

ISSN 1027-5851

# **International Journal of Acoustics and Vibration**

September 2024

Volume 29, Number 3

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2024) by The International Institute of Acoustics and Vibration (IIAV)  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2025)

For permission requests, please contact The International Institute of Acoustics and Vibration (IIAV)  
at the address below.

The International Institute of Acoustics and Vibration (IIAV)  
Department of Mechanical Engineering  
Auburn University  
1418 Wiggins Hall, Auburn AL  
36849, USA

Phone: +1 334 844 3248

Fax: +1 334 844 3306

[www.iiav.org](http://www.iiav.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## EDITORIAL OFFICE

EDITOR-IN-CHIEF

**Jorge P. Arenas**

EDITOR EMERITUS

**Malcolm J. Crocker**

MANAGING EDITOR

**Marek Pawelczyk**

PRODUCTION EDITOR

**Dariusz Bismor**

ASSOCIATE EDITOR

**Zhuang Li**

ASSISTANT EDITORS

**Teresa Glowka**

**Karol Jablonski**

**Sara Bysko**

**Bartłomiej Hrapkowicz**

EDITORIAL ASSISTANT

**Linwood Stevens**

**Linda Holms**

## EDITORIAL BOARD

**Cesar Vasques**, Porto, Portugal

**Cheuk Ming Mak**, Hong Kong

**Corrado Schenone**, Genoa, Italy

**Davide Borelli**, Genova, Italy

**Diego Ledezma-Ramirez**,

Monterrey, Mexico

**Francisco D. Denia**, Valencia, Spain

**Guoyong Jin**, Harbin, China

**Han Zhang**, Beijing, China

**Jian Kang**, London, United Kingdom

**Jingtao Du**, Harbin, China

**Jon Blotter**, Provo, United States

**Konstantinos Vogiatzis**,

Wolos, Greece

**Lars Hakansson**, Växjö, Sweden

**Lei Wang**, Beijing, China

**Luis Bento Coelho**, Lisbon, Portugal

**Luis Campos**, Lisbon, Portugal

**Peter W. Tse**, Hong Kong

**Roger Serra**, Blois, France

**Samir N. Y. Gerges**,

Santa Catarina, Brazil

**Silviu Nastac**, Galati, Romania

**T. J. S. Jothi**, Calicut, India

**Triantafillos Koukoulas**,

Ottawa, Canada

**W. S. Gan**, Singapore

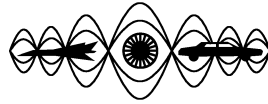
**Wojciech Rdzanek**, Rzeszow, Poland

**Xiaojun Qiu**, Sydney, Australia

**Xiaoli Zhao**, Nanjing, China

**Zhanhui Liu**, Chengdu, China

**Zhushi Rao**, Shanghai, China



# International Journal of Acoustics and Vibration

A quarterly publication of the International Institute of Acoustics and Vibration

Volume 29, Number 3, September 2024

## EDITORIAL

**30 Years After: State of the Art and New Ideas for the International  
Institute of Acoustics and Vibration**

*Sergio Luzzi* . . . . . 234

## ARTICLES

**Fault Feature Extraction of Rolling Bearing Based on Maximum Second-  
Order Cyclostationarity Blind Deconvolution and CEEMD-Teager**

*Hongchang Ding, Xinjie Cheng, Kai Wang, Dewen Pu and Guangwei Liu* . . . . . 235

**A Correlation Study Between Aerodynamic Structural Changes and  
Aerodynamic Noise Characteristics of Archimedes Spiral Wind Turbines**

*Baohua Li, Zetao Deng, Yuanjun Dai, Lei Zhong and Jianping Wang* . . . . . 246

**An Investigation of the Effects of a Dynamic Vibration Absorber (DVA) to  
the Comfort of a Bus's Driver Seat**

*Huu Nhan Tran and Ngoc Dai Pham* . . . . . 264

**Optimization of Cooling Fan Based on Unequal Angle and Leading-Edge  
Triangle Blade Design**

*Xie Youfu and Jiang Feng* . . . . . 274

**Audio Signal Recognition in Complex Environments Using Sparse  
Representation**

*Xi Ren* . . . . . 281

**Sound Source Identification of Vehicle Noise Based on a Microphone Array  
With a Modified Multiple Signal Classification Algorithm**

*Botong Wang, Hui Guo and Canfeng Chen* . . . . . 286

**An Improved Rolling Bearing Fault Diagnosis Model of Long Short-Term  
Memory Network Based on VMD Denoised Vibration Signals**

*Thomas Joseph, Sudeep U, Keerthi Krishnan K and Sidra Khanam* . . . . . 296

**Damage Quantification Using Mode Converted Guided Wave Based 1D  
Damage-Spectral Element**

*M. N. Murthy Patnaik, K. Renji and K. V. Nagendra Gopal* . . . . . 305

**Study on Self-Learning System for Milling Chatter Feature Based on  
Hybrid Preprocessing Model and Improved Convolutional Clustering**

*Pengcheng Guo, Sijie Cai, Shuixuan Chen, Song Gao, Zhihua Zhang  
and Jianyu Chen* . . . . . 316

**Slow Sound Phenomena Caused by Frame Shrinkage in Square Frame  
Acoustic Metafluid**

*Dongliang Pei, Zixian Cui, Ping Xiang, Xiaodong Ding and Yangyang Chu* . . . . . 328

**Concepts for Frequency Sweeps and Efficient Repeated Analysis in the  
Context of Vibroacoustic Optimization and Uncertainty Quantification**

*Steffen Marburg* . . . . . 336

**About the Authors** . . . . . 356