Special Issue

Casting Process, Processing Deformation and Microstructure Optimization of Advanced Metallic Materials

Message from the Guest Editors

Metal casting, as a traditional foundational technology, can directly manufacture various complex components required in the automotive, aerospace and other fields. However, problems such as pores and coarse grains that may occur during the metal casting process affect the performance of materials. In addition, some special metals are processed and deformed to satisfy the needs of industrial applications. However, specific microstructure evolution also occurs during the process of processing and deformation, which affects the quality of the product. Therefore, understanding and controlling the microstructural evolution of metals and alloys during casting or deformation processes will be able to effectively control the mechanical properties of the material. Optimizing and regulating the casting process and deformation ability of metals is one of the important directions for the future development of metal materials. All articles concerning high-strength titanium alloys, nickel-based superalloys, high-entropy alloys, aluminum alloys, magnesium alloys, and their new casting methods or deformation technologies are welcome.

Guest Editors

Dr. Guohuai Liu

Prof. Dr. Zhaodong Wang

Dr. Yanmei Li

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

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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

Prof. Dr. Yong Zhang
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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