TECHNICAL UNIVERSITY OF KOŠICE
Faculty of Mechanical Engineering

PRO-TECH-MA 2026

24th– 26th June 2026, Košice - ÚVZ Herľany

organized under the auspices of
Dr. h. c. mult. prof. Ing. Jozef ŽIVČÁK, DrSc., MPH, akademik UčSS
Dean of the Faculty of Mechanical Engineering
Technical University of Košice

SLOVAK RESEARCH AND DEVELOPMENT AGENCY

Funded by the European Union

PROMATAI Horizon-MSCA-2022-SE-01

ORGANIZERS

	Department of Technology, Materials and Computer Supported Production Faculty of Mechanical Engineering Technical University of Košice
	Department of Materials Forming and Processing Faculty of Mechanical Engineering and Aeronautics Rzeszow University of Technology
	The Department of Metal Forming Faculty of Mechanical Engineering Lublin University of Technology

SCIENTIFIC GUARANTOR

EMIL SPIŠÁK	Technical University of Košice

ORGANIZING COMMITTEE

ĽUBOŠ KAŠČÁK	Technical University of Košice
ĽUDMILA DULEBOVÁ	Technical University of Košice
JANKA MAJERNÍKOVÁ	Technical University of Košice
JÁN VARGA	Technical University of Košice
PETER MULIDRÁN	Technical University of Košice
VLADIMÍR ROHAĽ	Technical University of Košice
TOMÁŠ JEZNÝ	Technical University of Košice
GRAŻYNA RYZIŃSKA	Politechnika Rzeszowska
GRZEGORZ JANOWSKI	Politechnika Rzeszowska
MARTA WÓJCIK	Politechnika Rzeszowska
ANDRZEJ GONTARZ	Politechnika Lubelska
PIOTR SURDACKI	Politechnika Lubelska

24th June 2026

16:00 – 18:00	**Registration**

25th June 2026	
8:00 – 9:00	**Registration**
9:00	**Opening** prof. Ing. Emil SPIŠÁK, CSc., TUKE, SK Head of Technology, Materials and Computer Supported Production, Scientific Guarantor of the Conference **Speech of the Dean of the Faculty of Mechanical Engineering TUKE** Dr. h. c. mult. prof. Ing. Jozef ŽIVČÁK, DrSc., MPH, akademik UčSS
Chairpersons	prof. Ing. Emil SPIŠÁK, CSc., SK prof. dr hab. inż. Feliks STACHOWICZ, PL
9:30-10:45	**SKRZAT, A. – WÓJCIK, M.** Finite element modeling of polycrystalline materials using user-defined material procedure - Part 1. Theoretical foundations
	WÓJCIK, M. – SKRZAT, A. Finite element modeling of polycrystalline materials using user-defined material procedure - Part 2. Benchmark tests
	KUT, S. – RYZIŃSKA, G. Effect of strain range in uniaxial and biaxial tension tests on elastomer compression modeling
	FRĄCZ, W. – ŻABA, K. - BALCERZAK, M. – KUCZEK, Ł. – MOTYKA, M. Evaluation of the effect of layered polyurethane punches on the forming accuracy of steel sheet and Zn and Ti alloy drawpieces
	PREISNAR, K. – TASIOR, W. Experimental, computational, and simulation methods in new turbocharger's bearing system development based on B80H product
10:45-11:00	**Coffee Break**
Chairpersons	dr hab. inż. Jarosław BARTNICKI, PL prof. Ing. Ján SLOTA, PhD., SK
11:00-12:00	**RYZIŃSKA, G. - KUT, S.** Specific energy absorption in glass epoxy composite tubes under progressive crushing
	KVAČKAJ, T. Physical-metallurgical aspects of austenitic stainless steel AISI 316 LN
	ČURMA, P. - LÁZÁR, M. – JASMINSKÁ, N. Influence of electromigration on corona electrode degradation and propulsion effect
	KEREKEŠ, S. – SCHÜRGER, B. – DELYOVÁ, I. – KOSTKA, J. – FRANKOVSKÝ, P. Increasing the service life of welded swap bodies using a combined KTL and powder coating system
12:00-13:00	**Lunch Break**
Chairpersons	dr hab. inż Andrzej SKRZAT, PL prof. Ing. Janette BREZINOVÁ, PhD., SK
13:00-14:00	**NOWOTYŃSKA, I. – KUT, S.** Analysis and optimization of tools in the bolt forging process
	BENDA, M. M. – SPIŠÁK, E. – MULIDRÁN, P. Experimental optimization of cutting clearance for electrical steel used in production of rotor and stator laminations
	TOMKOVÁ, V. – SLOTA, J. – NÉMETH, S. – KUNDRACÍK, V. Influence of Ti content in chemical pretreatment on the adhesion of organic coatings to galvanized sheets
	ŠIŠKA, R. – SLOTA, J. Effects of process parameters on the contour cutting of roll-bonded cooling plates
Chairpersons Poster Section	prof. Ing. Ľuboš KAŠČÁK, PhD., SK dr hab. inż. Wiesław FRĄCZ, PL
14:15-17:00	**WÓJCIK, Ł.** Effect of kaolin content on the flow stress characteristics of a physical model material
	MUCHA, J. – CIECIŃSKA, B. – BABIARZ, R. – MARKOPOULOS, A. – SLOTA, J. – MRÓWKA-NOWOTNIK, G. Experimental analysis of the effect of nanosecond laser texturing parameters on the 25CrMo4 steel surface structure
	JANOWSKI, G. – FRĄCZ, W. – BĄK, Ł. Selected aspects of structure formation in injection-moulded PHBV biocomposites with natural fibres
	WINIARSKI, G. A new method of skew rolling using six rolls
	BĄK, Ł. – FRĄCZ, W. – JANOWSKI, G. Influence of geometrical features of fibrous filler on the processability of PHBV biocomposites
	MICHALCZYK, J. – STEFANIK, A. Development and analysis of the sheet metal bending process for materials with a high yield strength

