Special Issue

Supersymmetry in Integrable Systems

Message from the Guest Editor

It is well known that symmetries play a central role in modern mathematical physics. In the classical domain, they are indispensable for constructing explicit solutions to equations of motion. Celebrated applications vary from the Kepler problem to the geodesic motion in black hole spacetime. In quantum theory, they facilitate the construction of eigenstates of the Hamiltonian by purely algebraic means, the Calogero model being a classical example. A system is integrable if it possesses as many integrals of motion as the number of degrees of freedom. If there are extra integrals over and above those, it is superintegrable. Extensive studies of models with abundant symmetries over the last forty years paved the way for a separate ramification of modern mathematical physics entitled Integrable Systems. The rational Calogero model, describing one-dimensional particles with inverse-square pairwise interactions, plays a significant role in mathematical and theoretical physics. Being the prime example of an integrable and solvable many-body system, it appears in many areas of modern mathematical physics, from high-energy to condensed-matter physics ...

Guest Editor

Prof. Sergey Krivonos
Bogoliubov Laboratory of Theoretical Physics, Joint Institute for Nuclear Research, Dubna, Russia

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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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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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