Special Issue

Theory and Applications of Nonlinear Equations with Parameters: Branching, Regularization, Group Symmetry and Solutions Blow-Up

Message from the Guest Editors

A series of applications of the Lyapunov–Schmidt method, Conley index theory, and the central manifold methods in the conditions of group symmetry were reported in many seminal works in recent decades. Various critical processes in plasma physics, fluid dynamics, and thermodynamics are modeled using the branching theory of nonlinear differential-operator parameter-dependent equations. The objective of this Special Issue is to report on the cutting-edge development of the advanced branching theory of nonlinear equations and their applications. The Special issue will bring together experts in the qualitative theory of differential-operator equations, numerical analysts, and practitioners in the various applied fields of contemporary natural sciences. Results on the solvability of non-standard nonlinear equations with parameters will be reported, focusing on the analysis of the problems associated with branching, regularization, group symmetry, and solution blow-up phenomena.

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Deadline for manuscript submissions

closed (31 October 2023)

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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