



**UNIVERSITY of  
DEBRECEN**

Faculty of Engineering  
Department of Mechanical Engineering

**5<sup>th</sup> INTERNATIONAL SCIENTIFIC CONFERENCE ON  
ADVANCES IN MECHANICAL ENGINEERING**

**(ISCAME 2017)**

**12-13 October, 2017 Debrecen, Hungary**

**CONFERENCE PROGRAMME**

organized by

**Department of Mechanical Engineering**

**Faculty of Engineering, University of Debrecen**

and

**Working Commission in Mechanical Engineering**

**Specialized Committee in Engineering**

**Regional Committee in Debrecen, Hungarian Academy of Sciences**



# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

12-13 October 2017, Debrecen, Hungary



## Chair of ISCAME 2017

**Tamás MANKOVITS, University of Debrecen, Hungary**

## Scientific Program Committee of ISCAME 2017

**Ágnes BATTÁNÉ GINDERT-KELE, University of Debrecen, Hungary**

**Sándor BODZÁS, University of Debrecen, Hungary**

**Gábor BOHÁCS, Budapest University of Technology and Economics, Hungary**

**István BUDAI, University of Debrecen, Hungary**

**Levente CZÉGÉ, University of Debrecen, Hungary**

**Igor DRSTVENSEK, University of Maribor, Slovenia**

**Illés DUDÁS, University of Miskolc, Hungary**

**János Péter ERDÉLYI, University of Miskolc, Hungary**

**Lajos FAZEKAS, University of Debrecen, Hungary**

**Csaba GYENGE, Technical University of Cluj-Napoca, Romania**

**Sándor HAJDU, University of Debrecen, Hungary**

**György JUHÁSZ, University of Debrecen, Hungary**

**Gábor KALÁCSKA, Szent István University, Hungary**

**Ferenc KALMÁR, University of Debrecen, Hungary**

**Imre KOCSIS, University of Debrecen, Hungary**

**Stanislav LEGUTKO, Poznan University of Technology, Poland**

**Zoltán MAJOR, Johannes Kepler University Linz, Austria**

**Ljubica MILOVIC, University of Belgrade, Serbia**

**Imre Norbert ORBULOV, Budapest University of Technology and Economics, Hungary**

**Sándor PÁLINKÁS, University of Debrecen, Hungary**

**Tibor POÓS, Budapest University of Technology and Economics, Hungary**

**Milan RACKOV, University of Novi Sad, Serbia**

**Istvánné RÁTHY, Óbuda University, Hungary**

**Tamás SZABÓ, University of Miskolc, Hungary**

**Edit SZŰCS, University of Debrecen, Hungary**

**György THALMAIER, Technical University of Cluj-Napoca, Romania**

**Zsolt TIBA, University of Debrecen, Hungary**

**László TÓTH, University of Debrecen, Hungary**

**Matej VESENJAK, University of Maribor, Slovenia**

**László ZSIDAI, Szent István University, Hungary**

## Technical Assistance

**Beáta KÖVÉR, University of Debrecen, Hungary**

**Tamás Antal VARGA, University of Debrecen, Hungary**



# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

12-13 October 2017, Debrecen, Hungary



## WELCOME MESSAGE

On behalf of the ISCAME Scientific and Organizing Committee I am pleased to welcome you to Debrecen for the 5<sup>th</sup> International Scientific Conference on Advances in Mechanical Engineering organized by the Department of Mechanical Engineering, Faculty of Engineering of the University of Debrecen.

The main goal of ISCAME is to yearly bring together engineers working on research, development and practical application in the field of mechanical engineering. Furthermore, the purpose of this Conference is to provide opportunities for scientists and engineers to meet and to discuss current research, new concepts and ideas and establish possibilities for future collaborations in all aspects of mechanical engineering.

I am pleased to inform you that 135 experts from higher education have registered for this year's conference from altogether 8 countries. In the framework of ISCAME 87 presentations will be given and 36 posters will be exhibited. The topic of this year ISCAME plenary session will be Materials Science. I am honored to announce that 4 internationally recognized Hungarian speakers (Prof. Zoltán KOLOZSVÁRY, Prof. Imre ORBULOV, Prof. Miklós TISZA, Prof. László TÓTH) of whom 3 were born in Debrecen will hold the interesting lectures.

We invite you to be an active participant in this Conference and to contribute to any topic of your scientific interest. We hope that the 5<sup>th</sup> International Scientific Conference on Advances in Mechanical Engineering will have an important impact on the research in all topics included in its programme.

It is also an honour for us to have a privilege to invite you to the 5<sup>th</sup> Mechanical Engineering Industrial Exhibition. The Faculty of Engineering of the University of Debrecen will host – parallel to ISCAME – the event, called “Industry Days in Debrecen” where 46 companies – 30 of which as partners of the Department of Mechanical Engineering – will exhibit. The list of our exhibiting partners can be found at the end of the programme booklet. This professional programme will surely benefit the visitors who want to get up-to-date knowledge with the latest technology.

