The conference agenda
XXV Polish-Slovak Scientific Conference on
Machine Modelling and Simulations 2020
8-11 September 2020 (EVITA – Tleń/Osie)

Each presentation lasts 15 minutes + 5 minutes of discussion

Tuesday, September 8th, 2020

Inprocessng and Openning Ceremony Room No. A (Sala balowa)	
12:00 – 16:00	Registration of participants **Lunch Box**
16:00 – 16:20	Opening of the conference
16:20 – 16:40	Keynote Speaker – Marek Macko

Discusson Panel "A0" Room No. A (Sala balowa) Chairman: Prof. Tomasz Klepka	
16:40 – 17:00	Krzysztof Wałęsa, Aleksandra Biszczanik, Ireneusz Malujda, Dominik Wilczyński Assumptions for modelling of the hot plate welding process considering the automatic welding machine design - 558
17:00 – 17:20	Milan Sapieta, Vladimír Dekýš, Peter Weis, Martin Svoboda Nondestructive evaluation of BSCC artificial heart valves - 543
17:20 – 17:40	Piotr Krawiec, Grzegorz Domek, Łukasz Warguła Development trends in belt transmissions with V-belt - 550
17.40 - 18.00	Dariusz Mikołajewski, Izabela Rojek, Joanna Nowak, Zbigniew Szczepański, Marek Macko Computational inteligence in development of 3D printing and reverse engineering - 598
18.00 - 18.20	Milan Sága, Milan Vaško, Zuzana Ságová, Ivan Kuric, Peter Kopas, Marian Handrik FE simulation of non-proportional multiaxial fatigue damage - 553
19:30	Dinner

Wednesday, September 9th, 2020

7:30 – 9:00	Breakfast		
9:00 – 12:20	**Discusson Panel "A1"** **Room No. A (Sala balowa)** **Chairman: Prof. Mariana Pajtášová** Machine dynamics and multibody systems simulations Methods and systems in machine design	**Discusson Panel "B1"** **Room No. B (Sala myśliwska)** **Chairman: Prof. Darina Ondrušová** Modelling and simulation, structural optimization	**Discusson Panel "C1"** **Room No. C (Sala prezesowa)** **Chairman: Prof. Elżbieta Gawrońska** Advanced industrial, automotive and green energy applications Experimental mechanics, identification and validation
09:00 – 09:20	Ramesh Narina, Marek Iwaniec Past, present and future of assistive robotic lower limb exoskeletons - 604	Marián Handrik, Jaroslav Majko, Peter Kopas, Milan Vaško, Milan Sága, Lenka Jakubovičová Analysis of stress concentration on weld Surface - 544	Vladimír Bulej, Michal Bartoš, Ivan Kuric Advanced Visual Guided Robotic Systems and their Applications in Industry - 566
09:20 – 09:40	Agnieszka Nowacka, Tomasz Klepka Influence of machining conditions on friction in abrasive flow machining process – A review - 629	Dominik Wojtkowiak, Krzysztof Talaśka Analysis of the belt punching process with using a single cutting edge - 574	Krzysztof Lalik, Mateusz Kozek, Ireneusz Dominik Application of the Augmented Reality goggle for a muting procedure with Convolutional Neural Networks algorithm – 602/642

09.40 – 10:00	Alžbeta Sapietová, Milan Sapieta, Vladimir Dekys Kinematics Analysis of the Spatial Mechanism using Matlab - 541	Nitin Vijay Satpute, Marek Iwaniec A flexible mechanism based vibration isolator for machine tool application – 651	Dorota Czarnecka-Komorowska, Cezary Jędryczka, Dariusz Sędziak, Roman Regulski, Krzysztof Netter, Dominik Rybarczyk, Mariusz Barański, Mateusz Barczewski Concept and design of the test bench for electrostatic separation in plastic recycling application - 625
10:00 – 10:20	Sławomir Jan Stępień, Paulina Superczyńska, Wiesława Piekarska, Damian Dobrowolski Modelling and numerical analysis of de-icing sprinkler-flusher airport machine arms - 585	Karol Grzegorz Konecki, Krzysztof Talaśka Analysis of wedge lock washer using the finite element method - 649	Izabela Rojek, Dariusz Mikołajewski, Piotr Kotlarz, Marek Macko, Jakub Kopowski Intelligent System Supporting Technological Process Planning for Machining - 551
10.20 – 10:40	Jan Kalivoda Simulation of Active Wheelset Steering for an Electric Locomotive - 588	Daniel Łączny, Patrycja Bałdowska-Witos, Weronika Kruszelnicka, Marek Macko, Jakub Lewandowski Computer aided eco-design grinding machines using software Solidworks Sustainability - 634	Krzysztof Lalik, Mateusz Kozek, Paweł Gut, Marek Iwaniec, Grzegorz Pawłowski SVM algorithm for industrial defect detection and classification - 605
10.40 – 11:00	**Coffee break**		
11:00 – 11:20	Robert Grega, Ivan Grega, Michal Puskar The potential for use of cubic nonlinear systems in internal combustion engine drivetrains -	Michal Bartoš, Vladimír Bulej, Ivan Kuric Conceptual design and simulation of cable-driven parallel robot for inspection and monitoring tasks -	Łukasz Warguła, Mateusz Kukla, Piotr Krawiec Directions of development of adaptive systems to the operating conditions of mobile wood

