Special Issue

The Theory of Low-Dimensional Strongly Correlated Electron Systems and Condensed Matter Physics

Message from the Guest Editor

Low-dimensional strongly correlated electron systems in condensed matter physics have been the subject of extensive research. These systems exhibit a variety of exotic properties such as unconventional superconductivity, topological semimetals and quantum spin liquids. Symmetry plays a crucial role in understanding and exploring new states of matter in condensed matter physics. Quantum Monte Carlo simulations have revealed the emergence of quantum critical points and quantum spin liquids in two-dimensional lattice models. The presence of intertwined charge and spin stripes has been observed in strongly correlated electron systems, providing insights into the microscopic correlations that define quantum states of matter. In addition, the behaviour of strongly correlated electron systems has been found to resemble that of structured fluids in soft matter, with long-range self-organisation and slow dynamics. Overall, these studies contribute to our understanding of low-dimensional strongly correlated electron systems and their connection to nanomaterials and symmetry in condensed matter physics...

Guest Editor

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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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