Special Issue

Noether's Symmetry Approach in Gravity and Cosmology

Message from the Guest Editors

The Noether's theorem is one of the most beautiful theorems in mathematics that allows us to find symmetries for a certain model, to then to use them to reduce its dynamical system and find exact solutions. This theorem has been widely used in gravity and cosmology to find exact solutions.

An enormous literature exists about modified theories of gravity, but these theories have (in general) complicated partial differential equations, and therefore, it is not so easy to find exact solutions for those models. To go beyond general relativity (GR) or the standard model of cosmology, it is important to investigue and find new exact solutions, to then compare them with the standard solutions known in GR. This might help to analyse the differences between modified theories and GR. The main aim of this Special Edition is to invite researchers from the subjects of gravity and cosmology to submit their work, in which one can use the Noether's symmetry approach to find exact solutions.

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About the Journal

Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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