



Tutorial – IV

Spectral Analysis of Stationary and Transient Signals for the Monitoring of Electrical Machines

Abstract:

This tutorial aims to provide a useful practice guide for a correct spectral analysis of stationary and transient signals – this will permit a correct fault detection and severity quantification, which are essential for the diagnosis of electrical machines – and to present to the audience those areas of research where the presenters believe there are still open problems to be solved.

The analysis of non-stationary signals will also be covered, providing an overview of the most advanced techniques, such as those based on time-frequency atoms correlation. There are a wide range of available techniques, but the signal analysis results are conditioned by their time and frequency resolution capabilities.

The first part of the tutorial will overview the basic concepts of spectral analysis of both stationary and transient signals and how these affect the spectra quality, which in the end also affects the motor diagnosis. The second part will overview available tools for transient analysis. The pros and cons of the most used tools will be analyzed, making also an introduction to time-frequency atoms. The third part will be imminently practical and will illustrate real cases of stationary and transient induction motor fault detection using the techniques and concepts described above..

Presenters:

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