Special Issue

Strong Coupling of Thermo-Chemical and Thermo-Mechanical States in Applied Materials

Message from the Guest Editor

Many applied materials, like metals and solid-state polymers, consist of multiple phases. The mutual interaction between chemistry and mechanics in applied materials is the central goal of manuscripts in this Special Issue. Examples of such materials are high-strength steels, where the supersaturated crystal lattice locks plastic relaxation, and Ni–base superalloys, in which a two-phase structure is stabilized by mechanical interaction. Immiscible polymer blends show enhanced stiffness and toughness due to phase separation between the components. In filled elastomers and fiber-reinforced polymers, the mechanical properties depend on the chemical state of an interfacial layer which changes under external mechanical load. All these materials cannot be understood if neglecting the interplay between phase structure and mechanics.

Guest Editor

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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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