We want to express our appreciation to all members of the committees involved in the preparation of this Conference and to all the staff who are managing the different aspects of the Conference and to all the contributing authors and participants who will create the real Conference. We hope that all of you feel awarded for your participation and contribution.

Yours Sincerely,

Tamás Mankovits  
Chair of ISCAME, Head of Department  
Department of Mechanical Engineering  
Faculty of Engineering, University of Debrecen



# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

12-13 October 2017, Debrecen, Hungary



## TECHNICAL PROGRAMME

(Industry Days in Debrecen – including 5<sup>th</sup> ISCAMÉ and 5<sup>th</sup> Mechanical Engineering Exhibition)

### Thursday, 12<sup>th</sup> of October 2017 (2-4 Ótemető, Debrecen)

- 08:30 – 16:00 **ISCAMÉ registration** – continuously (Main Hall)
- 09:00 – 16:00 **ISCAMÉ poster exhibition and coffee** (ground floor, room 9.)
- 09:00 – 16:00 **Industry Days in Debrecen** (Building of the Faculty of Engineering)
- 09:30 – 12:00 **opening ceremony and talks of the Industry Days in Debrecen** (Aula and Lecture Hall U.0.02)
- 11:45 – 14:00 **lunch** (Restaurant, Fac. of Eng.) – for ISCAMÉ participants
- 12:10 – 14:00 **reception** – for company representatives – entrance only with invitation card
- 13:00 – 14:30 **company presentations** (Lecture Hall U.0.01)
- 14:00 – 15:00 **ISCAMÉ poster session 1** (ground floor, room 9.)
- 15:00 – 16:30 **ISCAMÉ opening and plenary session** (Lecture Hall U.0.01.)
- 18:30 – 22:00 **ISCAMÉ banquet** (Restaurant, Fac. of Eng.) –by pre-registration only, entrance only with invitation card

### Friday, 13<sup>th</sup> of October 2017 (2-4 Ótemető, Debrecen)

- 08:30 – 14:00 **ISCAMÉ registration** – continuously (Main Hall)
- 09:00 – 16:00 **ISCAMÉ poster exhibition and coffee** (ground floor, room 9.)
- 09:00 – 10:00 **ISCAMÉ poster session 2** (ground floor, room 9.)
- 09:00 – 12:00 **company presentations** (Lecture Hall U.0.01)
- 09:00 – 13:00 **Industry Days in Debrecen** (Building of the Faculty of Engineering)
- 10:00 – 12:30 **ISCAMÉ sessions**  
APPLIED AND THEORETICAL MECHANICS  
MAINTENANCE AND CONDITION MONITORING  
MANUFACTURING SCIENCE  
MATERIALS SCIENCE AND TECHNOLOGY 1
- 11:30 – 14:00 **lunch** (Restaurant, Faculty of Engineering)
- 12:30 – 12:45 **ISCAMÉ group photo** (meeting at the inner court)
- 13:00 – 16:30 **ISCAMÉ sessions**  
ENGINEERING PROCESSES AND OPTIMIZATION  
FLUID MECHANICS  
MACHINE AND PRODUCT DESIGN  
MATERIALS SCIENCE AND TECHNOLOGY 2



# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

12-13 October 2017, Debrecen, Hungary



## DETAILED PROGRAMME OF ISCAME 2017

Thursday, 12<sup>th</sup> of October 2017 (2-4 Ótmetető, Debrecen)

- 08:30 – 16:00 **ISCAME registration** – continuously (Main Hall)  
09:00 – 16:00 **ISCAME poster exhibition** (ground floor, room 9.)  
11:45 – 14:00 **lunch** (Canteen, Faculty of Engineering)  
14:00 – 15:00 **ISCAME poster session 1** (ground floor, room 9.)
- 15:00 – 16:30 **ISCAME opening and plenary session**  
(ground floor, Lecture Hall U.0.01)  
Chairman: **Tamás MANKOVITS PhD**, University of Debrecen, Hungary
- 15:00 – 15:10 **Tamás MANKOVITS**  
*Welcoming words*
- 15:10 – 15:30 **László TÓTH**  
*Mechanical Testing - Response of a Self-organised System*
- 15:30 – 15:50 **Zoltán KOLOZSVÁRY**  
*A few considerations on the state of the art and development trends in heat treatment and surface engineering*
- 15:50 – 16:10 **Miklós TISZA**  
*Lightweight manufacturing of automotive parts*
- 16:10 – 16:30 **Imre Norbert ORBULOV**  
*Special properties of metal matrix syntactic foams*
- 18:30 – 22:00 **banquet** – by pre-registration only and entrance fee is charged  
(Restaurant, Faculty of Engineering)



Faculty of Engineering, University of Debrecen



# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

12-13 October 2017, Debrecen, Hungary



## Friday, 13<sup>th</sup> of October 2017 (2-4 Ótmetető, Debrecen)

08:30 – 14:00 **ISCAME registration and coffee** – continuously (Main Hall)

09:00 – 16:00 **ISCAME poster exhibition** (ground floor, room 9.)

