Special Issue

Strengthening Mechanisms of Metals and Alloys

Message from the Guest Editor

For many years, the goal of materials engineering has been to increase the strength of metals and alloys. Meeting this objective generally entails a reduction in toughness. The challenge, nowadays, is developing strategies to improve both properties or, at least, to produce a moderate effect in improving fracture resistance. For this, a good knowledge of the strengthening mechanisms in different metals and alloys is required. This Special Issue of *Metals* focuses on various aspects of advanced research toward understanding the following aspects of strengthening mechanisms:

- Their role in innovative processing routes for manufacture of structural components;
- The importance of alloy design in determining efficacy;
- The role of nanoparticles in MMCs reinforced by different process routes;
- Microstructural characterization techniques;
- How the different strengthening mechanisms affect the surface properties of metals and alloys;
- Simulation and modeling;
- Strengthening against high-temperature deformation (creep) and against fatigue.

Guest Editor

Dr. Marta Cabeza Simo
Senior Lecturer, Department of Materials Science and Engineering, University of Vigo, 36310 Vigo, Spain

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Metals
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
metals@mdpi.com

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About the Journal

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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Prof. Dr. Hugo F. Lopez
Department of Materials Science and Engineering, College of Engineering & Applied Science, University of Wisconsin-Milwaukee, 3200 N. Cramer Street, Milwaukee, WI 53211, USA

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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

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