

Special Issue

Advances in Mathematical Models and Partial Differential Equations

Message from the Guest Editors

In the study of partial differential equations (PDE), “blow-up” or “singularity” means the breakdown of a system within a finite time. The singularity formation in nonlinear physical systems has been attracting the attention of many physics and mathematics researchers because of its physical significance and mathematical challenge. In this regard, the lifespan of a PDE system is the maximal time before which the solutions exist and are sufficiently smooth. In the study of PDE, it is expected that symmetry assumptions or reductions can facilitate the study of the lifespan of the non-linear partial differential systems. In other words, symmetry is especially useful to analyze simpler cases of some complex systems. In this Special Issue, we expect that theoretical or numerical study of the lifespan of non-linear PDE can be developed. To contribute to this Special Issue, we expect that the theoretical analysis can establish a sufficient condition on initial data that guarantees that the lifespan of the systems is finite...

Guest Editors

Prof. Jianwei Dong

Prof. Dr. Ningnan Lai

Dr. Jianli Liu

Dr. Manwai Yuen

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Symmetry
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
symmetry@mdpi.com

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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.

Editor-in-Chief

Prof. Dr. Sergei Odintsov

1. ICREA, 08010 Barcelona, Spain

2. Institute of Space Sciences (IEEC-CSIC), C. Can Magrans s/n, 08193 Barcelona, Spain

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