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Symmetry in Integrable Systems: Topics and Advances

Guest Editor:

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Message from the Guest Editor

Dear Colleagues,

Symmetries play a paramount important role in mathematics as well as in physics. Similarity solutions or invariant solutions of a physical problem can be constructed using the Lie group theory. The relationship between symmetries and conservation laws generates the Noether theorem. The related applications of symmetries are to determine higher-order and nonlocal symmetries, conservation laws, nonlocal conservation laws and specific solutions from reductions. The preceding volume would like to offer an overview of the comprehensive treatments of the Lie groups of transformations, the discovery and use of symmetries to construct solutions, the conservation laws and phenomenological applications thereof.

Potential topics include but are not limited to the following:

- Symmetries;
- Conservation laws;
- Solitons;
- Integrable systems;
- Breathers;
- Rogue waves;
- Hirota bilinear method;
- Darboux transformation;
- Other miscellaneous applications of nonlinear integrable systems.

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Special Issue

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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.

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