

Special Issue

Corrosion Fatigue Behavior of Aluminum Alloys

Message from the Guest Editor

Al alloys have been consistently attracting attention and are used in extensive applications in a variety of fields due to their low density, high strength, and high specific strength. However, extended applications of Al alloys are still limited by their inadequate resistance to fatigue and corrosion cracking. Recent research and progress have been extended in several aspects. 1) Studied materials have been extended from legacy Al alloys to advanced Al–Cu–Li alloys. 2) The service environments Al alloys are exposed to has expanded to a higher risk of corrosion fatigue cracking and material failure. 3) In terms of prevention strategies, surface modifications and coatings have seen improvements in enhancing hardness, fatigue, and corrosion resistance. 4) In addition, the understanding of Al alloy corrosion fatigue behavior has significantly improved based on advanced ex situ, in situ, or operando characterizations and/or with the integration of multiscale modeling. Therefore, it is interesting to launch a Special Issue on the study of Al alloy fatigue corrosion cracking to document the recent progress and perspectives, thereby guiding future efforts.

Guest Editor

Dr. Yakun Zhu

Lawrence Livermore National Laboratory, UC Berkeley Research
Affiliate, Livermore, CA, USA

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Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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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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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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