**Abstract**

*The empirical wavelet transform (EWT) is a novel and adaptive method to decompose vibration signal into multiple components and extract different features that are submerged in them. Because of the remarkable performance of the EWT in decomposing the nonlinear and non-stationary signals, it has been used for rotating machinery diagnosis to extract fault features of different components such as rolling element bearings and gears.*

*In this work, we apply the empirical wavelet transform (EWT) which is based up on the construction of Meyer wavelet filter bank on a set of simulated signals to demonstrate the effectiveness of this method for decomposing different types of signals. After that, we replaced the Meyer wavelet by the Morlet wavelet and constructed a new adaptive Morlet wavelet filter bank then we applied this new modified empirical wavelet transform on the same set of simulated signals.*

**Key words:** Rotating machine, gears, bearings, signal analysis, wavelets, and wavelet analysis