

Special Issue

Microstructure, Hardness, Residual Stress and Fatigue Behavior of Welded Joints

Message from the Guest Editor

Welding is an essential technology used to manufacture complex, large and multi-material components, and to repair defective and damaged parts. In other words, welding is an inevitable constituent of modern manufacturing. Thus, a comprehensive understanding of the microstructure and characteristics of various similar and dissimilar welded joints is of significant importance. The hardness, residual stress and fatigue strength of the joints are crucial subjects in this field. The measured hardness in different zones of welded joints can be closely related to the microstructure of these zones. Welding residual stresses can also severely affect the soundness of the weldments and their mechanical properties. In addition, the fatigue behavior of welds used in automotive bodies, railroad vehicles and other cyclically loaded weldments should be precisely studied. Therefore, this Special Issue aims to gather original investigations devoted specifically to the microstructure, hardness, residual stress and fatigue behavior of fusion and solid-state welds. Articles about brazed and soldered metallurgical joints are also welcome.

Guest Editor

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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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