Special Issue

Heterogeneous Nucleation, Grain Initiation and Grain Refinement: Reports from the LiME Research Hub in the UK

Message from the Guest Editor

Heterogeneous nucleation and grain initiation are critical processes at the early stages of solidification, which largely determine the finally solidified microstructures and have significant influence of the performance of metallic materials. With financial support from the EPSRC (Engineering and Physical Science Research Council, UK) in the last 6 years, substantial progress has been made on the early stages of solidification by the LiME (liquid metal engineering) Research Hub (www.LiME.ac.uk). The LiME Research Hub is a national centre of excellence in liquid metal engineering based in BCAST at Brunel University London supported by research groups in Oxford, Leeds and Manchester Universities and Imperial College London. In this Special Issue, we will focus on progress made on our understanding of heterogeneous nucleation, grain initiation, grain refinement and their application to practical casting processes, such as direct chill (DC) casting, twin roll casting (TRC), die casting and metal recycling. While the Special Issue is primarily focused on work from the LiME Research Hub, we also welcome submissions from other researchers in the field.

Guest Editor

Prof. Dr. Zhongyun Fan

1. Director of BCAST (Brunel Centre for Advanced Solidification Technology), Brunel University, London, UK
2. Director/Principal Investigator, the Liquid Metal Engineering (LiME) Research Hub, Brunel University, London, UK

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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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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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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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