

Special Issue

New Technologies in Resistance Spot Welding

Message from the Guest Editor

Resistance spot welding still plays a critical role in automotive, aerospace, aero-engine, electrical, and other industries. In the automotive sector, various generations of advanced high-strength steels (AHSS) enabled engineers to design and manufacture weight-reduced automobiles with improved crash safety and fuel economy. However, the introduction of new advanced high-strength steels (e.g., TRIP steels, TWIP steels, QP steels, and Medium-Mn steels) in the automotive industry is accompanied by the challenge in their resistance spot weldability. The manufacturing of electric vehicles relies on applying a large amount of light Al alloys. Resistance welding, as an easy, high-speed, and high-efficient joining process, is a candidate for welding in Li-Ion battery manufacturing. A thorough understanding of the process's physics, chemistry, and metallurgy is required to develop new technologies and innovations to solve the challenges faced in resistance spot welding. In this Special Issue, we welcome reviews and research articles focusing on resistance spot welding challenges and opportunities in various industries, including automotive, aerospace, battery manufacturing, etc.

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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