	581	638	chopping machines with low power engines - 552
11:20 – 11:40	Ludwin Molina, Marek Iwaniec Lower limb models used for biomechanical analysis of human walking - 610	Marcin Nowacki, Damian Olejniczak Determination of the operational parameters values for Airbus A300-600ST Beluga aircraft on the basis of CFD tests - 623	Grzegorz Jan Domek, Piotr Krawiec, Michał Wilczyński Selection of a flat belt for the model of optimal coupling with pulleys - 584
11:40 – 12:00	Tomáš Dodok, Nadežda Čuboňová, Miroslav Císar Development of advanced cycles for control system Sinumerik 840D - 548	Karel Ráž, Zdenek Chval Development of a computational model of lattice structure - 587	Damian Pietrusiak, Jakub Wróbel, Mateusz Czechowski, Wiesław Fiebig A numerical and experimental NVH testing of vehicle components – from simple part to complex assembly- 628
12:00 – 12:20	Robert Grega, Jozef Krajňak Influence of pressure on the change of temperature inside the elastic element under dynamic stress - 600	Nadiia Artyukhova, Jan Krmela, Vladimíra Krmelová, Artem Artyukhov Directed Fluidized Bed in Drying Machines: Main Stages of Optimization Calculation - 540	Dorota Czarnecka-Komorowska, Ewelina Kostecka, Katarzyna Bryll, Katarzyna Gawdzińska Analysis of the decomposition using the short degradation technique of polylactic acid/halloysite nanotube biocomposites - 617
13:30	**Lunch**		

14:30 – 17:50/18:10	**Discusson Panel "A2"** **Room No. A (Sala balowa)** **Chairman: Dr hab. inż. Paweł Popielarski** Experimental mechanics, identification and validation	**Discusson Panel "B2"** **Room No. B (Sala myśliwska)** **Chairman: Prof. Michał Bembenek** Methods and systems in machine design Modelling and simulation, structural optimization	**Discusson Panel "C2"** **Room No. C (Sala prezesowa)** **Chairman: Prof. Ireneusz Malujda** Physical and chemical properties of materials
14:30 – 14:50	Radoslaw Drelich, Michał Pakuła, Mariusz Kaczmarek Application of non-contact ultrasonic method in air to study fiber-cement corrugated sheets - 609	Bartosz Wieczorek Influence of wheelchair anti-rollback systems on hill climb kinematics - 547	Daniel Łączny, Jakub Lewandowski, Patrycja Bałdowska-Witos, Weronika Kruszelnicka, Design and construction of an innovative particle analyser – 613/633
14:50 – 15:10	Ondrej Štalmach Comparison of the optical lock-in thermography using the reflection mode and the transmission mode - 570	Piotr Boral, Leszek Skoczylas Machining of helical surfaces with an arbitrary profile – 620	Ivana Klačková Heat production in condensing boilers and their influence on CO and NOx emission values - 563
15.10 – 15:30	Katarzyna Kazimierska-Drobny Investigation of pH, thermo and ion-specific behavior of PVA hydrogel - 639	Maksymilian Cierniewski, Janusz Mielniczuk Mechatronic radial guiding system of railway vehicle wheelsets - 630	Andrea Feriancová, Andrej Dubec, Jana Pagáčová, Mariana Pajtášová Modification of the filler on the basis of kaolin and its use in the polymer composites - 594

