

## Preventive Maintenance of Rotating Machinery Based on Vibration Diagnosis of Rolling Bearing

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**Abstract :** The methodology of vibration based condition monitoring technology has been developing at a rapid stage in the recent years suiting to the maintenance of sophisticated and complicated machines. The ability of wavelet analysis to efficiently detect non-stationary, non-periodic, transient features of the vibration signal makes it a demanding tool for condition monitoring. This paper presents a methodology for fault diagnosis of rolling element bearings based on wavelet envelope power spectrum technique is analysed in both the time and frequency domains. In the time domain the auto-correlation of the wavelet de-noised signal is applied to evaluate the period of the fault pulses. However, in the frequency domain the wavelet envelope power spectrum has been used to identify the fault frequencies with the single sided complex Laplace wavelet as the mother wavelet function. Results show the superiority of the proposed method and its effectiveness in extracting fault features from the raw vibration signal.

**Keywords :** preventive maintenance, fault diagnostics, rolling element bearings, wavelet de-noising

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