Vibrational Analysis of Rotary Machines - A Educational Study

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Abstract
It is important to be able to precisely understand the variation of forces due to the rolling mechanism of a rotary machine. A detailed analysis using experiments on a bearing test rig should be performed. The finite element model can then be iteratively adjusted so as to conform to the vibration signature that is arrived at by experimentation. Matlab programming and abaqus codes were used for better exercise to improve the accuracy of the finite element modelling results and for reducing the time consumption. Ansys software can also be used to analyse the vibrations as well as NISA for modelling results but in this they were not used.

Keywords
Vibration, rotary machines, finite element

Biography

Tawanda Mushiri is a PhD student at the University of Johannesburg in the field of fuzzy logic systems and maintenance, is a Lecturer at the University of Zimbabwe teaching Machine Dynamics and Machine Design. He is a holder of BSc Honors in Mechanical Engineering and MSc in Manufacturing Systems and Operations Management (MSOM)

Charles Mbohwa is currently a Full Professor of Sustainability Engineering and Engineering Management at the University of Johannesburg, South Africa. He did his PhD in Engineering in Environmental Impact Assessment of Information and Communication Technology, Department of Information, Production and Systems Engineering, Tokyo Metropolitan Institute of Technology, Tokyo, Japan. Graduated in March 2004.

