### Extrica Lournals Engineering

ISSN ONLINE 2538-8460 ISSN PRINT 1392-8716

> February 2025 VOLUME 27 ISSUE 1 PAGES 1-187

Mechanical Engineering

Materials Science and Technology

## Journal of Vibroengineering





#### Editor in Chief

Minvydas Ragulskis **Editorial Board** Hoiiat Adeli Kouamana Bousson Jinde Cao Maosen Cao Joze Duhovnik Sezgin Ersoy Ke Fena Rafael Figueroa Piotr Folega Wen-Hsiang Hsieh David Hui Vassilios Kappatos Vitaliy Korendiy Chen Lu Abdollah Malekjafarian Phuoc Trong Nguyen Nicola Nisticò Ehsan Noroozinejad Vytautas Ostaševičius Lei Qiu

Subhash Rakheja Vinayak Ranjan Pouyan Roodgar Saffari G. Eduardo Sandoval-Romero

Miguel A. F. Sanjuan Gangbing Song Shigeki Toyama Vincentas Veikutis Jānis Vība Xiao-Jun Yang

#### Kaunas University of Technology, (Lithuania)

The Ohio State University, (United States) University of Beira Interior, (Portugal) Southeast University, (China) Hohai University, (China) University of Ljubljana, (Slovenia) Marmara University, (Turkey) University of British Columbia, (Canada) Instituto Tecnológico de Sonora, (Mexico) Silesian University of Technology, (Poland) National Formosa University, (Taiwan) University of New Orleans, (United States) Center for Research and Technology Hellas, (Greece) Lviv Polytechnic National University, (Ukraine) Beihang University, (China) University College Dublin, (Ireland) Ho Chi City Open University, (Vietnam) Sapienza University of Rome, (Italy) The University of British Columbia (UBC), (Canada) Kaunas University of Technology, (Lithuania) Nanjing University of Aeronautics and Astronautics, (China) Concordia University, (Canada) Rowan Uviversity, (United States) Thammasat University, (Thailand) The National Autonomous University of Mexico, (Mexico) University Rey Juan Carlos, (Spain) University of Houston, (United States) Tokyo A&T University, (Japan) Lithuanian University of Health Sciences, (Lithuania) Riga Technical University, (Latvia) China University of Mining and Technology, (China)

minvydas.ragulskis@ktu.lt

adeli.1@osu.edu bousson@ubi.pt jdcao@seu.edu.cn cmszhy@hhu.edu.cn joze.duhovnik@lecad.uni-lj.si sersoy@marmara.edu.tr ke.feng@outlook.com.au rafael.figueroad@itson.edu.mx piotr.folega@polsl.pl allen@nfu.edu.tw dhui@uno.edu vkappatos@certh.gr vitaliy.nulp@gmail.com luchen@buaa.edu.cn abdollah.malekjafarian@ucd.ie phuoc.nguyen@ou.edu.vn nicola.nistico@uniroma1.it ehsan.noroozinejad@gmail.com vytautas.ostasevicius@ktu.lt lei.qiu@nuaa.edu.cn

subhash.rakheja@concordia.ca vinayak.ranjan@bennett.edu.in rpouyan@engr.tu.ac.th eduardo.sandoval@ccadet.unam.mx

miguel.sanjuan@urjc.es gsong@uh.edu toyama@cc.tuat.ac.jp vincentas.veikutis@lsmuni.lt janis.viba@rtu.lv xjyang@cumt.edu.cn

### JVE Journal of Vibroengineering

#### Aims and Scope

Journal publishes research papers presenting the latest results in the general area of vibration engineering. Mechanical vibrations and applications, fault diagnosis based on vibration signal analysis, seismic engineering, acoustics, and noise control are typical examples of the core areas of the Journal. The Journal is devoted to the publication of original research papers of a high technical standard representing theoretical and experimental aspects of engineering problems related to vibrations.

