Special Issue

Welding and Fatigue of Railway Metallic Materials

Message from the Guest Editor

Welding is an effective tool in the railway industry. Rolling stock bogie frames and car bodies are mainly produced using welding. To solve various problems occurring in the weldment, it is necessary to share the research results obtained in the field and the academic world. New welding technologies such as laser welding, friction stir welding, and dissimilar welding are applied. The effect of weld residual stress and post-weld heat treatment on fatigue strength has not yet been identified. To improve the fatigue lifetime of the weldment, a new post-weld surface treatment like ultrasonic impact peening is applied. Since railway vehicles are in service for more than 20 years, fatigue life evaluation in a very high cycle range is necessary. With improving computer performance and the development of analysis algorithms, the real welding process can be simulated. For this Special Issue in *Metals*, we welcome reviews and articles concerning welding-related discoveries and theories related to welding in the railway industry and academia. Other relevant topics that have not been mentioned here are also welcome.

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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