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Recent Advances in Mechanisms of Fracture and Fatigue

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Deadline for manuscript submissions:
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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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