Special Issue

Magnetism, Skyrmions and Chirality

Message from the Guest Editors

Advanced magnetic materials are crucial to a number of current and upcoming technologies that are critical in addressing the modern environmental and exploratory challenges. Among these are effective energy transfer, high-density and energy-efficient data storage, green electronics and spintronics, and neuromorphic computing. The search for and understanding of the fundamental correlation between material properties and topological magnetic orders is an important step towards their real-life application. Early theoretical proposals of topological magnetic solitons were experimentally confirmed: skyrmions, anti-skyrmions, bi-skyrmions, and merons were discovered in various bulk materials, surfaces, thin films, and nanostructures with symmetry breaking. On the other hand, many questions are still to be answered and numerous issues to be overcome before practical application is feasible. This Special Issue of *Symmetry* is aimed at reporting novel theoretical, experimental, and numerical works in non-collinear magnetism, topological phenomena, as well as advances in the methods for the material synthesis, investigation, and manipulation of magnetic skyrmions in devices.

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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.

Editor-in-Chief

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