

Special Issue

The Symmetry/Asymmetry Phenomenon in the Fault Diagnosis Process of Industrial Machinery

Message from the Guest Editors

Industrial machinery often undergoes inevitable health degradation. Vibration-signal-based monitoring for machinery has always played an important role in the diagnosis and prognosis of industrial machinery. Vibration signals collected in healthy machinery usually appear to have good symmetry, even in the early fault stage. With the development of the fault, the symmetry of vibration signals gradually degenerates until it breaks. Therefore, it is important to detect the asymmetry/asymmetry of the signal for the timely diagnosis and prognosis of the machinery. The intention of this Special Issue is to present methods dealing mainly (but not exclusively) with state-of-the-art solutions for signal processing and dynamics modeling to deeply explore the symmetry/asymmetry phenomenon in the process of machinery diagnostics and prognostics.

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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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