

NOVUS SCIENTIA 2025

30.01.2025

Kongresové centrum Technickej univerzity v Košiciach



Program konferencie

Patronát konferencie

Dr.h.c. mult. prof. Ing. Jozef Živčák, DrSc., MPH, akademik UČSS

TECHNICKÁ UNIVERZITA V KOŠICIACH, SLOVENSKO

Garant konferencie

prof. Ing. Ján Slota, PhD.

TECHNICKÁ UNIVERZITA V KOŠICIACH, SLOVENSKO

Vedecký výbor konferencie

prof. Ing. Jozef Bocko, CSc., Technická univerzita v Košiciach, Slovensko
prof. Ing. Radovan Hudák, PhD., Technická univerzita v Košiciach, Slovensko
prof. Ing. Michal Kelemen, PhD., Technická univerzita v Košiciach, Slovensko
prof. Ing. Peter Trebuňa, PhD., Technická univerzita v Košiciach, Slovensko
prof. Ing. Emil Spišák, CSc., Technická univerzita v Košiciach, Slovensko
prof. Ing. Tomáš Brestovič, PhD., Technická univerzita v Košiciach, Slovensko
doc. Ing. Ján Kráľ, PhD., Technická univerzita v Košiciach, Slovensko
prof. Ing. Peter Frankovský, PhD., Technická univerzita v Košiciach, Slovensko
doc. RNDr. Tibor Krenický, PhD., Technická univerzita v Košiciach, Slovensko
doc. Ing. Michal Holubčík, PhD., Žilinská univerzita v Žiline, Slovensko
prof. Ing. Stanislav Ďuriš, PhD., Slovenská technická univerzita v Bratislave, Slovensko
prof. Ing. Peter Šugár, CSc., Slovenská technická univerzita v Bratislave, Slovensko
doc. Ing. Jaroslav Katolický, Ph.D., Vysoké učení technické Brno, Česká republika
doc. Ing. Miroslav Mahdal, Ph.D., VŠB Technická univerzita Ostrava, Česká republika
prof. Ing. Tomáš Jirout, Ph.D., ČVUT Praha, Česká republika
doc. Ing. Petr Lepšík, Ph.D., Technická univerzita v Liberci, Česká republika
doc. Ing. Václav Vaněk, Ph.D., Západočeská univerzita v Plzni, Česká republika
prof. dr hab. inż. Jarosław Sęp, Politechnika Rzeszowska, Poľsko
Dr inż. Tomasz Jachowicz, Politechnika Lubelska, Poľsko
Dr inż. Jacek Rysiński, Uniwersytet Bielsko – Bialski, Poľsko

Organizačný výbor konferencie

Ing. Jaroslav Melko

Ing. Erika Dubňanská

Ing. Martina Hančinová

Ing. Barbara Schürger

Ing. Lucia Žulová

Sekcia A

9:15 – 17:30

Komisia:

prof. Ing. Jozef Kuľka, PhD. – predseda komisie

doc. Ing. Miriam Pekarčíková, PhD.

prof. Ing. Miroslav Pástor, PhD.

Čas	Doktorand	Názov príspevku	Autorský kolektív
8:30 – 9:00	REGISTRÁCIA ÚČASTNÍKOV		
9:00 – 9:15	OTVORENIE KONFERENCIE DEKANOM STROJNÍCKEJ FAKULTY TUKE		
9:15 – 9:30	Martin Matej Benda	Experimental analysis of blanking technology for electrical steel in double layer configuration	Martin Matej Benda, Emil Spišák
9:30 – 9:45	Lucia Žuľová	A targeted energy transfer in mechanical drive achieved by varying torsional stiffness	Lucia Žuľová, Matúš Kačír, Robert Grega
9:45 – 10:00	Matúš Virostko	Genetic algorithms in Generative design	Matúš Virostko, Martin Mantič, Pavol Tarbajovský
10:00 – 10:15	Matúš Kačír	Design and construction of the pneumatic components of the torsional vibration tuner	Matúš Kačír, Lucia Žuľová, Robert Grega, Matej Urbanský
10:15 – 10:30	Peter Čurma	Research into potential application of EHD propulsion in the conditions of gravitational interaction	Peter Čurma, Marián Lázár
10:30 – 10:45	Ján Kušnír	Design of a modular fixture for cyclic testing and climate exposure	Ján Kušnír, Jozef Brindza, Michal Demko, Marek Vrabel'
10:45 – 11:00	COFFEE BREAK		
11:00 – 11:15	Jaroslav Romančík	Real-time monitoring of the response of the SMA actuator	Jaroslav Romančík, Marek Vagaš
11:15 – 11:30	Denisa Porubčanová	Risk factors for psychological stress in the workplace	Denisa Porubčanová, Michaela Balážiková
11:30 – 11:45	Ján Kopec	Using IOA and educational robots to create a digital twin	Ján Kopec, Miriam Pekarčíková
11:45 – 12:00	Ivan Mihálik	Analysis of heat transfer in a delivery bag to assess the possibility of drug transportation	Ivan Mihálik, Lukáš Tóth, Marián Lázár
12:00 – 13:00	OBEDNÁ PRESTÁVKA		
13:00 – 13:15	Erik Varjú	Development of an AR Training Simulation Using Unity and AR Foundation	Erik Varjú, Juraj Kováč

