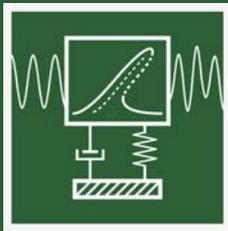


# The 41st International JVE Conference

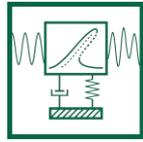
Leipzig, Germany  
September 30 - October 1, 2019



**JVE** INTERNATIONAL

[www.jvejournals.com](http://www.jvejournals.com)

[www.jveconferences.com](http://www.jveconferences.com)



**JVE** INTERNATIONAL

[www.jvejournals.com](http://www.jvejournals.com)  
[www.jveconferences.com](http://www.jveconferences.com)

## **The 41st International JVE Conference**

**Vibration, Waves and Acoustics – Engineering Problems and Applications**

**September 30 – October 1, 2019 in Leipzig, Germany**



**JVE INTERNATIONAL**  
www.jvejournals.com  
www.jveconferences.com

**The 41st International JVE Conference** will be held Leipzig, Germany. Its purpose is to provide a platform for scientists, engineers and practitioners throughout the world to exchange ideas and present their latest research results in order to further promote the Vibroengineering and its applications to the aerospace, automobile, energy and other industries. The Conference is organized by **JVE International** in partnership with **Leipzig University of Applied Sciences** and **Zittau University** in Germany.

The main theme of the conference focuses on (but not limited to):

**Vibration, Waves and Acoustics – Engineering Problems and Applications**

#### **General Topics of the Conference:**

- Materials and Measurements in Engineering
- Mathematical Models in Engineering
- Acoustics, Noise Control and Engineering Applications
- Mechanical Vibrations and Applications
- Fault Diagnosis Based on Vibration Signal Analysis
- Vibration Generation and Control
- Seismic Engineering and Applications
- Modal Analysis and Applications
- Vibration in Transportation Engineering
- Flow-induced Structural Vibrations
- Biomechanics and Biomedical Engineering
- Chaos, Non-linear Dynamics and Applications
- Dynamics and Oscillations in Electrical and Electronics Engineering
- Fractional Dynamics and Applications
- System Dynamics in Manufacturing System Modelling
- Dynamics of Smart and Functionally Graded Materials

Internationally renowned invited speakers and contributing authors from all over the world will present the latest advances in the area of Vibroengineering. This conference will feature a broad range of high-level technical presentations including invited distinguished experts. The conference will provide an opportunity to communicate your recent research advances, exchange ideas in innovative engineering technologies, meet old friends and make new business partners in the area of Vibroengineering. With your participation, this Conference will prove to be an exciting scientific event, a fruitful opportunity to promote scientific research and technological development of Vibroengineering and its applications.

With your participation, this conference will prove to be a very exciting event, a fruitful opportunity, to promote scientific research and technological development of vibration engineering and its applications.

All papers presented at JVE Conferences are published as short Conference papers in **Vibroengineering Procedia**. Conference papers published in **Vibroengineering Procedia** are indexed in EI Compendex, Scopus, Inspec, Gale Cengage, EBSCO, Google Scholar, CNKI Scholar, cnpLINKer and Ulrich's Periodicals Directory.

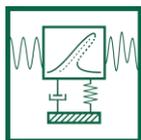


**JVE** INTERNATIONAL  
[www.jvejournals.com](http://www.jvejournals.com)  
[www.jveconferences.com](http://www.jveconferences.com)

The authors of best papers presented at the Conference will be invited to prepare the extended version of their papers (10-20 pages) which will be considered for publication in **Journal of Vibroengineering** (indexed in Web of Science, EI Compendex, EBSCO, Gale Cengage, Inspec, and more), **Journal of Measurements in Engineering** (indexed in Web of Science, EI Compendex, EBSCO, Gale Cengage, Inspec and more) and **Journal of Mathematical Models in Engineering** (indexed in EBSCO, Gale Cengage, DOAJ, BASE, Ulrich's Periodicals Directory and cnpLINKer).