09:00 – 10:00 **ISCAME poster session 2** (ground floor, room 9.)

10:00 – 12:00 **Session APPLIED AND THEORETICAL MECHANICS**

(Robert Bosch Engineering Education and Development Laboratory, ground floor, room E.0.22)

Chairman: **Sándor HAJDU PhD**, University of Debrecen, Hungary

Co-chairman: **Dániel BURMEISTER PhD**, University of Miskolc, Hungary

Secretary: **Dávid HURI**, University of Debrecen, Hungary

10:00 – 10:15 **Hasan MUHANDES, Weal SALLOUM**

*Simulating the bruising damage of olive fruit during drop*

10:15 – 10:30 **Boris STOJIC, Nenad POZNANOVIC**

*Experimental research of tractor tire response to quasistatic passage over the singular road obstacle*

10:30 – 10:45 **Roland JANČO, Pavel ÉLESZTŐS, Ladislav ĚCSI**

*Numerical solution of friction stir welding compared by experimental measurement*

10:45 – 11:00 **Ladislav ĚCSI, Pavel ÉLESZTŐS, Roland JANČO**

*An alternative to hyperelastic-based multiplicative plasticity models*

11:00 – 11:15 **Veronika SZÜLE, Balázs PERE**

*Solution of thermomechanical coupled problem using FEM*

11:15 – 11:30 **Gusztáv Áron SZIKI, Attila SZÁNTÓ**

*Recent developments in our simulation program for the dynamics modelling of electric driven cars*

11:30 – 11:45 **Balázs TÓTH, Dániel BURMEISTER**

*Three-field dual-mixed hp finite element model for axisymmetric shells*

11:45 – 12:00 **Dávid HURI, Tamás MANKOVITS**

*Finite element simulations in rubber design*

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10:00 – 12:15 **Session MAINTENANCE AND CONDITION MONITORING**

(Aventics Pneumatic Laboratory, ground floor, room E.0.21.)

Chairman: **László TÓTH DSc**, University of Debrecen, Hungary

Co-Chairman: **József Zoltán SZABÓ PhD**, Óbuda University, Hungary

Secretary: **Krisztián DEÁK**, University of Debrecen, Hungary

10:00 – 10:15 **László TÓTH**

*Risk based approach in the welding fabrication - european efforts*

10:15 – 10:30 **Luboslav STRAKA, Gabriel DITTRICH**

*Improving reliability of technical systems*

10:30 – 10:45 **Zsolt TIBA, Dániel FEKETE-SZÜCS, József MENYHÁRT**

*Eliminating the positioning error of Gamma Knife; recommendations for the mechanical overhaul*

10:45 – 11:00 **Krisztián DEÁK, Imre KOCSIS**

*Condition monitoring by applying advanced diagnostics methods*

11:00 – 11:15 **Aleksandar ALEKSIĆ, Dušan GORDIĆ, Vladimir VUKAŠINOVIĆ, Aleksandar NEŠOVIĆ**

*Introduction of water management in food production plant: A case study margarine production facility*

11:15 – 11:30 **Miklós Gergely SZENTESI, István LAKATOS**

*Road traffic accidents caused by mechanical failures in Hungary between 2012 and 2017*

11:30 – 11:45 **Tibor BUSZNYÁK, István LAKATOS**

*Automotive engineering possibilities in combining global positioning and vehicle diagnostics*

11:45 – 12:00 **Andor NAGY, István LAKATOS**

*The development of the punctuality of railroad event recording in accident investigation*

