

UNIVERSITY OF DEBRECEN
Faculty of Engineering
Department of Mechanical Engineering



**3rd INTERNATIONAL SCIENTIFIC CONFERENCE ON
ADVANCES IN MECHANICAL ENGINEERING
(ISCAME 2015)
19 November, 2015 Debrecen, Hungary**

CONFERENCE PROGRAM

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**



**3rd INTERNATIONAL SCIENTIFIC CONFERENCE ON
ADVANCES IN MECHANICAL ENGINEERING**
19 November 2015, Debrecen, Hungary



Organizational Chairman of the ISCAME 2015

Tamás MANKOVITS PhD, University of Debrecen, HU
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Scientific Program Committee

István BUDAI PhD, University of Debrecen, HU
Sándor BODZÁS PhD, University of Debrecen, HU
Lajos FAZEKAS PhD, University of Debrecen, HU
Ferenc KALMÁR PhD, University of Debrecen, HU
Sándor PÁLINKÁS PhD, University of Debrecen, HU
Istvánné RÁTHY PhD, University of Debrecen, HU
Edit SZÚCS PhD, University of Debrecen, HU
Zsolt TIBA PhD, University of Debrecen, HU
János TÓTH PhD, University of Debrecen, HU
László TÓTH DSc, University of Debrecen, HU

Technical Assistance

Judit BAK, University of Debrecen, HU



WELCOME MESSAGE

On behalf of ISCAME Scientific and Organizing Committee we are pleased to welcome you to Debrecen for the 3rd 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.

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 3rd 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 at 3rd Mechanical Engineering Industrial Exhibition on the same day organized by the Department of Mechanical Engineering. This Exhibition - with our 23 partner companies - 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 (ISCAME Chairman)

TECHNICAL PROGRAMME

Thursday, 19th of November 2015 (2-4 Ótmető, Debrecen)

- 8:30 – 14:00 **registration and coffee** – continuously (Aula)
- 10:00 – 10:10 **opening of the 3rd Mechanical Engineering Industrial Exhibition** (Aula)
Edit SZÚCS, Dean, Faculty of Engineering
Istvánné RÁTHY, Head of Department, Department of Mechanical Engineering
- 10:00 – 17:00 **3rd Mechanical Engineering Industrial Exhibition** (Aula)
- Exhibition visiting is free of charge.**
- 10:15 – 10:30 **opening of the 3rd International Scientific Conference on Advances in Mechanical Engineering** (Lecture Hall U.0.03.)
Tamás MANKOVITS, Chairman of ISCAME
- 10:45 – 12:00 **sessions of ISCAME**
MODELLING AND SIMULATION
(Robert Bosch Automotive Laboratory, ground floor, room E.022)
- MAINTENANCE AND DIAGNOSTICS**
(Metallographic Laboratory, 1st floor, room E.120)
- MANUFACTURING SCIENCE**
(SMARTMAT Material Technology Laboratory, 4th floor, room E.414)
- 11:30 – 14:00 **lunch** (Canteen, Faculty of Engineering)
- 13:00 – 15:30 **sessions of ISCAME**
MACHINE AND PRODUCT DESIGN
(Robert Bosch Automotive Laboratory, ground floor, room E.022)
- PROCESS ENGINEERING**
(Metallographic Laboratory, 1st floor, room E.120)
- MATERIALS SCIENCE**
(SMARTMAT Material Technology Laboratory, 4th floor, room E.414)
- PROCESS DEVELOPMENT**
(SMARTMAT Material Technology Laboratory, 4th floor, room E.414)
- 15:00 – 16:00 **poster sessions** (Main hall)
- 17:00 **3rd Mechanical Engineering Industrial Exhibition ends**

