

## Accepted Manuscript

VibronRotor, an opensource rotordynamic code: Development and benchmarking

Kazi Sher Ahmed, Sarvat Mushtaq Ahmad

PII: S0263-2241(18)30783-8

DOI: <https://doi.org/10.1016/j.measurement.2018.08.044>

Reference: MEASUR 5823

To appear in: *Measurement*

Received Date: 2 April 2018

Revised Date: 22 June 2018

Accepted Date: 22 August 2018

Please cite this article as: K. Sher Ahmed, S. Mushtaq Ahmad, VibronRotor, an opensource rotordynamic code: Development and benchmarking, *Measurement* (2018), doi: <https://doi.org/10.1016/j.measurement.2018.08.044>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# VibronRotor, an opensource rotordynamic code: Development and benchmarking

Kazi Sher Ahmed, Sarvat Mushtaq Ahmad\*

Faculty of Mechanical Engineering, Ghulam Ishaq Khan Institute, Pakistan

\*Corresponding Author:

Sarvat Mushtaq Ahmad, Faculty of Mechanical Engineering, Ghulam Ishaq Khan Institute, Topi-23640, Swabi, Khyber Pakhtunkhwa, Pakistan

Email: smahmad@giki.edu.pk

## Abstract

Precise prediction of dynamic response is an important first step in the design and troubleshooting of rotating machinery. Utility of the finite element (FE) method in rotordynamics is well entrenched and has translated into many specialized codes for rotor response prediction. Most specialized codes are propriety software with expensive subscriptions which restrict the access for small-scale rotating machinery manufacturers and researchers to these codes and employed algorithms. In contrast, this paper presents the detailed algorithm and benchmarking of an open-source FE code VibronRotor for rotordynamic analysis. FE formulation in code is based on the work of Nelson and McVaugh<sup>1</sup>. Functionalities of the code include Campbell diagram, critical speed map, mode shapes, imbalance response, orbit plots, and instability threshold analysis. An important

Download English Version:

<https://daneshyari.com/en/article/9953691>

Download Persian Version:

<https://daneshyari.com/article/9953691>

[Daneshyari.com](https://daneshyari.com)