The Conference Venue is at:  
Leipzig University of Applied Sciences  
Wächter str. 13, 04107 Leipzig, Germany

On behalf of the Organizing Committee, we would like to welcome the delegates to the 41st International JVE Conference. We hope that you would enjoy the conference and find the program of the Conference exciting. We look forward to meeting you in September 2019 in Leipzig.



### **Chair:**

Prof. Dr.-Ing. **Faouzi Derbel** Leipzig University of Applied Sciences, Germany

Dr. **Martin Sturm** Hochschule Zittau/Görlitz, Germany

### **Scientific Organizing Committee:**

Prof. Dr.-Ing. Mathias Rudolph

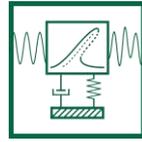
Prof. Dr.-Ing. Olfa Kanoun

M. Sc. Florian Strakosch

Dipl.-Ing. Kai Bartholomäus

### **Organizing Committee:**

V. Babitsky Loughborough University, UK  
M. Bayat Roudehen Branch, Islamic Azad University, Iran  
I. Blekhman Mekhanobr – Tekhnika Corporation, Russia  
K. Bousson University of Beira Interior, Portugal  
M. Brennan University of Southampton, UK  
Rafał Burdzik Silesian University of Technology, Faculty of Transport, Poland  
M. S. Cao Department of Engineering Mechanics, Hohai University, China  
Lu Chen Beihang University, China  
F. Chernousko Institute for Problems in Mechanics, Russia  
Z. Dabrowski Warsaw University of Technology, Poland  
Y. Davydov Institute of Machine Building Mechanics, Russia  
J. Duhovnik University of Ljubljana, Slovenia  
A. El Sinawi The Petroleum Institute, United Arab Emirates  
R. Ganiev Blagonravov Mechanical Engineering Research Institute, Russia  
W. H. Hsieh National Formosa University, Taiwan  
V. Lyalin Izhevsk State Technical University, Russia  
R. Maskeliūnas Vilnius Gediminas Technical University, Lithuania  
L. E. Muñoz Universidad de los Andes, Colombia  
G. Panovko Blagonravov Mechanical Engineering Research Institute, Russia  
N. Perkins University of Michigan, USA  
L. Qiu Nanjing University of Aeronautics and Astronautics, China  
S. Rakheja Concordia University, Canada  
M. A. F. Sanjuan University Rey Juan Carlos, Spain  
G. Song University of Houston, USA  
S. Toyama Tokyo A&T University, Japan  
K. Uchino The Pennsylvania State University, USA  
A. Vakhguelt Nazarbayev University, Kazakhstan  
P. Vasiljev Lithuanian University of Educational Sciences, Lithuania  
V. Veikutis Lithuanian University of Health Sciences, Lithuania  
J. Viba Riga Technical University, Latvia  
V. Volkovas Kaunas University of Technology, Lithuania  
J. Wallaschek Leibniz University Hannover, Germany  
Mao Yuxin Zhejiang Gongshang University, China  
M. Zakrzhevsky Riga Technical University, Latvia



## Conference Program

**Day 1: September 30**

**Location: Room W20**

09:00-10:00	<b>Registration</b>
-------------	---------------------

**Day 1: September 30**

**Location: Room W4**

	<b>PLENARY SESSION</b> Session Chairs: <b>Prof. Minvydas Ragulskis</b> and <b>Prof. Faouzi Derbel</b>
10:00-10:10	Conference Opening Ceremony: <b>Prof. Dr.-Ing. Faouzi Derbel</b>
10:10-10:25	Welcome Speech: <b>Minvydas Ragulskis</b> . Vibroengineering – past, present and the future
10:25-10:45	Invited Keynote Lecture: <b>Prof. Dr.-Ing. Olfa Kanoun</b> , (Chemnitz University of Technology, Germany). <b>Perspectives for energy harvesting from ambient vibration sources</b>

