



Rector of Poznań University of Technology, prof. dr hab. inż. Teofil Jesionowski

32 International Conference Vibrations in Physical and Technical Systems

Monday, September, 28

10.00-12.00 **Registration**

12.00-13.00 **Lunch**

13.00-13.30 **Opening ceremony**

13.30-15.15 **Chairman: MICHAŁ GUMINIAK**

13.30-14.15 **Plenary lecture** New advances in passive structural vibration control
Antonina Pirotta

14.15-14.30 Jan Freundlich Steady-state nonlinear vibrations of a cantilever beam
with
an eccentric mass at the end and fractional damping

14.30-14.45 Przemysław Kalitowski Modal parameters of a wind turbine blade under
Arkadiusz Jenta variable temperature conditions: identification from
Agnieszka Tomaszewska full-scale laboratory tests
Beata Zima
Michał Wójcik

14.45-15.00 Adam Wijata Vibrations and chaotic motion induced by anisotropic
Jan Awrejcewicz friction in the horizontal pendulum on a rotating disk
Krzysztof Witkowski system

15.00-15.15 Andrzej Urbaś Influence of beam flexibility modeling methods
Jacek Stadnicki on the simulation of impact-induced vibrations

15.15-16.00 **Coffee break + poster session**

Poster 1 Dawid Cekus Vibration analysis of a container for transporting
Marcin Dudek sensitive cargo
Zbigniew Pozorski
Jolanta Pozorska

Poster 2 Monika Chuda-Kowalska Influence of local modifications of metal face sheets
on the mechanical and dynamic properties
of multifunctional sandwich panels

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Poster 3	<u>Sebastian Garus</u> Wojciech Sochacki	The influence of the number of structure elements in a quasi one-dimensional phononic crystal on the transmission
Poster 4	<u>Anna Jurczyńska</u> Janusz Szmidla	Stability and free vibrations of geometrically nonlinear column under specific load in aspect of internal crack occurrence
Poster 5	<u>Janusz Szmidla</u> Anna Jurczyńska	Damped vibrations of a Γ -type frame at selected types of conservative loading
16.00-17.00	Chairman: AGNIESZKA TOMASZEWSKA – remote session	
16.00-16.15	Grzegorz Ilewicz	Integrated forward and inverse kinematic and dynamic modeling of a surgical robot manipulator for soft tissue operations
16.15-16.30	Grzegorz Ilewicz	Towards realistic dynamic modeling of surgical robots: an RCM mechanism based on experimental data from cardiovascular tissues
16.30-16.45	Krzysztof Koszał	Acoustic efficiency of enclosures with transparent walls
16.45-17.00	<u>Kamil Łapiński</u> Wojciech Łapka	Influence of cross-sectional geometry on the low-frequency vibration isolation function of 3D printed PET-G architected structures*
17.00-19.30	Sandwich dinner	

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32 International Conference Vibrations in Physical and Technical Systems

Tuesday, September, 29

7.30-9.00	Breakfast	
9.00-10.15	Chairman: PIOTR FEDELIŃSKI	
9.00-9.45	Plenary lecture Przemysław Litewka Roman Lewandowski	Dynamics of plates with viscoelastic layers described by extended fractional material models
9.45-10.00	<u>Maksymilian Bednarek</u> Bipin Balaram Donat Lewandowski Jan Awrejcewicz	Mathematical model of an axial magnetic spring and the influence of its parameters on stiffness characteristics*
10.00-10.15	<u>Sebastian Krakowiak</u> Radosław Nowak	Post-critical phenomena in mechanical systems with follower loads*
10.15-10.45	Coffee break	
10.45-12.00	Chairman: PRZEMYSŁAW LITEWKA	
10.45-11.00	<u>Desta Kalbessa Kumsa</u> Paweł Martynowicz	Numerical investigation of a magnetorheological tuned vibration absorber for an IEA 15-MW monopile-supported offshore wind turbine*
11.00-11.15	Piotr Łabuński	The influence of the type of damping material, operating temperature and damping element geometry on the effectiveness of passive vibration isolation*
11.15-11.30	<u>Cezary Patczyński</u> Paweł Olejnik	Experimental investigation of vibroacoustic response in a sliding system with frictional contact*
11.30-11.45	<u>Marcin Zieliński</u> Magdalena Łasecka-Plura	Determination of dynamic characteristics of frames with Kelvin dampers and uncertain parameters using interval analysis*
11.45-12.00	<u>Jakub Porysek</u> Magdalena Łasecka-Plura	Surrogate-based modal sensitivity analysis of a frame with a fractional Kelvin damper*
12.00-12.30	Coffee break	

