



Recent Advances in Elementary Excitation

Guest Editor:

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Deadline for manuscript
submissions:

15 March 2024

Message from the Guest Editor

Elementary excitation is an important concept in solid-state theory. Excited states near the ground state can often be regarded as a collection of independent basic excitation units with specific energy and wave vectors. These basic excitation units are called elementary excitations or quasi-particles. Introducing the concept of elementary excitations can simplify complex many-body problems into quasi-particle systems close to ideal gases, thus allowing most problems in solid-state theory to be explained using simple and unified viewpoints and methods. This concept has been successfully applied to explain many properties of crystals. Typical elementary excitations include phonons, phonon polaritons, plasmons, excitons, exciton-polaritons, Cooper pairs, Cooper-pair polaritons, magnons (spin waves), magnon polaritons, superfluid helium, and so on.

The aim of the current Special Issue is to collect recent and promising research in elementary excitations. The areas to be covered include, but are not limited to, the following:

- Theory;
- Simulation;
- Characterization;
- Application.





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Message from the Editor-in-Chief

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