Special Issue

Study of the Formation of Oxides Layers on Alloy Surfaces and at the Oxide-Matrix Interfaces

Message from the Guest Editors

Ti-based alloys are very promising materials for technological applications in many fields, because of their excellent combination of mechanical properties. The poor high-temperature oxidation resistance of these alloys restricts their application. The enhancement of the alloy oxidation and hot corrosion resistance, while maintaining their excellent mechanical properties, is of considerable interest. This Special Issue is focused on the theoretical and experimental studies of oxide scale formation on Ti-based alloys, oxygen diffusion and the formation of intermediate layers at the oxide–matrix interface, as well as the influence of impurities on these processes. Reviews, original articles, and short communications in the area of computer simulation of the surface and interface properties of Ti-based alloys, including the electronic structure, oxygen diffusion, and self-diffusion characteristics; moreover, experimental investigations into the evolution of surface and interface structures and their physical–mechanical properties under oxidation or loading are welcomed.

Guest Editors

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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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