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12.30-13.45 **Chairman: JAN AWREJCWICZ**

12.30-13.15 **Plenary lecture** Boundary element method in dynamics of deformable
Piotr Fedeliński solids

13.15-13.30 Dariusz Grzelczyk Dynamics of nonlinear oscillators coupled
Mateusz Wojna by magnetic fields*
Ewelina Ogińska
Jan Awrejcewicz
Grzegorz Wasilewski
Nimra Saeed

13.30-13.45 Krzystian Polczyński Magnetic pendulum under external excitation with
Jan Awrejcewicz state-dependent phase control*

13.45-14.45 **Photo + Lunch**

14.45-16.30 **Chairman: MAGDALENA ŁASECKA-PLURA**

14.45-15.00 Muhammad Junaid-U- Nonlinear dynamics of a parametrically excited 2DOF
Rehman oscillator with magnetic restoring force and dry
Grzegorz Kudra friction*
Krzystian Polczyński
Kevin Dekemele
Jan Awrejcewicz

15.00-15.15 Civan Yavas Influence of prony series model order on the frequency
Zdzisław Pawlak dependent response of viscoelastic dampers*

15.15-15.30 Mohammad Parsa Rezaei Harmonic excitation of a nonlinear Hencky beam with
Grzegorz Kudra a tip-mounted STF damper
Krzysztof Witkowski
Jan Awrejcewicz

15.30-15.45 Nicolas Leiva Structural dynamic identification using a stochastic
Maria Cristina Spizzuoco method over a grandstand structure
Agnieszka Tomaszewska
Daniele Losanno
Giorgio Serino
Przemysław Kalitowski

15.45-16.00 Andrzej Rysak EBI - indicator of the solution quality of a mechanical
dynamic system

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16.00-16.15	<u>Radostaw Nowak</u> Sebastian Krakowiak	Double-beam piezoelectric non-linear energy harvester simulations
16.15-16.30	<u>Martyna Sedlmayr</u> Andrzej Rysak	Distribution of energy dissipation along a coupled oscillator chain
18.30-21.00	Gala dinner	

*** YOUNG RESEARCHERS COMPETITION**

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32 International Conference Vibrations in Physical and Technical Systems

Wednesday, September, 30

7.30-9.00 **Breakfast**

9.00-10.30 **Chairman: ANNA KNITTER-PIĄTKOWSKA**

9.00-9.45 **Plenary lecture** Nolinear dynamics of active beam-like structures
Jarosław Latański

9.45-10.00 Karol Rejowski Numerical study of the feasibility of detecting local
Agnieszka Tomaszewska delamination in a wind turbine blade based on mode
Beata Zima shapes
Michał Wójcik

10.00-10.15 Roman Starosta Attenuation of longitudinal elastic waves in a rod
Grażyna Sypniewska- by an autoparametric pendulum absorber –
Kamińska a multiple-scales analysis
Jan Awrejcewicz

10.15-10.30 Przemysław Kalitowski Stiffness of a wind turbine blade under variable
Beata Zima temperature conditions: experimental investigation
Arkadiusz Jenta at material and structural scales
Marcin Krajewski
Agnieszka Tomaszewska
Michał Wójcik

10.30-11.00 **Coffee break**

11.00-12.15 **Chairman: ROMAN STAROSTA**

11.00-11.15 Stanisław Strzelecki Stiffness, damping and inertia forces coefficients
of the oil film of tilting 5-pad journal bearings

11.15-11.30 Aleksandra Rachwalska- Implementation of user-defined ODE models
Skut in LIGGGHTS using the fix framework for DEM
Grzegorz Cieplik simulation of a dual-chamber anti-resonant vibratory
mill with particle fragmentation

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| 11.30-11.45 | <u>Patrycja Reder</u>
Wojciech Siekierski
Krzysztof Ziopaja | Study of the new footbridges at the Adam Mickiewicz Museum in Śmiełów in terms of dynamic response |
| 11.45-12.00 | <u>Tomasz Walczak</u>
Michał Guminiak
Marcin Kamiński | Stochastic gait analysis with use kinetic parameters |
| 12.00-12.15 | Anna Knitter-Piątkowska | From equations to intuition: active learning strategies in teaching mechanics and strength of materials for civil engineering students |
| 12.15-12.45 | Closing ceremony | |
| 12.45-13.45 | Lunch | |

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