12:00 – 12:15 **János JUHÁSZ, Tamás BÁNYAI**

*Logistic aspects of real time decisions in intelligent transportation systems*



# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

12-13 October 2017, Debrecen, Hungary



- 10:00 – 12:30 **Session MANUFACTURING SCIENCE**  
(Metallographic Laboratory, 1<sup>st</sup> floor, room E.1.20)  
Chairman: **György HEGEDŰS PhD**, University of Miskolc, Hungary  
Co-Chairman: **Sándor BODZÁS PhD**, University of Debrecen, Hungary  
Secretary: **Péter BALSÁ**, University of Debrecen, Hungary
- 10:00 – 10:15 **Daniel LATES, Marius CĂȘVEAN, Flaviu CIOLOCA**  
*Application of the functions of a chatbot in the manufacturing process of a gear*
- 10:15 – 10:30 **Sándor BODZÁS**  
*Comparative tooth contact analysis of x-zero gear drive in the function of the module changing*
- 10:30 – 10:45 **László DUDÁS**  
*The effect of profile variation on contact properties in case of quasi globoid worm gearing*
- 10:45 – 11:00 **György HEGEDŰS**  
*Generation of internal thread surfaces by solid tool body swept operations*
- 11:00 – 11:15 **Jan ZAKOPČAN, Lubomir JAVOREK, Michal BACHRATÝ**  
*The influence of tool diameter and feed speed on feed force and torque moment during steel S233J0 drilling*
- 11:15 – 11:30 **Jan ZAKOPČAN, Lubomir JAVOREK, Michal BACHRATÝ**  
*Dependence of the thrust force from the clearance angle and feed speed during drilling*
- 11:30 – 11:45 **Szabolcs JÓNÁS, Miklós TISZA**  
*Clinching of DP600 steel sheets*
- 11:45 – 12:00 **Antal FODOR**  
*3D printed polymer specimens of fatigue test examination basic on DMA tests*
- 12:00 – 12:15 **Luboslav STRAKA, Gabriel DITTRICH**  
*Dielectric fluids applied during electrical discharge machining*
- 12:15 – 12:30 **Shiraz Ahmed SIDDIQUI, Mária MAROSNÉ BERKES, Andrea SZILÁGYINÉ BÍRÓ**  
*Investigation of the tribological performance of wear resistant surface layers produced on automotive tool steel by duplex heat treatments*
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- 10:00 – 12:15 **Session MATERIALS SCIENCE AND TECHNOLOGY 1**  
(SMARTMAT Material Technology Laboratory, 4<sup>th</sup> floor, room E.4.14)  
Chairman: **Branko SKORIC PhD**, University of Novi Sad, Serbia  
Co-chairman: **Sándor PÁLINKÁS PhD**, University of Debrecen, Hungary  
Secretary: **Gábor BALOGH**, University of Debrecen, Hungary
- 10:00 – 10:15 **Emilia SKOLEK, Szymon MARCINIAK, Adam ZYCH**  
*Glow discharge nitriding of nanobainitic steel*
- 10:15 – 10:30 **Krzysztof CHMIELARZ, Szymon MARCINIAK**  
*Changes of structure and properties of the core of nanocrystalline steel X37CrMoV5-1 which occur during the process of nitriding*
- 10:30 – 10:45 **Szymon MARCINIAK, Emilia SKOLEK, Adam GOŁASZEWSKI, Wiesław ŚWIĄTNICKI**  
*Thermal stability of carbide-free bainite in two nanocrystalline steels in the range of nitriding temperatures*
- 10:45 – 11:00 **Branko SKORIC, Aleksandar MILETIC, Pal TEREK, Lazar KOVACEVIC, Dragan KUKURUZOVIC**  
*Hard coatings deposited by ion beam assisted deposition and modified with ion implantation*
- 11:00 – 11:15 **András MOLNÁR, Zsolt CSABAY, Lajos FAZEKAS, Sándor PÁLINKÁS, Ágnes BATTÁNÉ GINDERT-KELE**  
*Thermal sprayed and laser remelted wear resistant NiCrBSi coatings*
- 11:15 – 11:30 **Tamás BUBONYI, Péter BARKÓCZY, Gábor LÉNÁRTH**  
*Automated image analysis of the inhomogenities in the microstructure of aluminum castings*
- 11:30 – 11:45 **Dániel PETHŐ, Márton BENKE, Valéria MERTINGER, Péter BARKÓCZY**  
*The effect of thickness reduction on the recrystallization processes of cold rolled 3104 deep draw Al sheets*
- 11:45 – 12:00 **Balázs VARBAI, Yoni ADONYI, Kornél MÁJLINGER**  
*The effects of cooling rate on duplex stainless steel welds heat affected zones*
- 12:00 – 12:15 **Adam GOŁASZEWSKI, Jerzy SZAWŁOWSKI, Wiesław ŚWIĄTNICKI**  
*Chemical composition influence on microstructure and properties of UFG-TRIP steel*



# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

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- 12:40 – 12:50 **ISCAME group photo** (meeting at the inner court)
- 11:45 – 13:00 **lunch** (Canteen, Faculty of Engineering)
- 13:00 – 16:00 **Session ENGINEERING PROCESSES AND OPTIMIZATION**  
(Metallographic Laboratory, 1<sup>st</sup> floor, room E.1.20)
- Chairman: **Tibor POÓS PhD**, Budapest University of Technology and Economics, Hungary  
Co-chairman: **Lajos GULYÁS PhD**, University of Debrecen, Hungary  
Secretary: **József MENYHÁRT**, University of Debrecen, Hungary
- 13:00 – 13:15 **Péter LÁNG, Marton ÖRSI, László HÉGELY**  
*Comparison of batch and semi-continuous distillation*
- 13:15 – 13:30 **Gábor MODLA, Péter LÁNG**  
*Decrease of energy need of distillation with vapour recompression*
- 13:30 – 13:45 **László HÉGELY, Kristóf SLEISZ**  
*Optimization of batch extractive distillation with different methods*
- 13:45 – 14:00 **Lajos GULYÁS, István ÁRPÁD, György DEÁK**  
*A common interpretation of energy losses of flowing fluids in technical systems*
- 14:00 – 14:15 **Tibor POÓS, Dániel HORVÁTH, Kornél TAMÁS**  
*Modeling of the movement of the granular material in a static equipment with discrete element method*
- 14:15 – 14:30 **coffee break**
- 14:30 – 14:45 **Tibor POÓS, Evelin VARJU, Viktor SZABÓ**  
*Determination of medicinal plants' porosity*
- 14:45 – 15:00 **Csongor BOLDIZSÁR**  
*Optimization of wood biomass gasification process*
- 15:00 – 15:15 **Kinga TÓTH**  
*Examination of biomethane production*
- 15:15 – 15:30 **Ádám SKRIBANEK, István BODNÁR, Patrik ISKI**  
*Optimizing an ininterruptible solar power system for inductive natured loads*
- 15:30 – 15:45 **Sándor SZABÓ**  
*Research, development and optimisation of nuclear tomography*
- 15:45 – 16:00 **Gábor BALOGH**  
*Recycling possibilities of end period nuclear fuel cells*
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- 13:00 – 15:45 **Session FLUID MECHANICS**  
(Robert Bosch Engineering Education and Development Laboratory, ground floor, room E.0.22)
- Chairman: **Ákos LAKATOS PhD**, Budapest University of Technology and Economics, Hungary  
Co-chairman: **Mohamad BAHM PhD**, University of Miskolc, Hungary  
Secretary: **Ferenc SZODRAI**, University of Debrecen, Hungary
- 13:00 – 13:15 **Ivan GRUJIĆ, Nadica STOJANOVIĆ, Jasna GLIŠOVIĆ, Aleksandar DAVINIĆ, Saša MILOJEVIĆ**  
*Modelling and aerodynamic simulation of the passenger vehicle*
- 13:15 – 13:30 **Fanni KADÁR**  
*Phase space analysis of a pressure relief valve*
- 13:30 – 13:45 **Mohamad BARHM, Gábor SZEPESI, Betti BOLLÓ**  
*Modelling and analysis of a gasoline engine exhaust gas systems*
- 13:45 – 14:00 **Csanád KALMÁR, Ferenc HEGEDŰS, Dávid FELHŐS**  
*Transient simulations of gas dynamics with different numerical schemes*
- 14:00 – 14:15 **Kálmán KLAPCSIK, Ferenc HEGEDŰS**  
*Modelling of non-spherical bubble shape oscillations in viscous liquid*
- 14:15 – 14:30 **coffee break**





# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

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- 14:30 – 14:45 **Péter Tamás NAGY, György PAÁL**  
*The effect of spanwise flexible coating on the boundary layer transition*
- 14:45 – 15:00 **Péter Tamás NAGY, György PAÁL**  
*Plane jets excited by vortices*
- 15:00 – 15:15 **András TOMOR, Erik ANTAL-JAKAB**  
*Experimental investigation of a finite length lateral system in a dividing-flow manifold*
- 15:15 – 15:30 **András TOMOR, Bence MERVAY, Gergely KRISTÓF**  
*Continuous parametrization of hydraulic losses caused by diameter transition in cylindrical pipes*
- 15:30 – 15:45 **Roland DÓCS, Anita JOBBIK**  
*Porous system modelling of hydrocarbon reservoirs using multi-capillary method*

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## 13:00 – 16:15 **Session MACHINE AND PRODUCT DESIGN**

(Aventics Pneumatic Laboratory, ground floor, room E.0.21.)

- Chairman: **Levente CZÉGÉ PhD**, University of Debrecen, Hungary  
Co-chairman: **Richard HNILICA PhD**, Technical University in Zvolen, Slovakia  
Secretary: **Zsolt BÉKÉSI**, University of Debrecen, Hungary

