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Symmetry and Chaos in Quantum Mechanics

Guest Editor:

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Message from the Guest Editor

Twentieth-century physics witnessed the fundamental role played by symmetries. Indeed, symmetry has long been a guiding principle in the study of quantum mechanical systems. Today, cutting-edge research in the field is pushed forward by various extensions of the traditional symmetries. Additionally, our understanding of symmetry in quantum systems has deepened recently due to the exciting progress in generalizations of traditional symmetries to higher-form symmetry and higher-categorical symmetries. Their relations to topological defects and other fascinating phenomena have attracted significant attention in both the condensed matter community and the high energy theory community. In addition, chaos and disorder, which in some sense reflect the lack of symmetry, have also emerged as important diagnoses of quantum systems. We aim to collect original research and topical reviews on the aforementioned aspects as well as other related topics.

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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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