Special Issue

PT-Symmetry in Physical Systems

Message from the Guest Editor

Recently, most intriguing and promising topics in modern physics have become those related to the description of the physical systems by non-Hermitian Hamiltonians. Especially, the Hamiltonians, which exhibit the PT-symmetry (parity-inversion plus time-reversal symmetry), have gained particular interest. Starting from the end of the previous century, they have attracted considerable and still increasing attention in both theoretical and experimental research. They concern critical phenomena, PT -symmetry breaking, and other aspects related to such Hamiltonians, and were the subject of numerous works dedicated to various areas ranging from mechanics, acoustics, electronics, classical and quantum optics, to optomechanics, plasmonics, metamaterials, and photonic crystals. Such studies are particularly relevant in finding ways to describe the coexistence of excitation and damping phenomena. Besides their practical aspects, advances in the research related to the PT-symmetric Hamiltonians can lead to the alternative formulation of quantum mechanics.

Guest Editor

Prof. Dr. Wiesław Leonski

Institute of Physics, Univeristy of Zielona Góra, 65-516 Zielona Góra, Poland

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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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