

Special Issue

Friction Stir Welding of Lightweight Alloys

Message from the Guest Editor

This Special Issue of *Metals*, entitled “Friction Stir Welding of Lightweight Alloys”, focuses on the very attractive friction stir welding (FSW) technology, a solid-state joining process widely used in many important industrial fields, such as in automotive, aerospace, and ship-building industries. The FSW process allows for the joining of sheets in similar and dissimilar lightweight alloys, difficult to weld through traditional fusion techniques. The frictional heat developed between tools and workpieces, along with that generated by the stirring action of the tool and the adiabatic heating, promote a strong plastic deformation of the workpieces and their complex mixing across the weld. In addition, friction stir welding is receiving growing interest, owing to the energy efficiency, environment friendliness, and versatility that make FSW a promisingly ecologic and “green” technology, compared with conventional welding techniques, due to the low temperatures involved and the solid state nature of the process. Furthermore, FSW leads to a decrease in material waste, and allows for avoiding radiation and dangerous fumes.

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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