



Symmetry in Bearing Modeling and Intelligent Fault Diagnosis

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Message from the Guest Editors

Dear Colleagues,

Bearings are the key supporting components of rotating equipment, such as aircraft engines, wind turbines, high-speed trains, etc., and have played a very important role in modern society. Due to the diverse requirements of equipment, bearings often operate under harsh conditions such as high speed, heavy load, and variable working conditions, which inevitably lead to fatigue damage and significant economic losses or casualties. It is necessary and meaningful to establish the model and intelligently diagnose the faults of bearings. In addition, some new methods have been developed based on symmetry in mathematical models, machine learning (including feature symmetry), deep learning, and transfer learning. These methods provide effective technical solutions for evaluating bearing status and identifying specific types of bearing faults.

Symmetry in bearing modeling and intelligent fault diagnosis is an interdisciplinary field that thrives on the dynamic exchange of ideas. This planned Special Issue of Symmetry aims to provide a forum for researchers and industrial engineers to exchange their latest findings on symmetry in bearing modeling...





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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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