15.30 – 15:50	Zbigniew Szczepański, Mieczysław Cieszko Determination of volume porosity of porous materials based on μCT histograms - 611	Marian Dudziak, Krzysztof Talaśka, Dominik Wilczyński, Tomasz Marchwicki The concept of structure a flexible design and manufacturing method focused on the individual production of grippers - 641	Darina Ondrušová, Ivan Labaj, Juliana Vršková, Mariana Pajtášová, Slavomíra Božeková, Andrea Feriancová Targeted modification of the composition of polymer systems for industrial applications - 579
15:50 – 16:10	Martin Gavlas, Mario Drbul, Vladimir Dekys, Milan Saga Effect of vibration on machine tool accuracy and lifetime - 564	Grzegorz Śmigielski Numerical control systems based on a programmable logic device - 593	Aleksandra Biszczanik, Ireneusz Malujda, Dominik Wilczyński, Krzysztof Wałęsa Mechanical properties of the materials included in the conveyor belt structure - 554
16.10 – 16:30	**Coffee break**		
16.30 – 16:50	Dominik Grochala, Anna Paleczek, Justyna Lemejda, Marcin Kajor, Marek Iwaniec Evaluation of Geometric Occlusal Conditions Based on the Image Analysis of Dental Plaster Models - 608	Miroslav Císar, Vladimír Tlach, Ivan Zajačko Various methods of circular interpolation performance analysis - 565	Marcin Kempiński, Mieczysław Cieszko Identification of pore size limit parameters based on mercury porosimetry data - 652
16:50 – 17:10	Konrad Jan Waluś, Łukasz Warguła Experimental research on kinematic features of agricultural tractor movement on asphalt pavement - 580	Jacek Jackiewicz Application of torsional dampers for reducing torsional vibrations in shafts of piston aircraft engines - 645	Mariana Pajtášová, Darina Ondrušová, Róbert Janík, Petra Skalková, Andrea Fariancová The Influence of selected physicochemical factors on physicomechanical properties of

			studied vulcanizates - 590
17:10 – 17:30	Przemysław Moczko, Damian Pietrusiak, Jakub Andruszko Numerical modeling of excavation process with the use of DEM - 650	Milan Sága, Milan Vaško, Zuzana Ságová, Ivan Kuric, Peter Kopas, Marian Handrik FE simulation of non-proportional multiaxial fatigue damage – 553	Jakub Lewandowski, Weronika Kruszelnicka, Patrycja Bałdowska-Witos,, Daniel Łączny, Marek Macko The use of simulation software in the process of materials comminution using the discrete element method (DEM) - 631
17:30 – 17:50	Grzegorz Śląski, Zbyszko Klockiewicz Frequency response estimation for linear and nonlinear quarter car suspension models - 624	Dominik Wojtkowiak, Krzysztof Talaśka Finite Element Analysis of the axially non-symmetrical piercing punches performance for belt perforation – 532	Mateusz Kukla, Łukasz Warguła Wood-based Boards Mechanical Properties in the Aspect of the Cutting Process During Shredding - 557
17:50 – 18:10		Dominik Wojtkowiak, Krzysztof Talaśka Finite Element Analysis of the single shear piercing punch performance for belt perforation - 533	
19:00	**Gala Dinner**		

Thursday, September 10th, 2020

7:30 – 9:00	**Breakfast**		
10.00 – 13.00 – Canoeing/Recreation time			
13:30 – Lunch			
14:30 – 17:50	**Discusson Panel "A3" Room No. A (Sala balowa)** **Chairman: Prof. Damian Pietrusiak** Experimental mechanics, identification and validation Theoretical and applied mathematics in engineering	**Discusson Panel "B3" Room No. B (Sala myśliwska)** **Chairman: Dr hab. inż Dorota Czarnecka-Komorowska** Modelling and simulation, structural optimization	**Discusson Panel "C3" Room No. C (Sala prezesowa)** **Chairman: Prof. Grzegorz Domek** Modelling and simulation, structural optimization
14:30 – 14:50	Bogdan Tomasz Kosturkiewicz, Andrzej Janewicz, M. Kosturkiewicz Research on load on the roll press' shafts and work items - 627	Paweł Popielarski, Dorota Czarnecka-Komorowska Design of the casting technology using foundry simulation codes – development conditio - 635	Dominik Wilczyński, Krzysztof Wałęsa, Aleksandra Biszczanik Simulation tests of the cutting proces - 591
14:50 – 15:10	Joanna Nowak Studies of objectivity of indentation test of mechanical parameters of soft PUR foams - 627	Piotr Boral Generating the code controlling the CNC machine tool for shaping the surfaces of worms with a circular concave profile by a point method - 567	Milan Vaško, Lenka Jakubovičová, Milan Sága, Zuzana Ságová, Ivan Kuric, Marián Handrik, Peter Kopas Mass minimising of truss and beam structures subjected to cumulative fatigue damage - 560

