

## Wavelet Analysis of Electrochemical Noise Records

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In this paper an introduction to wavelet analysis is, with examples, applied to several electrochemical noise record obtained from various metals (carbon steel, satinless steel and duplex steel, on a few electrolytes. Concepts related to wavelet analysis as the windowed Fourier transform, the choose of a wavelet basis, orthogonal and non orthogonal wavelets, real or imaginary wavelets, edge effects and wavelet power spectrum are discussed.

Electrochemical noise wavelet power spectrum of several records are compared with the electrochemical noise wavelet power spectrum of a red and brown noise processes. Furthermore Statistical Significance Test were carried out to improve the use of wavelet analysis. Finally, the advantages of the wavelet analysis versus the Fourier analysis in order to interpret electrochemical noise records is related. It'll be demonstrated that the wavelet analysis is a more adequate tool that Fourier analysis for this type of signals, and for electrochemical noise records.