

25th International Scientific Conference

Applied Mechanics 2024



April 17th – 19th, 2024

Hotel Toliar, High Tatras, Slovakia

CONFERENCE PROGRAM

Wednesday - April 17, 2024	
11:00 - 13:30	Registration
12:00 - 13:30	Lunch
13:45 - 14:00	Conference opening
14:00 - 15:00	Invite presentation
Chairmans: Assoc. Prof. Milan Vaško, Assoc. Prof. Radek Sedláček	
14:00	M. Fusek – Material fatigue during multiaxial loading
14:30	M. Handrik – MATLAB-ADINA coupling for finite element analysis
15:00 - 16:30	Section 1
Chairmans: Prof. Zbyněk Šika, Jaroslav Majko, PhD.	
15:00	P. Polach – Computational analysis of hydrodynamic lubrication behavior in a pin-on-disc test rig
15:10	R. Jančo – Stress analysis of pressing joint of two conical pipes
15:20	Z. Padovec – The Use of Data Driven Evolutionary Algorithms for Safe Design of Integrally Wound Composite Pressure Vessel
15:30	P. Jureczko – Drive selection for crawler mobile robot
15:40	M. Paulec – Reduction of mechanical stress on the forging die in the dovetail area
15:50	M. M. Uličný - ROM of CFD simulations: Application for a part of battery pack

16:00	M. Hanzalík – Thermo-mechanical simulation of drum brake
16:10	M. Hančinová – Calibration of polymer by means of the PRF material model implemented in Abaqus
16:20	K. Pijáková – Modelling of multiaxial fatigue damage of machine elements using FEM
16:30 - 16:50	Coffee break
16:50 - 18:30	Section 2
Chairmans: Assoc. Prof. Martin Fusek, Zdeněk Padovec, PhD.	
16:50	Z. Šavrnoch – Solver analysis for a rotary machine model in MSC.ADAMS
17:00	O. Piroh – Modeling the dynamics of a rope using Simulink Multibody
17:10	L. Žuřová – Possibilities of vibration energy redistribution in mechanical drives using pneumatic flexible tuners
17:20	M. Kačír – Vehicle vibration reduction by elimination of crankshaft torsional vibration
17:30	Š. Berta – Design of a low-cost electrodynamic shaker
17:40	J. Garanová Krišťáková – Use of IMU sensors for motion analysis
17:50	A. Kratochvíl – The impact of varied hill-type muscle model formulations on glenohumeral joint loading
18:00	J. Krivošej - Implementation of two types of muscle models and their comparison when applied to the shoulder joint
18:10	K. Mendová - Additive manufacturing of multimaterial medical devices (3D PRINTED ANKLE-FOOT-ORTHOSIS)
18:20	L. Zach – Smart material is not necessarily genius
19:00 - 20:30	Dinner

Thursday - April 18, 2024

07:00 - 08:30	Breakfast
08:30 - 10:00	Section 3
Chairmans: Prof. Luboš Náhlík, Lenka Jakubovičová, PhD.	
8:30	Z. Šika – Experiments with multi degrees of freedom systems of active resonators
8:40	J. Majko - Suitable approach for arranging fibers for the tensile testing of additively manufactured thermoplastic composites
8:50	L. Deganová - Creation of algorithms in MATLAB environment for a non-destructive testing
9:00	J. Hartwich - Experimental determination of shape memory alloys' properties.

9:10	P. Michal - Comparison of the internal damping of composite specimens reinforced with kevlar fibres
9:20	B. Drvářová - Effect of PETG composite fibre orientation on damping
9:30	D. Tichoň - Which threshold is decisive for fatigue crack propagation of semi-elliptical surface cracks?
9:40	J. Rakušan - Measurement of residual stress profile using modified slotting method and numerical modelling
9:50	A. Tošková - Experimental and normative approach to determining the service life of welded joints
10:00 - 10:20	Coffee break
10:20 - 12:00	Section 4
Chairmans: Prof. Roland Jančo, Assoc. prof. Pavel Polach	
10:20	R. Kubíček - Crack closure development following amplitude changes
10:30	J. Hronček - Exploring tensile testing techniques for steel wire rope components: strands, wires and core
10:40	V. Drátovská - Exploring the impact of printing position on mechanical properties of additively manufactured Ti6Al4V
10:50	M. Mánek - Measurement of mechanical properties of steel at high strain rate
11:00	J. Zavřel - Identification of friction simulation model parameters
11:10	G. Gálik - Study of auxiliary electric trailer traction system on electric vehicle range
11:20	J. Poduška - Numerical calculation of deformation, stress distribution and lifetime estimation in buried polymer pipes under various conditions
11:30	P. Helešicová - Description of fatigue behavior of additively manufactured polymer metamaterial structure
11:40	P. Dlhý - Fatigue life investigation of the freight train wheel web
11:50	D. Hron – A semi-analytical approach determination of the wall heat transfer coefficient of a cylindrical concentric annulus
12:00 - 13:30	Lunch
13:00 - 17:20	Visiting the High Tatras
17:50 – 18:10	DJHEC – DJH Engineering Center, Inc.
18:15 – 18:45	Schaeffler Kysuce, spol. s r.o.
19:00 - 24:00	Evening dinner / social gathering

Friday - April 19, 2024	
07:00 - 08:30	Breakfast
08:30 - 9:20	Section 5
Chairmans: Prof. Robert Grega, Pawel Jureczko, PhD.	
8:30	K. Kubášová - Effect of heat treatment on the superelastic properties of NiTi wires
8:40	M. Vopálková - Analysis of the mechanical properties of surgical nanofibrous sutures
8:50	O. Zoufalý - Creating a shoulder model with respect to passive scapulohumeral rhythm
9:00	P. Pelinková - Effect of Active Mechanical Properties in Inflation-Extension Behavior of Cylindrical Tube.
9:10	P. Kovář – Introduction to higher order neural networks based Riemann solver
9:20	A. Tater - Application and validation of a high order neural networks based Riemann solver for 1D Euler equations
10:00 - 11:00	Meeting of the scientific committee
11:00 - 11:15	Conference closing + awarding the most interesting contributions
Chairman: Assoc. Prof. Milan Vaško	
12:00 - 13:30	Lunch