Concordia University
Engineering and Computer Science

Concordia Institute for Information Systems Engineering

THE CONCORDIA INSTITUTE FOR INFORMATION SYSTEMS ENGINEERING IS PLEASED TO PRESENT THE FOLLOWING GUEST LECTURE IN OUR CIISE DISTINGUISHED SEMINAR SERIES

Marc Thomas, Eng., Ph.D

Professor in Mechanical Engineering Department
École de technologie supérieure (ÉTS)
Director of Dynamo laboratory

Features for machinery monitoring by vibration survey

The aim of this presentation is to describe the effect of different fault indicators that can be applied in machinery monitoring. These features may be analysed in time (peak, rms, crest factor, Kurtosis, impulse factor, and shape factor, Talaf, Thikat, Shock filter, Cyclostationnarity), frequency (FFT, Hilbert, Hilbert-Huang) or time frequency domains (STFT, Wavelet, Wigner-ville). Applications are investigated for bearing and gear defects. A software application, called BEAT (BEAring Toolbox) simulating bearing vibratory response to the excitations produced by localized defects, is shown and the results are compared with experimental results.

Biography: Thomas, Marc, Ph.D., Mechanical Engineering-Vibration, Sherbrooke University, Quebec, Canada (1986). Applied Sciences Master, Mechanical engineering-Vibration, Sherbrooke University, Quebec (1976) Engineer diploma, Mechanical engineering – Development, Institut National des Sciences Appliqués de Lyon (INSA), France (1974). Professor Marc Thomas is an expert both in theoretical and experimental vibration and machine maintenance. He is the director of the DYNAMO laboratory in process, machinery and structural dynamics. He is titular professor at ETS in the mechanical engineering department since 20 years. Previously, Professor Thomas has been the leader of the structural Dynamics team of the Quebec Industrial Research Center (CRIQ) during 11 years. He has published over 200 articles and supervised over 16 Master and 18 Ph.D. students. He now is mentor of the Canadian Machinery Vibration Association (CMVA). **Areas of expertise :** Machine vibration analysis and fault diagnosis, Design and experimental structural analysis; Design and analysis of mechanisms subjected to dynamic, vibration or seismic forces; Modal analysis; Damping; Finite elements; Active and adaptive control of structural vibration; Structural health detection; Risk assessment of individuals subjected to vibration.

Thursday, January 26, 2012 **16:00 – 17:00** **EV003.309**

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