



Special Issue on Quantum Phase Transitions and Quantum Critical Phenomena

Call for Papers

Today, the experimental and theoretical research of quantum phase transitions and quantum critical phenomena is a branch of the statistical physics of a rapidly growing importance for the explanation of essential features of low dimensional fermions and spin systems. The quantum statistics has a substantial influence on the critical behavior near various (multi)-critical points of low temperature and zero temperature continuous phase transitions as well as on thermodynamic and correlation properties near equilibrium points of low-temperature first order phase transitions. This involves the quantum statistical physics in the field of a particular type of phase transition – the quantum phase transitions. The quantum phase transition (QPT) is a phase transition between different quantum phases (phases of matter at zero temperature). Contrary to classical phase transitions, quantum phase transitions can only be accessed by varying a physical parameter - such as magnetic field or pressure - at absolute zero temperature. The transition describes an abrupt change in the ground state of a many-body system due to its quantum fluctuations. Such quantum phase transitions can be second-order phase transition.

In this special issue, we intend to invite front-line researchers and authors to submit original researches and review articles on exploring **quantum phase transitions and quantum critical phenomena**. Potential topics include, but are not limited to:

- Quantum phase transitions
- Quantum critical phenomena
- Quantum critical point
- Quantum fluctuations
- Quantum scaling

Authors should read over the journal's [Authors' Guidelines](#) carefully before submission, Prospective authors should submit an electronic copy of their complete manuscript through the journal's [Paper Submission System](#).

Please kindly notice that the “**Special Issue**” under your manuscript title is supposed to be specified and the research field “**Special Issue – Quantum Phase Transitions and Quantum Critical Phenomena**” should be chosen during your submission.

According to the following timetable:



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