Special Issue

Modeling and Analysis of Residual Stress in Welded Joints

Message from the Guest Editor

Several experimental destructive and non-destructive techniques for directly measuring residual stress have been developed. However, it is impossible for any of these experimental techniques to obtain a complete distribution of the residual stress and of the distortion affecting a welded structure. Thus, computational methods play an indispensable role in resolving these complex problems. The aim of this Special Issue is to collect original research articles as well as review articles that seek to address the modeling and analysis of residual stress in welded joints. The Special Issue will include theoretical, numerical, and experimental contributions describing original research results and innovative concepts that address the issues of residual stress in welded joints. The scope includes (but is not limited to): simulations of welding processes, effects of residual stress on the fatigue behaviour of welded joints, thermo-mechanical analyses of welded joints, the modeling of residual stress relief in welded joints, modeling of pre-heat treatment and post-heat treatment and their effects on residual stress in welded joints.

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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