Special Issue

Advanced Technology in Ultrasonic Melt Treatment

Message from the Guest Editor

Ultrasonic melt treatment is advantageous for degassing, grain refinement, and alloy reinforcement, increasing the mechanical properties and soundness of light alloy components. However, this technique has problems due to its application in high temperatures and the use of metallic sonotrodes that may have an affinity to react with the melts during the process. Therefore, the research topic covers innovative and novel research contributions in advanced technology in ultrasonic melt treatment. Full-length research articles, reviews, prospects, and mini-reviews that report ultrasonic melt treatment in light alloy remit progress are welcome. Areas to be covered in this Special Issue may include but are not limited to:

- Design, manufacturing, and operability of ultrasonic systems applied in light alloy melt treatment;
- Integration of ultrasonic equipment in casting processes;
- Numerical modeling and experimental validation of the effect of ultrasonic melt treatment;
- Ultrasonic melt processing as a route to integrating reinforcement particles (MMCs and MMNCs) in semi-solid and liquid melt.

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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