**Day 1: September 30**

**Location: Cafeteria, Room W20**

10:45-11:00	<b>Coffee Break</b>
-------------	---------------------

**Day 1: September 30**

**Location: Room W4**

	<b>PARALLEL SESSION A1</b> Session Chairs: <b>Prof. Minvydas Ragulskis</b> and <b>Dr. Jose M. Jara</b>
11:00-11:15	<b>Tchomeni Kouejou Bernard Xavier</b> . Modeling and vibration analysis of twin-rotor system interconnected by a Hooke's joint
11:15-11:30	<b>Maik Wolf</b> . Concept for an event-triggered wireless sensor network for vibration-based diagnosis in trams
11:30-11:45	<b>Florian Strakosch</b> . Chances and challenges of roller bearing diagnostics using embedded WSNs
11:45-12:00	<b>Tien Tran Xuan</b> . The effect of system improvement on regulation of pressure inside pneumatic spring element and on transmission of acceleration



12:00-12:15	<b>Ayman Ahmed Mubeen.</b> Cell dynamics and natural frequencies: scaling and shape matters
12:15-12:30	<b>Raj Arjun S I.</b> Fracture strength estimation of L3-L4 intervertebral disc using FEA

**Day 1: September 30**

**Location: Room W8**

	<b>PARALLEL SESSION A2</b> Session Chairs: <b>Prof. Dr.-Ing. Faouzi Derbel</b> and <b>Dr. Önder Ayer</b>
11:00-11:15	<b>Gilbert-Rainer Gillich.</b> A versatile algorithm for estimating natural frequencies with high accuracy
11:15-11:30	<b>Sonia Bradai.</b> Design study of a magnetoelectric-electromagnetic vibration energy converter
11:30-11:45	<b>Bertha Olmos.</b> Radiation damping for rigid foundations. Approximate expressions
11:45-12:00	<b>Alicja Kowalska-Koczwara.</b> Impact of selected sources of transport vibrations on the perception of vibrations by people in buildings
12:00-12:15	<b>Constantin-Ioan Barbinta.</b> Sensitivity analysis for frequency-based prediction of cracks in open cross-section beams
12:15-12:30	<b>Jaroslav Zapomel.</b> The influence of ferromagnetic fluids on performance of hydrodynamic bearings

**Day 1: September 30**

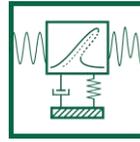
**Location: Cafeteria, Room W20**

12:30-13:30	<b>Lunch</b>
-------------	--------------

**Day 1: September 30**

**Location: Room W4**

	<b>PARALLEL SESSION B1</b> Session Chairs: <b>Prof. Gilbert-Rainer Gillich</b> and <b>Dr. Bertha Olmos</b>
13:30-13:45	<b>Tchomeni Kouejou Bernard Xavier.</b> Numerical analysis of a vertical rotor rub system partially immersed in inviscid incompressible fluid
13:45-14:00	<b>Filip Pachla.</b> Transmission of vibrations from the ground to the foundation from the movement of passenger trains
14:00-14:15	<b>Gürkan İrsel.</b> The effect of using shell and solid models in structural stress analysis
14:15-14:30	<b>Önder Ayer.</b> An extrusion simulation of an aluminum profile by porthole die
14:30-14:45	<b>Violetta Di Napoli.</b> Effects of mechanical non-linearity on the dynamic behaviour of ring-based inertial rate sensors



**Day 1: September 30**

**Location: Room W8**

<b>PARALLEL SESSION B2</b> Session Chairs: <b>Prof. Maik Wolf</b> and <b>Dr. Constantin-Ioan Barbinta</b>	
13:30-13:45	<b>Ahmet Yildiz.</b> Optimum suspension design for non-linear half vehicle model using particle swarm optimization (PSO) algorithm
13:45-14:00	<b>Natalia Mikhailova.</b> Modelling of pressure-temperature conditions for cavitation initiation in different liquids
14:00-14:15	<b>Jose M. Jara.</b> Earthquake damage on the vaulted nave of the Atlatlahucan Ex-Convent church in Morelos, Mexico
14:15-14:30	<b>Shrishti Chaudhary.</b> Dynamics of osteoblasts during bone remodeling cycle
14:30-14:45	<b>Guifeng Zhao.</b> On the combination of topology optimization and multiple mass dampers

