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Fatigue Damage Accumulation in Metals

Guest Editors:

Prof. Dr. Wim De Waele
Faculty of Engineering and Architecture, Department of Electromechanical, Systems and Metal Engineering, Universiteit Gent, 9000 Ghent, Belgium

Dr. Kris Hectors
Faculty of Engineering and Architecture, Department of Electromechanical, Systems and Metal Engineering, Universiteit Gent, 9000 Ghent, Belgium

Deadline for manuscript submissions:
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Message from the Guest Editors

Fatigue lifetime prediction of metallic engineering structures is typically based on a cumulative damage law. The linear damage accumulation rule by Miner is the universal standard for fatigue design, even though it is known to suffer from some drawbacks (e.g., it does not account for the order in which sequences of different stress amplitude are applied). Numerous experimental studies have shown both conservative and non-conservative lifetime predictions, sometimes to a great extent. In an effort to overcome these deficiencies, various nonlinear cumulative damage models and life prediction models have been developed. However, none of them have found wide acceptance, and it has been shown that a lack of (well-documented) experimental data hinders the development and critical validation of new damage accumulation laws.

The aim of this Special Issue, 'Fatigue Damage Accumulation in Metals', is to collect state-of-the-art work on this topic. Experimental work on nonlinear damage accumulation is highly encouraged, as are works that critically evaluate and compare various types of damage accumulation laws.

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Editors-in-Chief

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

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 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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Contact Us

Metals
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/metals
metals@mdpi.com
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