

Special Issue

Topological Quantum Materials and Applications

Message from the Guest Editors

Topology, a mathematical concept, has recently become a popular and truly transdisciplinary topic encompassing condensed matter physics, solid state chemistry, and materials science. Topological quantum materials are a class of compounds featuring electronic band structures, which are topologically distinct from common metals and insulators. These materials have emerged as exceptionally fertile ground for materials science research. The key ingredients for topology are certain symmetries, the inert pair effect of the outer electrons leading to inversion of the conduction and valence bands, and spin–orbit coupling. This Special Issue of *Symmetry* aims to cover recent developments in these areas including, but not limited to:

- design and synthesis of topological quantum materials;
- the magnetic, transport, thermal properties of topological quantum materials and applications;
- works related to quantum theory.

The format of welcomed articles includes full papers, communications, and reviews. Moreover, contributions should fall within the scope of the journal *Symmetry*.

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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.

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