Special Issue

Estimation and Mitigation of Fatigue Damage for Wind Turbines

Message from the Guest Editors

Wind turbines are large, flexible structures with complex systems that work under very complicated environmental conditions. They suffer from cyclic loadings and vibrations which cause severe fatigue damage to the structure, reducing the structural service life and increasing the operation and maintenance cost. The further development of technologies to estimate and mitigate the fatigue damage of wind turbines needs proper experimental and numerical analysis and field assessment. This Special Issue invites contributions that address fatigue problems in wind turbines. In particular, articles that describe new methodologies, analytical and numerical tools, and field test methods dealing with engineering problems are equally encouraged for publication. Potential topics include but are not limited to:

- Wind, wake, and wave effects
- Fatigue management by wind farm control
- Fatigue mitigation by model predictive control
- Data-driven/AI method
- Fatigue damage measurement
- Residual fatigue lifetime estimation
- Local fatigue crack analysis
- Fatigue properties of wind turbine material

Guest Editors

Dr. Guowei Qian

School of Ocean Engineering and Technology, Sun Yat-sen University, Zhuhai 10275, China

Dr. Davide Astolfi

Department of Information Engineering, University of Brescia, Via Branze 38, 25123 Brescia, Italy

Deadline for manuscript submissions

closed (20 January 2024)

Machines

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 4.7

mdpi.com/si/148728

Machines
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
machines@mdpi.com

mdpi.com/journal/machines

Machines

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 4.7

mdpi.com/journal/machines

About the Journal

Message from the Editor-in-Chief

Machines is an international, peer reviewed journal on machinery and engineering. It publishes research articles, reviews and communications.
Our aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. There is no restriction on the length of the papers. Full experimental and/or methodical details must be provided.
There are, in addition, unique features of this journal: Manuscripts regarding research proposals and research ideas will be particularly welcomed; Electronic files or software regarding the full details of the calculation and experimental procedure - if unable to be published in a normal way can be deposited as supplementary material.

Editor-in-Chief

Prof. Dr. Antonio J. Marques Cardoso
CISE - Electromechatronic Systems Research Centre, University of Beira Interior, Calçada Fonte do Lameiro, P-6201-001 Covilhã, Portugal

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, and other databases.

Journal Rank:

JCR - Q2 (Engineering, Mechanical) / CiteScore - Q1 (Control and Optimization)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 16.9 days after submission; acceptance to publication is undertaken in 2.4 days (median values for papers published in this journal in the first half of 2025).