

The Fifteenth International Conference on Condition Monitoring  
and Machinery Failure Prevention Technologies

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Abstracts of Papers

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the squared envelope of the signal, while a somewhat poorer estimate can be obtained from the ratio of the TKEO of the derivative to the TKEO of the signal (which will thus be seen to give an estimate of the squared frequency of the derivative of the signal). The paper then shows that the best response parameter to demodulate is that for which the FRF is uniform within the demodulation frequency range, *ie* displacement if it is on a spring line and acceleration if it is on a mass line. An error estimate is derived for differentiating a pure AM signal.

## [209] Big data technologies in real-time health monitoring systems

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Modern technological production is inconceivable without the use of equipment technical state monitoring systems. The main ways to increase the efficiency of the implementation of monitoring systems in production are provided:

- implementation of real-time systems that ensure continuous monitoring of the most important equipment;
- implementation of systems at all stages of the equipment life cycle (input control, operation and repair);
- implementation of comprehensive systems that provide monitoring of various equipment (for example, dynamic and static) on a single hardware and software platform;
- integration of the systems into the enterprise diagnostic network with presentation of information on the equipment state to all interested services.

With the implementation of these systems in real production, huge amounts of data are generated. The volume and diversity of the data allow them to be classified as the currently developing 'big data' technologies.

The paper discusses the issues of the real-time operation with data of the equipment technical state monitoring systems:

- the unified format of 'big monitoring data' representation;
- the efficiency of storage and transmission of 'big monitoring data';
- presentation of 'big monitoring data' to different users;
- application of the 'big monitoring data' for improvement of the expert monitoring system and ensuring the efficiency of scientific research.

The real-time application of the 'big data' technologies in equipment technical state monitoring systems allows the efficiency of the implementation of these systems at modern technological complexes to be increased.

*Keywords: big data technologies, real-time health monitoring systems, amounts of data, equipment technical state.*

## [210] The need for asset history data when analysing vibration

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No abstract.

## [211] Title to be confirmed

*T Bradshaw*

No abstract.

## [212] Vibration-based health monitoring methodology for helicopter gearboxes

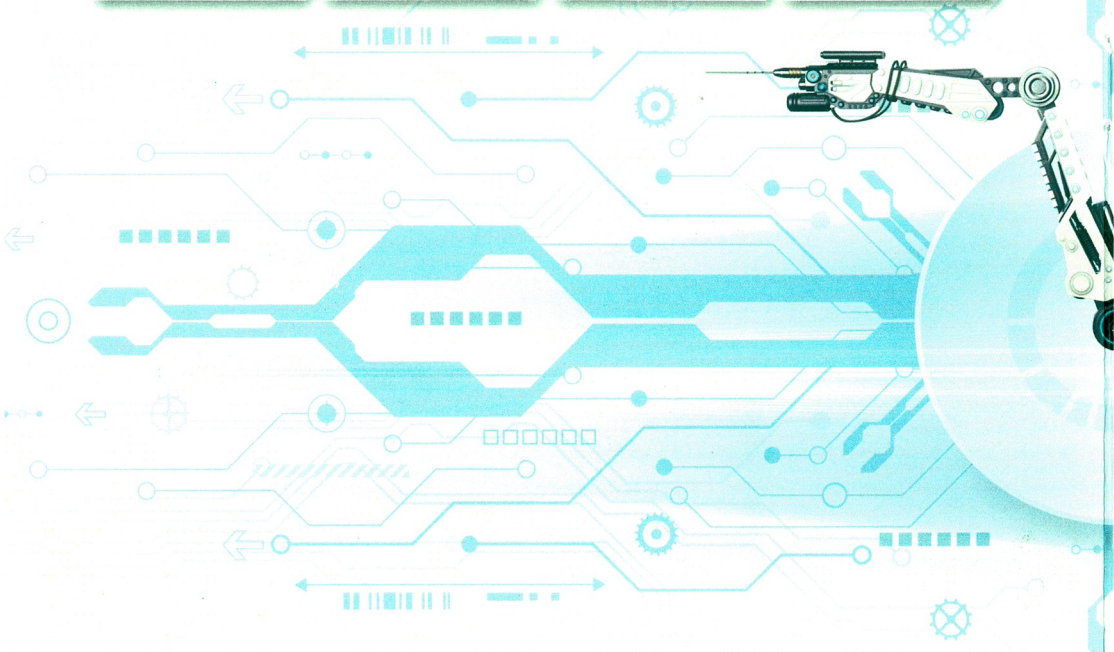
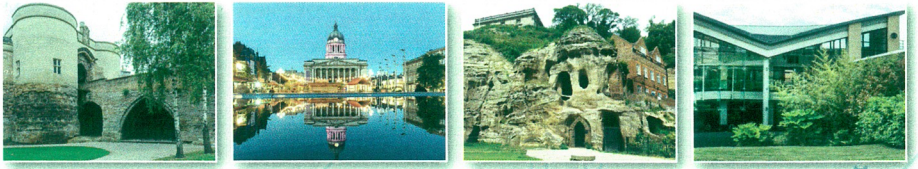
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This paper proposes a vibration-based health monitoring methodology for gears. This methodology mainly consists of three principal steps. In the first step, the gear residual signal is computed by first applying a synchronous average with respect





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