Special Issue

Fretting Wear and Fatigue Behavior of Metals

Message from the Guest Editor

The problems of fretting wear and fretting fatigue are widely encountered in most built-up mechanical structures that are subjected to dynamic load or vibrations. These problems are particularly critical for the nuclear and aerospace industries due to their safety and economic impacts.

The main objectives of this Special Issue are to advance the present state of knowledge and current practice of fretting wear/fretting fatigue by identifying the areas of uncertainties in testing and modelling, and the measures that should be taken to alleviate fretting damage and improve its predictions. The scope covers, but is not limited to: mechanics and mechanisms of fretting damage, new test methods to simulate complex and random relative motion, energy-based modelling for the characterization and assessment of fretting damage, multi-scale physical processes modelling in fretting, the effect of process variables and the environment on fretting wear/fatigue, surface coating and treatment, tribo-oxides formation, tribologically transformed structures and debris formation, self-induced changes, nano-fretting, and industrial and biomedical applications.

Guest Editor

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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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