



Structure and Properties of Aluminium Alloys

Guest Editor:

Prof. Dr. Franc Zupanič

Faculty of Mechanical
Engineering, University of
Maribor, Smetanova 17, SI-2000
Maribor, Slovenia

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Message from the Guest Editor

Dear Colleagues,

The annual world production of aluminum and aluminum alloys has been increasing over the past few decades, reaching a level as high as more than 70 million tons in 2018. The future perspective for this industry is bright, as the applications of Al and its alloys have strongly diversified in the automotive, aerospace, building, and other industries. The main aluminum property is its low density, and more importantly, very high specific properties compared to other metallic and nonmetallic materials. The properties of aluminum alloys can contribute to significant decrease in energy consumption and CO₂ emissions, especially in transportation.

The main prerequisite for the future success of aluminum and its alloys is further improvements of existing and the development of novel aluminum alloys. In addition to conventional fabrication methods (casting, forming, powder metallurgy), additive manufacturing technologies enable further tailoring of alloys' microstructure and obtaining new combination of properties. The properties of aluminum alloys are mainly based on their structure, from the atomic scale to the macrostructure, as seen by the naked eye.





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Editor-in-Chief

Prof. Dr. Yong Zhang

Beijing Advanced Innovation
Center of Materials Genome
Engineering, State Key
Laboratory for Advanced Metals
and Materials, University of
Science and Technology Beijing,
30 Xueyuan Road, Beijing 100083,
China

Message from the Editor-in-Chief

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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Metals Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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