13:15 – 13:30	Jozef Brindza	Development of Textured Turning Cutting Inserts	Jozef Brindza, Michal Demko, Ján Kušnír, Marek Vrabel', Peter Ižol
13:30 – 13:45	Anna Tomaszewska	Current Trends and Future Perspectives in Personalized Anatomical Implants: A Review of Dental Implant Design	Anna Tomaszewska, Jozef Živčák
13:45 – 14:00	Adriana Dowbysz	Safety in archives - archival box fire with emphasis on their flammability and smoke density	Adriana Dowbysz, Božena Kukfisz, Mariola Samsonowicz
14:00 – 14:15	Anita Gryko	Numerical analysis of the influence of scaffold implantation on load distribution in long bones	Anita Gryko, Piotr Prochor
14:15 – 14:30	Nikita Veligotskyi	Behaviour of lightweight alloys when thermal drilling	Nikita Veligotskyi, Anna Guzanová
14:30 – 14:45	Patrik Pilát	Comparison of sensing technologies for mobile robot intended for environments with increased radiation	Patrik Pilát, Jozef Varga, Ján Semjon
14:45 – 15:00	Marek Málík	Laser welding using a collaborative robot	Marek Málík, Rudolf Jánoš
15:00 – 15:15	Dominik Novotný	Optimization of flow device for antimicrobial system	Dominik Novotný, Ján Král'
15:15 – 15:30	Peter Milenovský	Design of a hydrogen storage system for a four-cylinder internal combustion engine	Peter Milenovský, Natália Jasminská, Marian Lázár
15:30 – 15:45	František Ruda	The influence of the galvanizing method on the surface properties of thin steel sheets	František Ruda, Emil Spišák
15:45 – 16:00	Šimon Hudák	Optimization of a Heat Exchanger for Hydrogen Storage Using AI-Driven Generative Design and Additive Manufacturing	Šimon Hudák, Marián Lázár
16:00 – 16:15	Róbert Jánošík	Influence of microbiological aspects and dust environment on quality in the automotive industry	Róbert Jánošík, Tomáš Gazda
16:15 – 16:30	Samuel Mikita	Overview of the situation and trends of additive manufacturing using a laser beam	Samuel Mikita, Ján Viňáš
16:30 – 16:45	Vladimír Kokarda	Zlepšovanie výrobného procesu implementáciou metodológie Six Sigma	Vladimír Kokarda
16:45 – 17:00	Marek Grega	Locating the failure of forged bearing rings	Marek Grega, Janette Brezinová
17:00 – 17:15	Barbara Schürger	Comparative analysis of honeycomb and re-entrant auxetic structures: Poisson's ratio and mechanical properties using finite element method	Barbara Schürger, Peter Frankovský, Erika Dubňanská, Martina Hančinová
17:15 – 17:30	Martina Hančinová	Trends in the Development of Non-Pneumatic Tyres (Review)	Martina Hančinová, Erika Dubňanská, Barbara Schürger, Róbert Huňady
18:00	SPOLOČENSKÝ VEČER		

Sekcia B

9:15 – 18:00

Komisia:

prof. Ing. Michal Kelemen, PhD. – predseda komisie

doc. Ing. Ľuboš Kaščák, PhD.

doc. Ing. Teodor Tóth, PhD.

Čas	Doktorand	Názov príspevku	Autorský kolektív
8:30 – 9:00	REGISTRÁCIA ÚČASTNÍKOV		
9:00 – 9:15	OTVORENIE KONFERENCIE DEKANOM STROJNÍCKEJ FAKULTY TUKE		
9:15 – 9:30	Petra Kolembusová	Sustainable Dyeing of Polyamide 12: Research and Prospects	Petra Kolembusová, Norbert Ferenčík, Radovan Hudák
9:30 – 9:45	Veronika Sedláková	Overview of the Effects of Light on Mesenchymal Stem Cells	Veronika Sedláková, Igor Drstvenšek, Jana Hlubeňová, Peter Kneppo, Radovan Hudák
9:45 – 10:00	Ondrej Majerčák	Node-RED as a tool for industrial data visualization	Ondrej Majerčák, Marek Vagaš
10:00 – 10:15	Peter Onderčo	Tortuosity Decoder as a Tool for Measuring Parameters of Overhead Contact Lines in Tram Systems	Peter Onderčo, Jan Rybář, Sohaibullah Zarghoon, Jozef Leja
10:15 – 10:30	Andrej Smetánka	Contribution to Blood Pressure Metrology	Andrej Smetánka, Jan Rybář, Stanislav Ďuriš, Sohaibullah Zarghoon, Jana Gerneschová, Václav Sedlák
10:30 – 10:45	Jana Čajková	Differentiation potential of mesenchymal stem cells in vitro	Jana Čajková, Marianna Trebuňová, Darina Bačenkova
10:45 – 11:00	COFFEE BREAK		
11:00 – 11:15	Juliy Martyn Kulya	Prediction of the limit strain curve by numerical simulation and its verification by experiment	Juliy Martyn Kulya, Miroslav Tomáš
11:15 – 11:30	Maksymilian Maślanka	Impact of Lighting Conditions on Vision Inspection Systems: Analysis, Cost Estimation, and Operational Overview of Cognex Cameras	Maksymilian Maślanka, Daniel Jancarczyk, Damian Pytka

