Special Issue

Recent Advances in Mechanisms of Fracture and Fatigue

Message from the Guest Editors

In recent years, we have witnessed a rapid development in our ability to understand fracture and fatigue processes from the point of view of underlying damage mechanisms. A massive application of advanced experimental methods has significantly contributed to this progress. Finite element models based on higher-order elasticity and plasticity started to be applied in fracture mechanics, and in addition, atomistic approaches based on density functional theory and/or molecular dynamics resulted in multiscale models unifying the nano–micro–macro description of damage mechanisms. At the same time, research focused on fracture and fatigue mechanisms in special materials and components such as biological materials, smart materials, ultrafine grained materials, nanomaterials, high-entropy alloys, concrete and metal/ceramics composites, materials with coatings, complex structures of microelectronic and micromechanical devices, epitaxial films or additive manufactured materials has become prominent compared to investigations of classical metallic materials.

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Deadline for manuscript submissions

closed (20 April 2022)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/40988

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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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