Special Issue

Entropy Based Fatigue, Fracture, Failure Prediction and Structural Health Monitoring

Message from the Guest Editor

Using either thermodynamic entropy or information theory entropy has been shown to be extremely successful in predicting the degradation, fracture, fatigue, and in-situ prognosis of all systems. It was proven by Jaynes [1957] that thermodynamic entropy is identical to the information theory entropy of the probability distribution, except for the presence of Boltzmann's constant. Information-theory entropy has been used successfully for fault diagnostics and prognostics of systems for in-situ structural health monitoring using various real-time signal feed-back cycles and computations. There is even a new pyroelectric sensor entropy detector to monitor energy conversion process in real time. There is a strong worldwide consensus among leading researchers that using entropy is scientifically the most accurate and reliable method for predicting degradation, fatigue, fracture, failure mechanics, and in-situ structural health monitoring of all systems. This Special Issue of the *Entropy* is devoted to covering the most recent advances in using entropy damage mechanics, and the structural health monitoring [fault diagnostics] of all systems.

Guest Editor

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Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

Entropy is an online open access journal providing an advanced forum for the development and/or application of entropic and information-theoretic studies in a wide variety of applications. *Entropy* is inviting innovative and insightful contributions. Please consider *Entropy* as an exceptional home for your manuscript.

Editor-in-Chief

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