#### All published papers are peer reviewed and crosschecked by plagiarism detection tools.

More information is available online https://www.extrica.com/journal/jve

#### The journal material is referred:

Clarivate Analytics:
Emerging Sources Citation Index (ESCI)
Journal Citation Reports / Science Edition
Scopus: ELSEVIER Bibliographic Database
EI Compendex: ELSEVIER Bibliographic Database
EBSCO: Academic Search Complete
Computers & Applied Sciences Complete
Central & Eastern European Academic Source
Current Abstracts
Shock & Vibration Digest
TOC Premier
Gale Cengage Learning:
Academic OneFile Custom Periodical
Science in Context
ResearchGate: https://www.researchgate.net
Scilit: https://www.scilit.net
Dimensions: https://www.dimensions.ai
Semantic Scholar: https://www.semanticscholar.org
Google Scholar: https://scholar.google.com
JGate: https://jgateplus.com
CORE: https://core.ac.uk
BASE (Bielefeld Academic Search Engine): https://www.base-search.net
Ulrich's Periodicals Directory: https://ulrichsweb.serialssolutions.com
ERIH PLUS: https://kanalregister.hkdir.no/publiseringskanaler/erihplus
CNKI Scholar: http://eng.scholar.cnki.net
cnpLINKer (CNPIEC): http://cnplinker.cnpeak.com
WanFang Data: https://www.wanfangdata.com.cn
TDNet: https://www.tdnet.io
JournalTOCs: https://www.journaltocs.ac.uk
WorldCat Discovery Services: https://www.oclc.org/en/worldcat-discovery.html
MyScienceWork: https://www.mysciencework.com
Crossref: https://search.crossref.org
Content is archived in Martynas Mazvydas National Library of Lithuania

Internet:https://www.extrica.comE-mail:publish@extrica.comPublisher:Extrica

# JVE Journal of Vibroengineering

FEBRUARY 2025. VOLUME 27, ISSUE 1, PAGES (1-187), ISSN PRINT 1392-8716, ISSN ONLINE 2538-8460

## Contents

MECHANICAL VIBRATIONS AND APPLICATIONS	
DYNAMICS ANALYSIS AND EXPERIMENT OF BANANA-SHAPED VIBRATING-DEWATERING SCREEN Hongxi Li, Enhui Zhou, Haishen Jiang, Ling Shen, Zixin Yin, Zujin Jin	1
LOAD TRANSFER MECHANISM OF FLEXIBLE DRILL STRING WITH HINGES BASED ON DYNAMIC RELAXATION METHOD PENGYU SUN, TINGTING XU, QIANBEI YUE	17
Advanced design strategies and applications for enhanced higher-order multisegment denatured pascal curve gears Huacheng Zhao, Jianneng Chen, Gaohuan Xu	39
FAULT DIAGNOSIS BASED ON VIBRATION SIGNAL ANALYSIS	
Anomaly detection method of traction motor bearing based on multi-scale sub-band fuzzy entropy manifold fusion index Guangbin Wang, Shubiao Zhao, Zhixian Zhong, Ying Lv, Changsheng Shao, Hui Zhang	58
BISPECTRUM ANALYSIS BASED ON DUAL CHANNEL HOMOLOGOUS INFORMATION FUSION AND ITS APPLICATION IN FAULT DIAGNOSIS BANGCHUN CHEN, HONGCHAO WANG	78
A ROLLING BEARING FAULT DIAGNOSIS METHOD UNDER INSUFFICIENT SAMPLES CONDITION BASED ON MSLSTM TRANSFER LEARNING PING ZHANG, DEBO LIU	93
VIBRATION CONTROL, GENERATION AND HARVESTING	
MULTI-SCALE OPTIMIZATION DESIGN OF VISCOELASTIC DAMPING SANDWICH PLATE Zhanpeng Fang, Haoping An, Yanqiu Xiao	108

#### VIBRATION IN TRANSPORTATION ENGINEERING

<b>OPTIMAL CONTROL OF LANE CHANGING PROBLEM OF INTELLIGENT VEHICLE</b> YINGJIE LIU, DAWEI CUI, CHENGLIAN XIE	120
Analysis of shimming performance and clearance influence under manipulation state Guang Feng, Bingyan Jiang, Shuang Ruan, Ming Zhang	134
FLOW INDUCED STRUCTURAL VIBRATIONS	
STUDY ON VORTEX-INDUCED VIBRATION RESPONSE OF LARGE-SCALE TWO-LAY STEEL TRUSSES BRIDGE UNDER LARGE WIND ANGLE OF ATTACK JIALIN YAO, HUANHUAN LI, YANG YANG, DAWU WANG, HUI YU	L 150
SYSTEM DYNAMICS IN MANUFACTURING SYSTEM MODELING	
Tooth design and verification of face spline transmission in hub bearing Wei Xiong, Zhong Di Deng, Jun Li, You Wang, Hai Bo Zhang, Song Mei	172

The major objective of vibration engineering is to protect people, instruments, machines, and structures from the effect of harmful vibration. Mechanical vibrations and applications, fault diagnosis based on vibration signal analysis, seismic engineering, acoustics, and noise control are typical examples of the core areas of the Journal. The aim of the Journal is to present theoretical and experimental aspects of engineering problems related to vibrations.





EXTRICA.COM