

Special Issue

Welding and Joining of Advanced High-Strength Steels

Message from the Guest Editor

Advanced high strength steels (AHSS) are automotive materials that provide improved fuel efficiency (weight reduction by downgauging) and passenger safety (enhanced crashworthiness behavior). The AHSS family (DP, CP, FB, MS, TRIP, HF, TWIP, PHS, Q&P), possess sophisticated and unique multiphase microstructures that provides them with extraordinary strength, ductility, toughness, fatigue, and/or a combination of properties. Welding and joining of AHSS is challenging when choosing the adequate technique e.g., portability, cost, heat input, welding speed, joint and design restrictions, etc. Available technologies for joining AHSS are: RSW, FSSW, GMAW, TIG, HFIW, MPW, laser welding, plasma, arc stud welding, brazing procedures, adhesive bonding, hybrid welding, mechanical joining, etc. This special issue aims to cover (not limited): microstructure-property relationships, welding metallurgy, performance and properties, dissimilar metal joining, forming and manufacturing of TWB, weldability, welding processes, process simulation, neural network applications, industrial applications, inspection and repair. You are invited to submit original research articles and reviews.

Guest Editor

Prof. Dr. Víctor H. Baltazar-Hernández

Materials Science and Engineering Program, Universidad Autónoma de Zacatecas, Zacatecas 98000, Mexico

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

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About the Journal

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.

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

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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

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