Special Issue

Symmetry in Many-Body Physics

Message from the Guest Editors

Dear colleagues, The harmony of nature is expressed through the implementation of symmetry providing optimal structures for complex systems from snowflakes to graphene lattices. Usually, finding exact solutions to the problem of interacting particles presents a fundamental challenge. Therefore, we have to restrict ourselves to approximate solutions that reflect the essential features of the entire problem as a whole and contain an indication of the range of applicability of these solutions. An important role in finding approximate solutions is played by the knowledge of basic symmetries that determine the accuracy of the used approximations. The purpose of this issue is to demonstrate the principal role of exact and approximate symmetries in solving various problems of many-particle physics, as well as in finding approximate solutions for the systems typical of condensed matter, trapped Fermi and Bose gases, nuclear matter, and field theory.

Dr. R.G. Nazmitdinov

Guest Editors

Prof. V.I. Yukalov

Prof. Dr. V. S. Bagnato

Dr. Rashid G. Nazmitdinov

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

mdpi.com/journal/symmetry

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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.

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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