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# Mechanical Behaviors and Damage Mechanisms of Metallic Materials

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## Message from the Guest Editors

It is well known that metallic materials are widely used in many traditional and advanced engineering sectors. Considering their possible applications, metals and alloys have to withstand various combinations of loading and environmental conditions, e.g., static or dynamic (fatigue, impact) loadings, at room or high temperature, sometimes in the presence of aggressive or corrosive environments. Each environment/loading combination triggers a specific mechanical response (elastic, plastic, creep, fatigue, ratcheting, wear, fretting, etc.) and makes materials more susceptible to a certain damage mechanism, which in some cases may even lead to catastrophic failure. An in-depth understanding of the different types of mechanical behaviors and damage mechanisms of metals and alloys is of paramount importance to achieve a flawless engineering design.

Based on these insights, this Special Issue aims not only to provide an up-to-date overview on the relevant mechanical behaviors, deformation, and damage mechanisms of metallic materials under various environmental/loading conditions, but also to collect original contributions exemplifying standard or more advanced analysis techniques.

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## Message from the Editor-in-Chief

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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