



Experimental, Modeling and Simulation of Residual Stress in Metallic and Composite Materials

Guest Editors:

Prof. Dr. Joao Nobre

Department of Physics, University of Coimbra, Rua Larga à Universidade, 3004-516 Coimbra, Portugal

Dr. Tao Wu

Department of Mechanical Science and Engineering, Technical University of Dresden, 01069 Dresden, Germany

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Message from the Guest Editors

Residual stress can have detrimental or beneficial effects on the mechanical behavior of materials. Its evaluation, prediction/modeling and control in engineering materials assume, therefore, particular importance. This Special Issue is devoted to new advancements on measurement techniques and modeling and prediction of residual stresses in alloys, metal matrix composites, and hybrid metal–composite materials. Due to the increased demand of key industries, in new materials and manufacturing processes, residual stresses related to additive manufacturing processes and hybrid metal–composite materials will be highlighted. However, residual stresses related to all manufacturing processes, surface treatments, and coatings will be covered. New developments in the understanding of the relationship between residual stresses and material properties and mechanical behavior are of great interest. Possible topics include experimental techniques and methods, genesis of residual stresses by manufacturing and processing of materials, simulation of stress profiles, texture–stress relationships, micro-meso-macro strain studies, residual stresses, and phase transformations.





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Editors-in-Chief

Prof. Dr. Hugo F. Lopez

Department of Materials Science and Engineering, College of Engineering & Applied Science, University of Wisconsin-Milwaukee, 3200 N. Cramer Street, Milwaukee, WI 53211, USA

Prof. Dr. Yong Zhang

Beijing Advanced Innovation Center of Materials Genome Engineering, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, 30 Xueyuan Road, Beijing 100083, China

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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Metals Editorial Office
MDPI, Grosspeteranlage 5
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