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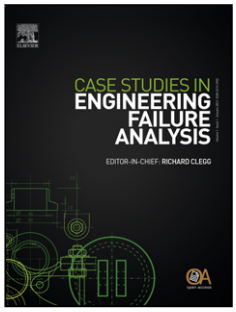


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# A case study of sample entropy analysis to the fault detection of bearing in wind turbine

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**Highlights**

- Sample entropy, an indicator reflecting the complexity of vibrations, is studied through the real field data.
- Two industrical cases are introduced to verify the effectiveness of sample entropy.
- For the purpose of comparison, other statistical indicators are applied to demonstrate the advantages of the proposed method.

**Abstract:** Rolling bearing is an important and fragile component in the wind turbine transmission system. The failure of rolling bearing is one of the highest risk events which may result in unexpected economic loss. To give a proper condition assessment of rolling bearing, especially for early fault detection, is of great importance and become an urgent issue to the wind energy industry. In this paper, sample entropy is studied through the field data of wind turbine transmission system measured from Lu Nan Wind Farm in China. Compared with several frequently used statistical indicators, sample entropy features advantages in detecting and evaluating the progress of the early faults of the rolling bearing. The

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