

Special Issue

Advanced Calculus in Problems with Symmetry

Message from the Guest Editors

Computer vision (e.g., for the autonomous driving of cars), artificial intelligence, robotics, machine learning, and computational and mathematical modeling of biological, engineering, physical systems are becoming increasingly attractive and suitable methods for the solution of daily complex non-linear problems which, however, are showing the existence of some symmetries. These problems can be easily solved using methods of modern advanced calculus and original theories and algorithms that have recently been discovered. The most efficient computations which follow from the increasingly powerful hardware and software thus enable us to handle more and more complex problems. However, it has also been recognized that very often also in some problems there exists some kind of symmetry which reduces the complexity. Therefore in the analysis of radioactive decay in chemistry, in the prediction of birth and death rates, as well as in the study of gravity and planetary motion, fluid flow, ship design, geometric curves, and bridge engineering, we can combine advanced calculus with symmetry properties to easily handle and solve such problems...

Guest Editors

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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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