Special Issue

Fatigue Limit of Metals

Message from the Guest Editor

The S–N curve of most steels and titanium alloys presents a practically horizontal zone starting at the interval between 10e6 and 10e7 cycles. Assuming that this curve corresponds to a probability of failure, for a given R-value (Smin–Smax ratio), the fatigue limit would provide a stress value to use as a reference for mechanical design. In this Special Issue, we aim to gather studies that focus on aspects that influence the fatigue limit (both conventional and gicacycle) and the S–N curve. Studies on the influence of the processes of obtaining the material (composition, grain size, and subsequent thermal or surface treatments), manufacturing processes and later treatments (such as SP, LSP, LPB, and welding), additive manufacturing, residual stresses, and tribological parameters in the fatigue limit value are welcome. Studies on the use of time-varying stress values in fatigue design (cumulative damage) and the influence of mean tensile and compressive stresses (behavior models in the Haigh diagram for infinite life), as well as uniaxial and multi-axial fatigue methods, are also welcome.

Guest Editor

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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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