- 13:00 – 13:15 **Milan RACKOV, Siniša KUZMANOVIĆ, Maja ČAVIĆ, Ivan KNEŽEVIĆ, Marko PENČIĆ**  
*Analysis of different concept ways of two-stage gear reducers design*
- 13:15 – 13:30 **Levente CZÉGÉ**  
*Design of coupled planetary gear drives*
- 13:30 – 13:45 **László DUDÁS, Pálma KAPITÁNY**  
*Combustion chamber and fuel mixture motion analysis of a new rotary engine*
- 13:45 – 14:00 **Marko PENČIĆ, Maja ČAVIĆ, Milan RACKOV**  
*Design of the humanoid robot neck: State of the Art*
- 14:00 – 14:15 **Péter UNGÁR, Tamás SZABÓ**  
*Designing of a balancing machine for a plastic rotor*
- 14:15 – 14:30 **Miha FINZGAR, Primoz PODRZAJ**  
*Feasibility of remote photoplethysmography for implementation in mobile robots*
- 14:30 – 14:45 **coffee break**
- 14:45 – 15:00 **László RÓNAI, Viktor FÜVESI, Csaba VÖRÖS**  
*Designing of a water sampling unit*
- 15:00 – 15:15 **Ladislav GULAN, Carmen SCHMIDTOVÁ, Gregor IZRAEL**  
*Effective designing of modular structures variants of mobile working machines*
- 15:15 – 15:30 **Nadica STOJANOVIĆ, Ivan GRUJIĆ, Jasna GLIŠOVIĆ, Saša MILOJEVIĆ, Aleksandar DAVINIĆ**  
*Vanes shape optimization of ventaled disc brakes for heavy duty vehicles*
- 15:30 – 15:45 **Zsolt BÉKÉSI, László JÁNOSI**  
*Cryogenic gas as a fuel for vehicles*
- 15:45 – 16:00 **Michaela HNILICOVÁ, Jaroslav MATEJ, Miroslav DADO, Richard HNILICA**  
*Design of the supporting frame for the fire-fighting adapter using the shape generator*
- 16:00 – 16:15 **Flóra HAJDU, Péter HORVÁTH**  
*Comparison of bathlift constructions*
- 16:15 – 16:30 **Bishwambhar SENGUPTA, György FILEP**  
*Development of new radiosurgical device*



# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

12-13 October 2017, Debrecen, Hungary



- 13:00 – 16:30 **Session MATERIALS SCIENCE AND TECHNOLOGY 2**  
(SMARTMAT Material Technology Laboratory, 4<sup>th</sup> floor, room E.4.14)
- Chairman: **Valéria MERTINGER PhD**, University of Miskolc, Hungary  
Co-chairman: **István BUDAI PhD**, University of Debrecen, Hungary  
Secretary: **Tamás Antal VARGA**, University of Debrecen, Hungary
- 13:00 – 13:15 **László TÓTH**  
*Sensitivity of materials and engineering structures*
- 13:15 – 13:30 **Máté SEPSI, Dávid ANGEL, Dávid CSEH, Ádám FILEP, Viktor KÁRPÁTI, Márton BENKE, Valéria MERTINGER**  
*Residual stress monitoring for machine industry*
- 13:30 – 13:45 **György THALMAIER, Niculina SECHEL, Ioan VIDA-SIMITI**  
*Water leaching behaviour of carbamide space holder particles in TiAl foams*
- 13:45 – 14:00 **Tamás MANKOVITS, Tamás Antal VARGA**  
*Image-based geometrical modelling of foam structures*
- 14:00 – 14:15 **Haris RUDIANTO, Yang Sang SUN, Kim Yong JIN, Ivo DLOUHY**  
*Sintering behavior of dual composites Al-Si-SiC and Al-Si-Cu-Mg powder*
- 14:15 – 14:30 **Liliana-Laura BADITA, Aurel ZAPCIU, Valentin GORNOAVA, Marian VOCUREK, Iulian Sorin MUNTEANU**  
*Nanostructured thin films used to improve the tribological properties in mechatronic actuating systems*
- 14:30 – 14:45 **coffee break**
- 14:45 – 15:00 **Franc MAJDIĆ**  
*Research of carbon fibre hydraulic cylinder*
- 15:00 – 15:15 **Ahmed Elmehdi BENCHABANE, Péter BARKÓCZY**  
*Effects of surface treating to the properties of railway contact wires*
- 15:15 – 15:30 **Thomas AZANE, Péter BARKÓCZY**  
*Comparison of the production and properties of ACCC conductor to other HTLS conductors*
- 15:30 – 15:45 **Arjun TALGOTRA, Máté SEPSI, Erzsébet NAGY, Márton BENKE, Valéria MERTINGER**  
*Thermomechanical treatment induced martensites in TWIP steels*
- 15:45 – 16:00 **Darko LOVREC**  
*Ionic liquid as a novel, high performance hydraulic fluid – selection process*
- 16:00 – 16:15 **Hayder AL-MALIki, Gábor KALÁCSKA**  
*Surface characterization of polymer treated by atmospheric plasma*
- 16:15 – 16:30 **Chukwuemeka Lucky IHEMAGUBA, Kálmán MAROSSY**  
*Application of thermally stimulated discharge current method for investigation of fine structure of polymeric materials*



