

## 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.

---

### Guest Editors

Dr. Gang Yu

Associate Professor, School of Electrical Engineering, University of Jinan, Jinan 250022, China

Dr. Shiqian Chen

State Key Laboratory of Rail Transit Vehicle System, Southwest Jiaotong University, Chengdu 610031, China

---

### Deadline for manuscript submissions

closed (30 September 2024)



## Symmetry

---

an Open Access Journal  
by MDPI

---

Impact Factor 2.2  
CiteScore 5.3



[mdpi.com/si/177250](https://mdpi.com/si/177250)

*Symmetry*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[symmetry@mdpi.com](mailto:symmetry@mdpi.com)

[mdpi.com/journal/  
symmetry](https://mdpi.com/journal/symmetry)





# Symmetry

---

an Open Access Journal  
by MDPI

---

Impact Factor 2.2  
CiteScore 5.3



[mdpi.com/journal/  
symmetry](https://mdpi.com/journal/symmetry)



## About the Journal

### 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.

---

### Editor-in-Chief

Prof. Dr. Sergei Odintsov  
ICREA, 08010 Barcelona and Institute of Space Sciences (IEEC-CSIC),  
C. Can Magrans s/n, 08193 Barcelona, Spain

---

### Author Benefits

#### Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

#### High Visibility:

indexed within SCIE (Web of Science), Scopus, CAPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.

#### Journal Rank:

JCR - Q2 (Multidisciplinary Sciences) / CiteScore - Q1  
(General Mathematics)