



## Symmetries in Quantum Condensed Matter

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### Message from the Guest Editor

The richness and multiplicity of quantum condensed phases of matter arise from the possibility of complex symmetry breaking transitions, or sequences of symmetry breaking transitions, in which an internal or gauge symmetry is spontaneously broken in combination with other symmetries, e.g. rotational symmetry, space inversion, time-reversal, etc. When this happens, new phases of matter with unique physical properties arise. Well-known examples include the superfluid phases of  $^3\text{He}$ , high-temperature superconductors with strong electronic correlations mediated by strong magnetic fluctuations, e.g. "heavy fermion" superconductors, and oxide-based cuprate superconductors.





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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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