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High Energy Particle Physics and Relativistic Hydrodynamics

Guest Editor:

Dr. Marcin Słodkowski
Faculty of Physics, Warsaw University of Technology, 75, Koszykowa str., 00-662 Warsaw, Poland

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Message from the Guest Editor

Dear Colleagues,

There is no doubt that symmetries play a fundamental role in high energy physics and their relativistic phenomena. Researchers strive to develop elegant models to describe the world of elementary particles and make theoretical predictions introducing symmetry. An example of such efforts is the supersymmetric standard model, which introduces a supersymmetric partner for each particle and is part of the research relating to the grand unified theory. By exploring the particular areas of the phase diagram of strongly interacting matter, chiral symmetry restoration can be expected. In the case of quasi-free quarks (transition to quark–gluon plasma), (partial) restoration of chiral symmetry is expected. Moreover, in dense nuclear matter, the properties of the various hadronic resonances can change as a consequence of the recovery of chiral symmetry. When describing nuclear matter using relativistic hydrodynamics, cylindrical, ellipsoidal, spheroidal, or Gaussian symmetries are used to describe the initial state of quark matter in collisions of heavy ions at relativistic energies...

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Editor-in-Chief

Prof. Dr. Sergei Odintsov
1. Institució Catalana de Recerca i Estudis Avançats (ICREA), Passeig Luis Companys, 23, 08010 Barcelona, Spain
2. Institute of Space Sciences (ICE-CSIC), C. Can Magrans s/n, 08193 Barcelona, Spain

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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Contact Us

Symmetry Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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mdpi.com/journal/symmetry
symmetry@mdpi.com
𝕏@Symmetry_MDPI