**Day 1: September 30**

**Location: Room W4**

14:45-15:00	<b>Conference closing ceremony</b>
-------------	------------------------------------

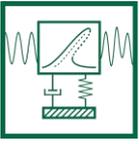
**Day 1: September 30**

**Location: Restaurant Apels Garten  
Kolonnadenstraße 2, Leipzig**

18:00	<b>Gala Dinner</b>
-------	--------------------

**Day 2: October 1**

13:30-16:30	<b>Excursion to Bergbau-Technik-Park</b>
-------------	--



**JVE** INTERNATIONAL  
www.jvejournals.com  
www.jveconferences.com

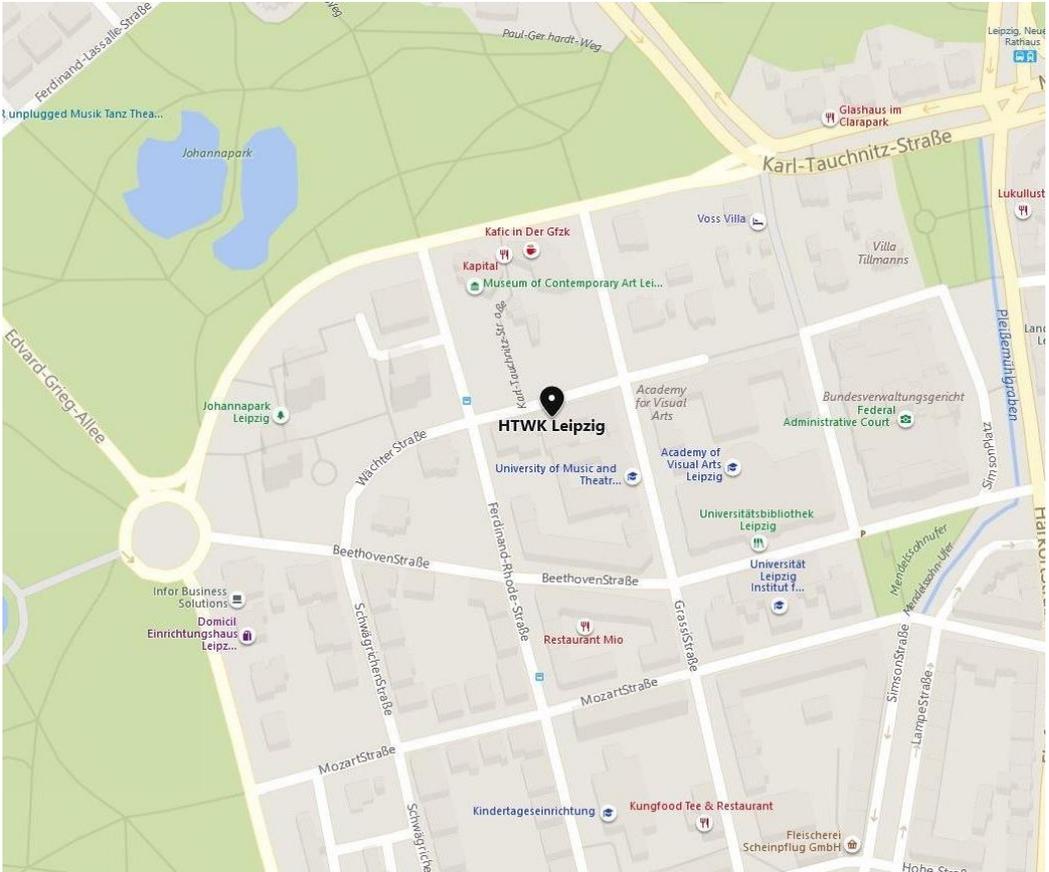
## Sponsors and Partners

**HTWK** Leipzig University  
of Applied Sciences



**Hochschule**  
**Zittau/Görlitz**  
UNIVERSITY OF APPLIED SCIENCES

## Conference Location



Leipzig University of Applied Sciences  
Wächter str. 13, 04107 Leipzig, Germany