



Modeling and Simulation of Solid State Phenomena in Metals and Alloys

Guest Editor:

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Message from the Guest Editor

Dear Colleagues,

The mechanical and functional properties of metals are strongly related to their microstructures, which are, themselves, inherited from thermal and mechanical processing. Thus, the precise numerical modeling of metallic materials is an important topic, largely due to the interest in using predictive simulations of material behavior to facilitate the development of new materials, as well as the academic interest in such strategies to improve our understanding of metallurgical phenomena. In recent decades, several discretization/resolution-based numerical methods have been developed to model solid-state phenomena that occur during thermomechanical treatments of metallic materials under the concepts of computational metallurgy, digital materials, digital shadows and digital twins. Metallurgical mechanisms include: recrystallization, grain growth, recovery, ductile damage, fracture, martensitic transformations, solid/solid diffusive phase transformations and, more globally surface and volume diffusion mechanisms.





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Message from the Editor-in-Chief

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