A group of ISCAME Participants in 2016



# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

12-13 October 2017, Debrecen, Hungary



**ISCAME poster exhibition** (ground floor, room 9.)

**András SZEKERES, Md Tanweer RAZA**

*Thermo-Hygro Mechanics (THM) in Science Philosophy*

**Sándor HAJDU**

*LPV modelling of single-mast stacker cranes*

**Tamás ANTAL, Benedek KERÉKES**

*Novel drying techniques for the preservation of by-products of food industry*

**Ábel GÖNTÉR, Viktor TIHANYI**

*Design concept of a hybrid vehicle system considering redundancy requirements of highly automated vehicles*

**Judit SZALAI**

*The development of evaluation system qualifying the ITER diagnostic cable conduit the and satisfying the system requirements*

**Dávid KINCSES, Lajos MEZEI, Sándor HAJDU**

*Review of wheel dynamic models at vehicle development*

**Róbertné KOVÁCS, Gábor KESZTHELYI-SZABÓ, Péter SZENDRŐ**

*Optimization of operational parameters for a microwave pre-treating system*

**József MENYHÁRT, Róbert SZABOLCSI**

*Batteries operation parameter analysis with Fuzzy logic*

**Tibor POÓS, Evelin VARJU, Viktor SZABÓ**

*Introduction to freeze granulation technology*

**Kremena MARKOVA**

*How the user became authority*

**Tihomir DOVRAMADJIEV**

*3D computer processing and improvement of the geometry of received photogrammetric models through photo shooting with one camera*

**András GÁBORA, Attila MAGYARI, Lajos MEZEI, Krisztián József VESZELSZKI, Dániel NEMES, Dávid**

**BALÁZS, Hunor Péter PÓTA**

*Prototype battery electric car development for Shell Eco-marathon competition*

**József Zoltán SZABÓ, Péter BAKUCZ**

*Detecting knocking combustion of large gas engine by deep recurrent neural networks*

**Alpár BELÉNYI, Gheorghe ACHIMAŞ**

*Vibration measurement on reconditioned semi-hermetic compressor*

**Drakče TANASKOVIĆ, Branislav ĐORĐEVIĆ, Simon SEDMAK, Filip VUCETIC, Marko GAJIN**

*Repair welding of lower rails of a 30CrMoV9 steel transport beam and the conditions under which welding procedure must be carried out*

**Anton Gheorghe POP-SZOVÁTI, Marian BORZAN, Csaba GYENGE, Nicolae JOLDEŞ**

*Pneumatic systems for counterbalancing the ram of the mechanical presses*

**Csaba NEMES, Sándor BODZÁS**

*Designing, modelling and analyze of straight turning tool geometry*

**Dávid NEISZ, Gergő Zoltán GÉRESI, Sándor BODZÁS**

*Designing of drill clamping device for CNC turning machine*

**Péter BALSÁ**

*Steel surface finishing with polishing belt*

**Péter BÖRÖCZ**

*Averaged vibration levels of vans in package delivery*

**Nicolae JOLDEŞ, Gheorghe ACHIMAŞ, Csaba GYENGE, Anton Gheorghe POP-SZOVÁTI**

*The waste and the environment*



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## **Bence MOLNÁR**

*Simulation framework for packaging dynamics of stacked units*

## **Kata VÖRÖSKŐI**

*Selection of packaging systems in automotive engine supply: the case of overseas transport*

## **Péter CSAVAJDA**

*Shock testing in the evaluation of packaging performance*

## **Zoltán SZAKÁL, Tamás PATAKI, Attila KARI-HORVÁTH**

*Strength examination of adhesive bonded joints of steel against DBD treated PTFE and PA66 surfaces*

## **Luboš KAŠČÁK, Emil SPIŠÁK**

*Mechanical joining methods of hot-dip galvanized steel sheets*

## **Zoltán HAGYMÁSSY, Sándor PÁLINKÁS, Ágnes BATTÁNÉ GINDERT-KELE**

*Examination the physical characterising of fertilizers*

## **Franc MAJDIČ**

*Duration test of carbon fibre hydraulic cylinder: water&oil*

## **Darko LOVREC**

*Corrosion protection properties of ionic liquids*

## **Khabat M. AHMAD, Ferenc KRISTÁLY**

*A laboratory study of pH, salinity and time effects on stability of clay minerals in sandstone rock regarding formation damage assessment*

## **Sándor PÁLINKÁS, Lajos FAZEKAS, Ágnes BATTÁNÉ GINDERT-KELE, András MOLNÁR, Zoltán HAGYMÁSSY**

*Investigation of hot metal powder spray fusing of cultivator tines after tilling*

