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Shaping and Deformation of High-Entropy Alloys

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Deadline for manuscript submissions:
closed (30 November 2022)

Message from the Guest Editor

Dear Colleagues,

High-entropy-alloys were developed based on the conception of configurational entropy maximization, and there have been lots of reports on how high-entropy alloys can break the trade-off between mechanical properties, such as the trade-off between high brittleness at low temperatures, and the trade-off of low strength at high temperatures. The reported breaking of trade-offs is mainly concentrated on mechanical behaviors. There are, however, other problems that also need to be solved in the trade-off between mechanical properties and physical properties, e.g., the trade-off between mechanical ductility and magnetic properties and the trade-off between electrical conductivity and the strength of alloys. This Special Issue will discuss the methods to solve the trade-off using the high-entropy alloy strategy, which breaks the composition limits and proposes the construction design of alloys using various components. Another important problem is how to make high-entropy alloys have the shape of the expected parts and products, and thus, plastic deformation for solid state formation and the casting from liquid formation will be focused on in the issue.

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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.

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

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