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Advances in Modeling Fatigue Damage and Fracture of Engineering Materials

Guest Editors:

Prof. Dr. Frank Walther

Chair of Materials Test Engineering (WPT), TU Dortmund University, 44227 Dortmund, Germany

Dr. Mustafa Awd

Institute for Informatics and Automation, Bremen City University for Applied Sciences, D-28199 Bremen, Germany

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closed (31 August 2023)

Message from the Guest Editors

Dear colleagues,

The investigation of the fatigue of engineering materials started more than one hundred years ago; however, with the development of new engineering materials, testing methods, and computational techniques, fatigue assessment was reinvented. Real-time imagery of fatigue damage—coupled with state-of-the-art sensor technology—made understanding damage mechanisms at a sub-microscale possible. Further insights into design against fatigue are achieved by the integration of computational methods in the fatigue investigation techniques that are continuously enhanced by ever-increasing computational power. Data-driven algorithms achieved complicated fatigue-related structure–property relationships that are computationally prohibitive when using physics-based modeling alone. The fatigue community is currently thirsty for interdisciplinary approaches to fatigue analysis, even after more than one hundred years of fatigue research. We kindly invite renowned and early fatigue researchers to contribute to this effort of leveling up current advances in modeling fatigue damage and fracture within the scope highlighted here.





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Editor-in-Chief

Prof. Dr. Maryam Tabrizian

1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada

2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

Message from the Editor-in-Chief

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Contact Us

Materials Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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