

Special Issue on
Full Life Cycle Vibro and Sound Feature Monitoring for Rotary Machinery

CALL FOR PAPERS

Rotary machinery plays important roles in many areas such as manufacturing, aerospace, and electric power. The development of technology has witnessed broadened application and performance development for rotary machinery and at the same time provided higher requirements for the vibro and sound performance. In some working conditions with high speed or wide temperature ranges, the problems of status degradation arise inevitably, and the vibro and sound feature monitoring is therefore needed in the full life cycle. The vibro and sound feature monitoring not only provides information on the real-time running status, but also assists in the determination of equipment maintenance strategies.

The issues of full life cycle vibro and sound feature monitoring for rotary machinery have long been studied, and some standardized methods have been proposed, but there are still problems not settled. Some early-stage weak faults, which are usually invisible and hidden in parts, are hard to detect but can lead to rapid performance degradation. Furthermore, the development of lightweight and miniaturization of current equipment also presents challenges. The vibro and sound features have non-linear attenuation through the complex structure, which makes it difficult for both feature extraction and vibro and sound suppression. As a result, more effective models and methods are urgently needed for the monitoring of vibro and sound features in complex situations.

This Special Issue is organized to collect the studies on the improvement of status monitoring, life prediction, and vibro and sound suppression. Research on the corresponding models and methods is both encouraged, especially specific and emerging methods such as digital twin and meta-materials. New ideas are also encouraged on the feature monitoring and degradation evaluation in extreme working conditions, and vibration and sound level can both be used as indicators. Original research articles and reviews are both welcome.

Potential topics include but are not limited to the following:

- ▶ Shock and vibration problems with weak and invisible faults
- ▶ Early-stage fault modelling and evolution theories
- ▶ Status monitoring based on multi-channel or multi-status signal fusion
- ▶ Development of digital twin models in life prediction
- ▶ Dynamic life prediction that adapts to varying working conditions
- ▶ Life prediction methods independent of historical data
- ▶ Vibro and sound suppression method that shows better robustness in varying conditions
- ▶ Sound and vibration control based on meta-materials
- ▶ Lightweight design for vibro and acoustic suppression measures
- ▶ Intelligent operation and status management for rotary machinery
- ▶ Life growth strategies based on vibration and sound suppression Online diagnosis and 'treatment' for rotary machinery
- ▶ Full lifecycle status management and performance upgrading

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.wiley.com/submit?specialIssue=939427>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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