Special Issue

Transformation Texture and Its Prediction in Cubic and Hexagonal Metals

Message from the Guest Editor

Crystallographic textures that develop during phase transformation are one of the key factors to improve the plastic, elastic, magnetic, as well as electrical properties of various cubic and hexagonal metals such as steels and titanium and zirconium alloys that have been vastly used in automobile, electrical, biomedical, aerospace, atomic energy, as well as heavy industries. Today, modern facilities of pulsed neutrons and high energy synchrotron radiation allow us to directly observe the change of textures during phase transformation under various conditions at a time resolution even below 60 s, and thus, the mechanisms and the ways to predict transformation textures have been gradually known. This Special Issue covers all areas of experimental and theoretical research on transformation textures of metals and alloys with cubic and hexagonal lattice structures, including experiments via not only in situ measurements but also ex situ electron back scattering diffraction and conventional X-ray measurements of textures and theoretical works based on such measurements. Research on materials processed by various methods such as additive manufacturing is welcome.

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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