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Heat Resistant Steels and Alloys

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Deadline for manuscript submissions:
closed (31 July 2023)

Message from the Guest Editors

Heat-resistant steels and alloys play important roles in high-temperature applications. It is continuously important to make efforts to improve the heat resistance and long-term properties of the materials for higher efficiency of thermal power generation systems and also to design new materials that are adaptable to new operating conditions. The importance of designing new alloys and in understanding degradation mechanisms for improved jet engine operations remains unchanged due to the forecasted increase in the commercial aviation market until 2038.

This Special Issue highlights recent progress and innovations in the fields of heat-resistant steels and alloys from a wide perspective, including alloy design, characterization of microstructure formation and stability, creep deformation and fracture, creep-fatigue interaction, degradation mechanisms, oxidation, and high-temperature corrosion and other topics. It focuses on metallic materials that include creep resistant ferritic and austenitic steels, superalloys, titanium alloys, intermetallic compounds, and refractory metals. Researchers are, therefore, encouraged to submit a research and review paper on their recent work.

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Message from the Editor-in-Chief

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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Journal Rank: JCR - Q2 (Metallurgy and Metallurgical Engineering) / CiteScore - Q1 (Metals and Alloys)

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