



New Cobalt Based Superalloys Strengthened by L12 Phase: Designing and Manufacturing, Heat Treatment, Microstructural Analysis, Properties Characterization and Application

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Message from the Guest Editors

The high-temperature strength of new superalloys has been studied by many authors. The improvement of creep resistance may be obtained by addition of B, Ta, Nb, Mo, Hf and Ti, which also strengthen grain boundaries. Although some papers have been published concerning the properties of this new group of superalloys of Co-Al-W and Co-Al-Mo-Nb type, these materials are in an early phase of development and are still not suitable to replace Ni-based superalloys.

To address the information gap concerning these materials, this Special Issue of *Materials* will describe the current state of the art in the area of new Co-based superalloys.

In particular, topics of interest include, but are not limited to the following:

- Theoretical description of issues facing the design processes of new Co-based superalloys
- Technological aspects of the casting processes used for the manufacture of new Co-based superalloys and their plastic deformation
- Designing heat treatment and verification of its effects
- Characterization of microstructure of new Co-based superalloys
- Characterization of properties of new Co-based superalloys, especially high-temperature phenomena, etc





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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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