Special Issue

Theory, Simulation, and Process of Metal Forming

Message from the Guest Editor

Metal forming involves strong nonlinear constitutive relationships, multi-scale microstructure evolution, and multi-field coupling effects in physical and chemical processes. This technology covers fields such as plastic forming, rolling forming, casting forming, welding manufacturing, and additive manufacturing. With the integration of digitization and intelligence, metal forming is gradually developing towards high precision, high performance, high efficiency, and high quality.

This special issue focuses on the latest technological advancements in metal forming processes, theories, simulations, and equipment. The theme will include research on the basic theory and process simulation of metal forming, metal forming process under multi-energy field coupling, multi-objective optimization method of forming process parameters based on machine learning, development of metal forming equipment, and development of metal forming process detection technology.

- Theory and simulation
- process under multi-energy field coupling
- optimization of forming process parameters
- development of forming equipment
- Detection technology of the forming process

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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