Description

Typical subjects discussed in International Journal of Fatigue address:
- Novel fatigue testing and characterization methods (new kinds of fatigue tests, critical evaluation of existing methods, in situ measurement of fatigue degradation, non-contact field measurements)
- Multiaxial fatigue and complex loading effects of materials and structures, exploring state-of-the-art concepts in degradation under cyclic loading
- Fatigue in the very high cycle regime, including failure mode transitions from surface to subsurface, effects of surface treatment, processing, and loading conditions
- Modeling (including degradation processes and related driving forces, multiscale/multi-resolution methods, computational hierarchical and concurrent methods for coupled component and material responses, novel methods for notch root analysis, fracture mechanics, damage mechanics, crack growth kinetics, life prediction and durability, and prediction of stochastic fatigue behavior reflecting microstructure and service conditions)
- Models for early stages of fatigue crack formation and growth that explicitly consider microstructure and relevant materials science aspects
- Understanding the influence or manufacturing and processing route on fatigue degradation, and embedding this understanding in more predictive schemes for mitigation and design against fatigue
- Prognosis and damage state awareness (including sensors, monitoring, methodology, interactive control, accelerated methods, data interpretation)
- Applications of technologies associated with fatigue and their implications for structural integrity and reliability. This includes issues related to design, operation and maintenance, i.e., life cycle engineering
- Smart materials and structures that can sense and mitigate fatigue degradation
- Fatigue of devices and structures at small scales, including effects of process route and surfaces/interfaces

Combined and coupled behaviours that affect thermo-chemical-mechanical degradation processes under cyclic loading conditions are also included in the scope of the journal.

Audience

Materials scientists, mechanical structural civil aeronautical and design engineers.

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