15.10 – 15:30	Vladimir Dekys, Miroslav Neslusan, Alzbeta Sapietova, Ondrej Stalmach, Martin Gavlas Study of cutting process dynamics during grinding ceramic materials - 539	Elżbieta Gawrońska, Robert Dyja Impact of geometry on the thermal and mechanical properties of periodic Surface structures: A numerical study - 606	Jarosław Markowski, Damian Olejniczak, Marcin Nowacki, Jacek Mądry, Krzysztof Netter, Paweł Imiłkowski Modeling of the construction for the combustion chamber of the gas calorimeter in the aspect of exhaust gas homogenization in the measuring space - 626
15.30 – 15:50	Pavol Oršanský Efficiency improvement of electro-mechanical systems - 562	Jaroslav Majko, Milan Sága, Zuzana Ságová, Milan Vaško, Marián Handrik, Peter Kopas, Lenka Jakubovičová Numerical analysis and optimization of large dimensioned structures considering stress concentrations in welded joints - 537	Zbigniew Saternus, Wiesława Piekarska, Marcin Kubiak, Tomasz Domański Numerical prediction of temperature field, melted zone and deformation of single-sided welded T-joint by laser beam - 595
15:50 – 16:10	Vladimír Stenchlák, Ivan Kuric, Andrej Bencel Finding input-output dependencies of feed forward neural networks - 535	Pavol Novák, Milan Sága, Milan Vaško, Peter Kopas, Marián Handrik Numerical simulation of electron beam welding of aluminum alloys - 561	
16.10 – 16:30	**Coffee break**		
16.30 – 16:50	Jan Górecki Mathematical model describing the influence of geometrical parameters	Stanislav Špirk, Jan Špicka, Jan Vychytil Numerical simulation of tram	Denis Martinec *(declaration of being unable to present a paper)*

	of multichannel dies on the limit force of dry ice extrusion proces - 538	collision with pedestrian - 589	Skúšky zabiehavosti pre technológiu semi solid squeeze casting - 571
16:50 – 17:10	Mária Michalková, Ivana Pobočíková, Zuzana Sedliačková Modelling the electricity consumption in a manufacturing company through probability distribution - 569	Nadiia Artyukhova, Jan Krmela, Artem Artyukhov Technology of Porous Ammonium Nitrate Obtaining: Modeling of Drying Machines' Operational Regimes - 542	Krzysztof Tyszczuk, Grzegorz Domek, Andrzej Kołodziej The conveying problems of biological material from under pressure container - 596
17:10 – 17:30	Jan Górecki The algebraic model of the dry ice extrusion process in a die with a conical-cylindrical channel - 546	Lenka Jakubovičová, Milan Sága, Marián Handrik, Peter Kopas, Milan Vaško *(declaration of being unable to present a paper)* The modern conveyor belt and its construction - 568	Stanisław Flaga The use of web technologies to monitor and manage PLC class control devices - 619
17:30 – 17:50	Zuzana Sedliačková, Ivana Pobočíková, Mária Michalková, Daniela Jurášová Wind speed modeling using Weibull distribution: a case of Liptovský Mikuláš, Slovakia - 573	Michał Bembenek, Przemysław Gancarczyk Use of the finite element method in predicting of the roller press frames loads - 597	Ján Vavro jr., Ján Vavro, Darina Ondrušová, Lukáš Klímek Experimental and numerical modal analysis of the glass composite plate damaged by cut - 582
18:00 – 18:50	Meeting of the Scientific Committee (traditional and on-line) - **Room No. C (Sala prezesowa)**		
19:00	**Barbecue dinner**		

Friday, September 11th, 2020

7:30 – 9:00 Breakfast	
	Discusson Panel "A4" **Room No. A (Sala balowa)** **Chairman: Prof. Dariusz Mikołajewski** Modelling and simulation, structural optimization
09:00 – 09:20	Milan Žmindák, Michal Kaco Analysis of the contact stresses of spur gears manufactured by 3D printing from composite materials - 578
09.20 – 09:40	Maciej Berdychowski, Arkadiusz Bydełek Research of material properties for the purposes of modeling the fabric destruction process
09.40 – 10:00	Mateusz Kukla, Krzysztof Talaśka, Aleksandra Biszczanik, Jan Górecki Numerical modeling of magnetorheological elastomers mechanical properties - 556
10:00 – 10:20	Adam Mroziński, Marek Macko Simulation tests of working press loads under pre-tensioned body conditions - 601
10.20 – 10:40	Piotr Kaczmarzyk, Daniel Małozięć, Łukasz Warguła, Piotr Krawiec Comparative analysis of tests under real conditions and CFD model for selected operation parameters of a mobile fan used by Fire Protection Units - 576
10:40 – 11:00	Jakub Lewandowski, Daniel Łączny, Patrycja Bałdowska-Witos, Weronika Kruszelnicka Simulation of kinematic and strength analysis of a conical shredder – 632/614

10.40 – 11:00	Damian Olejniczak, Marcin Nowacki Model identifying the airfoil icing process beginning on the basis of aircraft flight parameters - 621
11:00	Closing of the Conference MMS 2020
Lunch Box	