



Advanced Joining Technologies for Automotive Lightweight Structures

Guest Editor:

Dr. Yan Huang

BCAST, Brunel University
London, Uxbridge UB8 3PH, UK

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Message from the Guest Editor

High-strength aluminium alloys are increasingly used in the automotive industry, in combination with high-strength steels, polymers and composites, in order to meet the demand for lightweight high-strength structures for more fuel-efficient vehicles and electric vehicles with superior crash protection. Accordingly, there has been a shift in joining techniques, from spot welding to hybrid joining approaches. This Special Issue aims to offer a forum for exchange in fundamental understanding and technological advances in automotive lightweight structure joining solutions, among worldwide academics, scientists and expert automotive engineers, with a focus on aluminium alloys and their joining with steel and polymers. The scope covers physical experiments, joint design, characterization and assessment, and process simulation and optimization on the following key joining technologies:

- Solid state joining methods—friction stir welding, self-piercing riveting, and magnetic pulse welding, etc.
- Fusion welding and resistance welding—laser beam welding, electron beam welding, cold metal transfer welding, etc.
- Hybrid joining methods and adhesive bonding.





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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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Materials Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

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