11:30 – 11:45	Maksymilian Maślanka	The Potential of 4D Printing in Designing Adaptive Medical Implants	Maksymilian Maślanka, Jarosław Janusz, Anna Kurowska, Adam Jabłoński, Izabella Rajzer
11:45 – 12:00	Damian Pytka	A Case Study on Improvements for Sumo Robotics Competitions	Damian Pytka, Daniel Jancarczyk, Maksymilian Maślanka
12:00 – 13:00	OBEDNÁ PRESTÁVKA		
13:00 – 13:15	Dominika Sukopová	Advanced Analytics and Digitalization as Tools for Modern Business Management	Dominika Sukopová, Milan Fiľo, Lenka Vyrostková
13:15 – 13:30	Pavol Štefčák	Bypassing CAD modelling through Parametric G-Code Generation for 3D Printing	Pavol Štefčák, Ivan Gajdoš, Ján Slota
13:30 – 13:45	Viliam Kapraľ	Advanced Designs in Single-Screw Extruders: Enhancing Efficiency and Material Flow Control	Viliam Kapraľ, Ivan Gajdoš, Ján Slota
13:45 – 14:00	Katarína Dudová	Evaluation of 3D Scans Generated by Artec Eva and Revopoint Miraco Scanners for Healthcare Applications	Katarína Dudová, Lucia Bednarčíková, Jozef Živčák
14:00 – 14:15	Marek Buber	Use of modern techniques in evaluating the dimensions of pressing made from dual-phase steel	Marek Buber, Miroslav Tomáš, Emil Evin
14:15 – 14:30	Pavol Tarbajovský	Preparation for hydrogen combustion	Pavol Tarbajovský, Michal Puškár, Matúš Virostko
14:30 – 14:45	Tomáš Merva	Exploring Operational Space Controllers for Robotic Manipulators	Tomáš Merva, Ivan Virgala
14:45 – 15:00	Filip Dominik	Design of an experimental system for detecting permeability values of felt electrodes in redox batteries	Filip Dominik, Ján Slota
15:00 – 15:15	Bibiána Ondrejová	Innovative Approach to Somatotype Determination	Bibiána Ondrejová, Lucia Bednarčíková, Norbert Ferenčík, Jozef Živčák
15:15 – 15:30	Leo Brada	Gamification of learning in the industry	Leo Brada, Ľubica Miková, Erik Prada

15:30 – 15:45	Talal Ali	Design of Wilkie syndrome biomechanical algorithms in vascular surgery	Talal Ali, Jozef Živčák, Silvia Šišková
15:45 – 16:00	Pavol Dzurňák	Increasing of data processing security of container terminal model	Pavol Dzurňák, Martin Mantič, Lukáš Beko
16:00 – 16:15	Valéria Eiben	Thermal imaging systems: new possibilities for detection and analysis of thermal radiation	Valéria Eiben, Ružena Králiková, Ervin Lumnitzer
16:15 – 16:30	Jakub Viľcha	Planning the reconstruction of mandible with patient specific implant	Jakub Viľcha, Jozef Živčák
16:30 – 16:45	Miroslava Badidová	Research on ultrafine particles emitted from road traffic	Miroslava Badidová, Lýdia Sobotová
16:45 – 17:00	Jozef Výboch	Methods of investigating the wear of cylinders intended for continuous casting of steel into slabs and solving their service life by coating with weld metal saturated with nitrogen using the SAW method	Jozef Výboch, Milan Čomaj, Ján Viňáš
17:00 – 17:15	Natália Savková	Reverse engineering of palate cleft impression trays	Natália Savková, Branko Štefanovič, Marek Schnitzer, Juraj Bánovčin, Jozef Živčák
17:15 – 17:30	Silvia Šišková	Assessment tools and study design for evaluation of Autonomic Dysfunction in patients with Abdomino-pelvic Vascular Compression Syndromes	Silvia Šišková, Jozef Živčák, Talal Ali, Veronika Potočková, Silvia Dobrodenková
17:30 – 17:45	Peter Krajný	EHS Data Digitization and Integration into Production Monitoring Tools to Prevent Occupational Diseases	Peter Krajný, Jaroslava Janeková
17:45 – 18:00	Erika Dubňanská	3D Printing of Silicate Materials and their Advanced Application (Review)	Erika Dubňanská, Barbara Schürger, Martina Hančinová, Róbert Huňady
18:00	SPOLOČENSKÝ VEČER		