Special Issue

Experimental Assessment of Residual Stress in Engineering Materials Components

Message from the Guest Editors

The use of precipitation hardened aluminium alloys as structural materials in passenger carrying aircraft appears to be at a crossroads. One of the requirements of the aluminium alloys used in aircraft is the heat treatment step. To continue to compete with composite materials, the prediction, characterisation, management, control and consequences of residual stresses in precipitation hardened aluminium alloys still warrants further investigation. Studies themed around the optimisation of mechanical stress relieving techniques by the use of improved multiscale models of microstructural evolution during quenching are especially relevant. Papers on recent advances, and review articles, particularly in regard to measurement, stress relieving technologies, prediction of distortion and the impact of residual stresses on product performance are invited for inclusion in this Special Issue on "Residual Stresses in Precipitation Hardened Aluminium Alloys".

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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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