Special Issue

Emerging Trends in Welding Technologies

Message from the Guest Editors

Welding and joining technologies play a critical role in enabling the application of advanced engineering alloys in multiple industries across the world. A key area of focus is welding metallurgy, where microstructural transformations induced by these processes can significantly influence the mechanical performance of joints. Therefore, understanding and correlating process parameters with their impact on the microstructure and mechanical behavior is essential for optimizing joint quality and performance. Moreover, simulation and modeling of thermomechanical behavior during welding are also essential for refining process parameters and improving reliability, particularly regarding the prediction of microstructures driven by the imposed thermal cycles. Topics of interest include, but are not limited to, the following:

- Similar and dissimilar material joining;
- Fusion and solid-state welding processes;
- Modeling and simulation of welding behavior;
- Process development and optimization;
- Advanced microstructural and mechanical characterization.

Guest Editors

Dr. João Lopes

CENIMAT/I3N, Department of Materials Science, NOVA School of Science and Technology, Universidade NOVA de Lisboa, 2829-516 Caparica, Portugal

Prof. Dr. João Pedro Oliveira

CENIMAT/I3N, Department of Materials Science, NOVA School of Science and Technology, Universidade NOVA de Lisboa, 2829-516 Caparica, Portugal

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Materials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
materials@mdpi.com

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

Editor-in-Chief

Prof. Dr. Maryam Tabrizian
1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada
2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

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