneering works from Fred Riewe, the calculus of variations with functionals depending on fractional derivatives and integrals, namely the fractional calculus of variations, emerged as an important research field to study a large variety of real-world complex systems, for example, in problems displaying either or both multi-scaling and non-local behavior, and in systems with non-conservative forces. The main objective of this Special Issue is to highlight the recent advancements in fractional calculus of variations theory, innovative numerical and analytical methodologies, and potential applications. Keywords

- fractional calculus of variations
- fractional derivatives and integrals
- necessary and sufficient optimality conditions
- fractional Euler–Lagrange equation
- numerical and analytical methods
- applications of fractional calculus of variations

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Fractal and Fractional

About the Journal

Message from the Editor-in-Chief

Fractal and Fractional (*Fractal Fract.*) is a scholarly online journal which provides a forum for discussion on new original models and methods in fractals and fractional calculus both from theory and applications. It is a peer-reviewed, open access journal that publishes high quality original research articles, review papers and short communications.

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