Special Issue

Mechanical Properties and Corrosion Behavior of Metals after Surface Modification

Message from the Guest Editors

It is known that the surface is the first layer of defense. Enhancing the surface properties and performance is definitely a cost-effective way to extend the durability and thus the whole lifespan of critical parts and elements. Shot peening, laser shock peening, deep rolling, laser cladding, laser surface melting, ultrasonic peening, additive manufacturing, SMAT, SMGT, and various coating technologies are widely used to modify the surface properties. Just as every coin has two sides, each surface treating technique has its own drawbacks, and it should be selected and formulated correctly to meet the specific requirements. Based on these considerations, this Special Issue aims to present the recent research advancements regarding mechanical properties and corrosion behaviors of metals after surface modification. The main focus includes, but is not limited to, the effects to strength, corrosion, fatigue, and wear properties of metallic materials. We hope to increase our understanding and thus manipulate surface technology to improve reliability and durability.

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Message from the Editorial Board

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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