	BARTNICKI, J. – KRAKOWSKI, M. Analysis of influence of rubber hardness on the accuracy of the extruded parts in 3D printed matrix
	STEFANIK, A. – MROZ, S. – SZOTA, P. – MICHALCZYK, J. Theoretical analysis of the rolling process of two-layer materials for the production of hydrogen transport pipes
	WÓJCIK, J. – TOMCZAK, J. – KUSIAK, T. Capabilities of incremental sheet metal forming using a dedicated numerically controlled machine
19:00	**Gala Dinner**
26th June 2026	
Chairpersons	doc. Ing. Janka MAJERNÍKOVÁ, PhD., SK dr hab. inż. Stanisław KUT, PL
9:00-10:00	**MOUSTRIS, K. – POLYCHRONOPOULOS, N. – SARRIS, I. – KARVELAS, E. – SPYROPOULOS, G. – LIOSSIS, CH. – SOFIADIS, G. – PEPPA, S.** Ai-driven regression modeling for the prediction of geometrical parameters in single-screw extrusion systems
	BIDULSKÝ, R. – BIDULSKÁ, J. – KAŠČÁK, Ľ. – VARGA, J. – BRYTAN, Z. – GRANDE, A. G. – KVAČKAJ, T. Overview of Fellexcel
	MORAVSKYI, V. – POMIRKO, O. – KUZNETSOVA, M. – BOLKOT, P. – IURKEVYCH, R. – DULEBOVA, Ľ. Possibilities of using highly filled epoxy composites in 3d printing technologies
	BREZINOVÁ, J. – BREZINA, J. – VIŇÁŠ, J. Influence of laser microtexturing and PVD coatings on the tribological properties of surfaces
10:00-10:15	**Coffee Break**
10:15-12:00	**HRYTSENKO, T. – DULEBOVA, Ľ. – BARAN, N. – MORAVSKYI, V. – GAJDOŠ, I.** Progressive composite hydrogel materials modified by polyamide for engineering and biomedical applications
	MASIUK, A. – KATRUK, D. – KECHUR, D. – DULEBOVÁ, Ľ. Development of two-layer polyester protective coatings with controlled thermal and surface properties
	ŠTEFČÁK, P. – GAJDOŠ, I. – SLOTA, J. – MINALE, Y. F. Experimental analysis of the possibilities for creating lattice structures in the grasshopper parametric environment
	VARGA, J. – KAŠČÁK, Ľ. – TÓTH, T. – VRABEĽ, M. – DOMINIK, F. The application of a barrel cutter when milling a blade surface and evaluation of the quality of the machined surface
	MULIDRÁN, P. – SPIŠÁK, E. – MAJERNÍKOVÁ, J. – ROHAĽ, V. Application of ANN in springback prediction
	MAJERNÍKOVÁ, J. – SPIŠÁK, E. – MULIDRÁN, P. Analysis of the change in thickness of pressings after biaxial tensile test
	JEZNÝ, T. – KAŠČÁK, Ľ. – ROHAĽ, V. New trends in joining steel and composite materials
	KAŠČÁK, Ľ. – VARGA, J. – JEZNÝ, T. – ROHAĽ, V. Mechanical joining of lightweight metal-polymer-metal sandwich panels
	GUZANOVÁ, A. – DRAGANOVSKÁ, D. Ways to increase the load-bearing capacity of metal-composite joints for the automotive industry
	KAPRAĽ, V. – GAJDOŠ, I. – DULEBOVA, Ľ. – KRASINSKYI, V. – LIOSIS, CH. Effect of adjustable groove geometry on solid conveying performance in a single-screw extruder feed section
	VARGA, J. – KAŠČÁK, Ľ. The application of simulation tools in the mechanical joining of materials
	ROHAĽ, V. – SPIŠÁK, E. – MAJERNÍKOVÁ, J. – MULIDRÁN, P. Influence of punch coatings and punch-die clearance on blanking force
	DULEBOVÁ, Ľ. – KRASINSKYI, V. – BAJER, K. – KRASINSKA, O. – RASZKOWSKA – KACZOR, A. Preparation and selected properties of homogeneous PBS-based bio(nano)composites reinforced with unmodified MWCNTs
	NOVÁKOVÁ - MARCINČÍNOVÁ, E. – SPIŠÁK, E. Sustainability of electric vehicles with a focus on reducing environmental impacts
12:00	**Lunch Break**
13:00	**Closing of the Conference**