Special Issue

Microstructural Mechanisms of Damage Accumulation in Technical Alloys

Message from the Guest Editor

The mechanisms of damage and failure of metals under mechanical or combined loads have been widely studied, and high strength materials have been developed. Under tribological loads, chemical and microstructural alterations occur in the material, and surface properties under cyclic and multiaxial stress fields are difficult to determine or predict. Techniques of severe plastic deformation, on the other hand, allow the introduction of extremely high strains, typically by shear, without inducing defects through the superposition of hydrostatic compressive stress. Understanding microstructural mechanisms of damage and strain accumulation, but also healing effects through recovery or recrystallization, allows us to understand ways in which materials may be loaded well beyond their current range of application—or clarifies in which load situations conventional material properties will overestimate a material's performance in a given load situation. This Special Issue focuses on research aiming at the understanding of fundamental mechanisms of materials' reactions to potentially damaging mechanical load conditions.

Guest Editor

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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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