Special Issue

Recent Advances in Elementary Excitation

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.

Guest Editor

Dr. Weiliang Wang
School of Physics, Sun Yat-sen University, Guangzhou 510275, China

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Crystals
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
crystals@mdpi.com

mdpi.com/journal/crystals

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About the Journal

Message from the Editor-in-Chief

Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

Editor-in-Chief

Prof. Dr. Alessandra Toncelli
Department of Physics, University of Pisa, 56126 Pisa, PI, Italy

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