

Special Issue

Quantum Materials and Emergent Phenomena under Extreme Conditions

Message from the Guest Editors

Pressure is one of the fundamental thermodynamic parameters that govern the states of matter. Recently, increasing attention has been paid to high-pressure studies because they serve as a powerful approach to discovering novel quantum materials and emergent phenomena in condensed matter physics and materials sciences. On one hand, the application of high pressure adds a new dimension on top of varying temperature and chemical compositions for materials' synthesis and thus can enlarge to a great extent the stability range of several materials systems such as perovskite and pyrochlore oxides. On the other hand, the application of high pressure provides a clean knob to fine tune the delicate balance of competition interactions by effectively reducing the interatomic distances and enhancing the orbital overlap, leading to new states of matter with unusual crystal structures and/or novel physical phenomena that can hardly be accessed at ambient pressure. This Special Issue is intended to collect the recent important progress in the materials syntheses and characterizations of quantum materials under extreme conditions.

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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