Special Issue

Symmetry in Hamiltonian Dynamical Systems

Message from the Guest Editor

The search for Lie symmetry is a powerful method for the reduction in necessary variables and integration of dynamical systems in general. Opposite to chaotic systems, integrable systems have a sufficient degree of symmetry and exact constants of motion, or invariants. As a result, dynamical evolution in such systems is more regular and predictable. The quest for symmetry and integrability has many applications, such as in plasma physics, epidemics models, and climate prediction models, to name a few. On the other hand, Hamiltonian systems have a key role in the development of perturbation theory and quantum mechanics. The analysis of the geometric properties of Hamiltonian systems points to the relevance of Poisson structures, or non-canonical Hamiltonian systems and their diverse generalizations, such as Jacobi systems.

Guest Editor

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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

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