## **Laura Elena GEAMBAZU, Ioana CSAKI, Ciprian Alexandru MANEA, Sigrun Nanna KARLSDOTTIR**

*High entropy alloys in geothermal environment*

## **Ádám SARANKÓ, Gábor KALÁCSKA, Róbert KERESZTES**

*New method for dynamic tribological test*

## **Miklós ODRÓBINA, Gábor KALÁCSKA, Róbert KERESZTES**

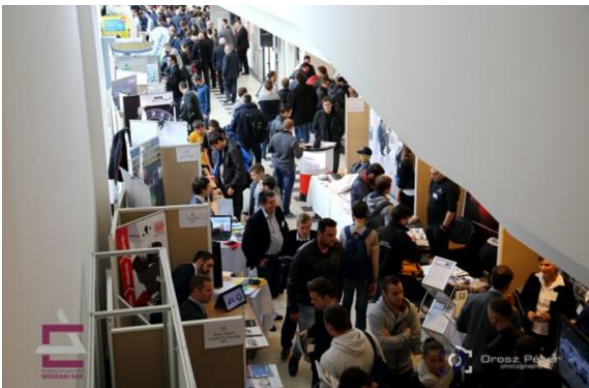
*The effect of sizes of the cast polyamide 6 rods upon tensile impact strength*

## **Krisztina ROMÁN, Gabriella ZSOLDOS**

*Examinations of mechanical properties of different PVC/CPE blends*

## **Bojan BANJANIN, Gojko VLADIĆ, Gordana DELIĆ, Savka ADAMOVIĆ, Nemanja KAŠIKOVIĆ**

*Influence of post-treatment methods on mechanical properties of PLA parts fabricated by fused deposition modeling*



4<sup>th</sup> Mechanical Engineering Exhibition in 2016



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## INFORMATION TO CHAIRMEN, TO PRESENTERS AND TO VISITORS

Chairmen, Presenters and on-line registered Visitors are invited for lunches and coffees, but it is connected to registration at the registration desk at the Main Hall in the building of the Faculty of Engineering on the Conference days.

### To Presenters:

- The official language of ISCAME is English;
- Show up to the session 10 minutes before the session begins;
- Each oral presentation will take 15 minutes including discussion;
- The files required for the presentation (PowerPoint or PDF) must be uploaded and tested in the computer placed in the room before the respective presentation session.

### To Poster Presenters:

- The official language of ISCAME is English;
- The Poster Exhibiton will be opened on Thursday 12 October, 9:00 and can be visited until the end of the ISCAME (13 October, 16:00). It means from 9:00 onwards posters can be put on display (Location: Faculty of Engineering, ground floor, room 9.).
- Poster sessions are scheduled on 12 October, from 14:00-15:00 and 13 October, from 9:00-10:00. At this time anyone interested should be received in front of the posters;
- Posters will be displayed on vertical boards with maximum dimensions of 1000mm (width) x 2000mm (height), the recommended poster size is standard A0 with page orientation portrait.

### To Chairmen:

- During the presentations enforce time limits strictly so that no author monopolizes someone else's time;
- One presentations are complete the remainder of the time can be used for informal discussion with the audience and session participants. It is your job to field questions from the audience.

In any case please contact:

#### **ISCAME Secretary**

Beáta KÖVÉR, administrator

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# INTERNATIONAL SCIENTIFIC CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING

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## ISCAME 2017 PARTICIPANTS

Khabat M.	AHMAD	University of Miskolc	Hungary	Miskolc
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Szabolcs	JÓNÁS	University of Miskolc	Hungary	Miskolc
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Tamás Antal	VARGA	University of Debrecen	Hungary	Debrecen
Evelin	VARJU	Budapest University of Technology and Economics	Hungary	Budapest
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## EXHIBITOR COMPANIES LIST

5<sup>th</sup> Mechanical Engineering Industrial Exhibition, Debrecen

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<b>eCon Engineering Kft.</b>	<a href="http://www.econengineering.com">www.econengineering.com</a>	Budapest
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<b>EUROSOLID Kft.</b>	<a href="http://www.eurosolid.hu">www.eurosolid.hu</a>	Budaörs
<b>FAG Magyarország Ipari Kft.</b>	<a href="http://www.schaeffler.hu">www.schaeffler.hu</a>	Debrecen
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<b>FlexLink Systems Kft.</b>	<a href="http://www.flexlink.com">www.flexlink.com</a>	Budapest
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<b>igm Robotrendszerek Kft.</b>	<a href="http://www.igm-group.com">www.igm-group.com</a>	Győr
<b>KE KELIT Innovative Pipe Systems GmbH</b>	<a href="http://www.kekelit.hu">www.kekelit.hu</a>	Budapest
<b>Linamar Hungary Autóipari és Gépgyártó Zrt.</b>	<a href="http://www.linamar.hu">www.linamar.hu</a>	Orosháza
<b>Manz Hungary Gépgyártó Kft.</b>	<a href="http://www.manz.com">www.manz.com</a>	Debrecen
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<b>MSK Hungary Gépgyártó Bt.</b>	<a href="http://www.msk.hu">www.msk.hu</a>	Nyírbátor
<b>NAGÉV RÁCS Kft.</b>	<a href="http://www.nagev.hu">www.nagev.hu</a>	Hajdúböszörmény
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