# Article information:

多尺度排列熵方法及其在滚动轴承智能故障诊断中的应用研究--《安徽工业大学》2020年硕士论文  
<https://cdmd.cnki.com.cn/Article/CDMD-10360-1021028830.htm>

# Article summary:

1. This article proposes a multi-scale permutation entropy (MPE) method and its application research in intelligent fault diagnosis of rolling bearings.

2. The proposed method includes composite coarse-grained time series processing, composite multi-scale permutation entropy (CMPE), composite multi-scale weighted permutation entropy (CMWPE), time-shift multi-scale permutation entropy (TSMPE), and time-shift multi-scale weighted permutation entropy (TSMWPE).

3. The proposed methods are compared with traditional methods and have been proven to be effective in fault feature extraction and rolling bearing fault diagnosis.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

This article provides an overview of the research on the application of the Multi-Scale Permutation Entropy (MPE) method in intelligent fault diagnosis of rolling bearings. The article is well written and provides a comprehensive review of the current state of research on this topic. It presents several proposed methods for improving MPE, such as Composite Coarse Grained Time Series Processing, Composite Multi Scale Permutation Entropy (CMPE), Composite Multi Scale Weighted Permutation Entropy (CMWPE), Time Shift Multi Scale Permutation Entropy (TSMPE) and Time Shift Multi Scale Weighted Permutation Entropy (TSMWPE). These proposed methods are then compared to traditional methods to demonstrate their effectiveness in fault feature extraction and rolling bearing fault diagnosis.

The article is generally reliable, however there are some potential biases that should be noted. For example, the authors do not provide any evidence for their claims that the proposed methods are more effective than traditional methods. Additionally, they do not explore any counterarguments or alternative approaches to solving this problem. Furthermore, there is no discussion of possible risks associated with using these new methods or how they might affect other aspects of mechanical engineering or production processes.

In conclusion, this article provides a comprehensive overview of the current state of research on MPE and its application in intelligent fault diagnosis of rolling bearings. However, it does not provide sufficient evidence for its claims or explore any counterarguments or alternative approaches to solving this problem. Additionally, it does not discuss any potential risks associated with using these new methods or how they might affect other aspects of mechanical engineering or production processes.

# Topics for further research:

* Rolling bearing fault diagnosis risks
* Alternative approaches to fault diagnosis
* Mechanical engineering implications of MPE
* Production process implications of MPE
* Counterarguments to MPE
* Evidence for MPE effectiveness

# Report location:

<https://www.fullpicture.app/item/2131a8db3dad806e93c0b90ad8857ae4>