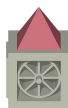


DETAILED PROGRAMME OF ISCAMÉ 2015

- 10:15 – 10:30 **opening of the 3rd International Scientific Conference on Advances in Mechanical Engineering** (Lecture Hall U.0.03.)
Tamás MANKOVITS, Chairman of ISCAMÉ
- 10:45 – 12:00 **Session MODELLING AND SIMULATION**
(Robert Bosch Automotive Laboratory, ground floor, room E.022)
Chairman: **Tamás SZABÓ PhD**, University of Miskolc
Co-chairman: **Tamás MANKOVITS PhD**, University of Debrecen
Secretary: **Tamás Antal VARGA**, University of Debrecen
- 10:45 – 11:00 **Gábor BOHÁCS, Zoltán RÓZSA, András RÁCZ-SZABÓ**
Implementation of an Automatic Positioning Function for Automated Transport Vehicles
- 11:00 – 11:15 **Attila SZÁNTÓ, Gusztáv Áron SZÍKI, Sándor HAJDU**
Vehicle Dynamics Modelling and Simulation of an Electric Driven Race Car
- 11:15 – 11:30 **Ádám SCHRÓTH**
Modelling of a Geothermal Well
- 11:30 – 11:45 **Péter HORVÁTH, Attila NAGY**
Bending Stiffness Measurement of Strings
- 11:45 – 12:00 **Attila Károly VARGA, László CZAP**
Examination of Evaporation Rate from Free Water Surface from Literature Sources
- 10:45 – 12:00 **Session MAINTENANCE AND DIAGNOSTICS**
(Metallographic Laboratory, 1st floor, room E.120)
Chairman: **Imre KOCSIS PhD**, University of Debrecen
Co-chairman: **Istvánné RÁTHYNE PhD**, University of Debrecen
Secretary: **Krisztián DEÁK**, University of Debrecen
- 10:45 – 11:00 **Attila Károly VARGA, LÁSZLÓ CZAP**
Reliability Model for Self-organizing Wireless Sensor Networks
- 11:00 – 11:15 **Béla VARGA, Gyula ÓVÁRI**
"Really the Size is Indifferent?", or How the Helicopter Turboshaft Engines are Penalised by Their Own Small Size
- 11:15 – 11:30 **József TÓTH**
Scientific Background for the Determination of Competencies Necessary to Competency Based Education of Aircraft Maintenance Engineers
- 11:30 – 11:45 **Lajos FAZEKAS, József MENYHÁRT, András MOLNÁR, Csaba HORVÁTH**
The Connections Between Different Type of Cold Flame-sprayed Distances on Mechanical Surface
- 11:45 – 12:00 **Krisztián DEÁK, IMRE KOCSIS**
Wavelet Functions and Complex Filtering in Manufacturing of Tapered Roller Bearings



- 10:45 – 12:00 **Session MANUFACTURING SCIENCE**
(SMARTMAT Material Technology, 4th floor, room E.414)
Chairman: **Illés DUDÁS DSc**, University of Miskolc
Co-chairman: **Sándor BODZÁS PhD**, University of Debrecen
Secretary: **Sándor PÁLINKÁS PhD**, University of Debrecen
- 10:45 – 11:00 **Krisztián DEÁK, Imre KOCSIS**
Bearing Manufacturing Defects, Diagnosis and RUL Estimation
- 11:00 – 11:15 **Zsuzsanna ÓVÁRINÉ BALAJTI**
Application of Monge Description in Production Process of Worm Gear
- 11:15 – 11:30 **László DUDÁS**
An Efficient Kinematic Surface Simulation System
- 11:30 – 11:45 **Zoltán MÁNDY, Illés DUDÁS**
Creating Helicoid Surfaces in Intelligent Flexible Manufacturing System
- 11:45 – 12:00 **Sándor BODZÁS, Illés DUDÁS**
Geometric Modelling of Two Types Spiroid Hobs Having Arched Profile
- 11:30 – 14:00 **lunch** (Canteen, Faculty of Engineering UD)
- 13:30 – 15:00 **Session MACHINE AND PRODUCT DESIGN**
(Robert Bosch Automotive Laboratory, ground floor, room E.022)
Chairman: **Csaba GYENGE DSc**, Technical University of Cluj-Napoca
Co-chairman: **Gusztáv SZÍKI PhD**, University of Debrecen
Secretary: **Zsolt BÉKÉSI**, University of Debrecen
- 13:30 – 13:45 **Zsolt TIBA, Dániel FEKETE-SZÚCS**
Implementation and Operation Features of e-CVT
- 13:45 – 14:00 **Daniel LATES, Cioloca FLAVIU**
The Comparative Analysis of the Movement of the Compliant Mechanism with 2 DOF Using Circular, Rectangular, Elliptical Joints
- 14:00 – 14:15 **Ionatan Teodor ZELEA, Gheorghe ACHIMAS, Csaba GYENGE, Daniel LAZE**
Consideration Regarding the Application of New Technologies for Improvement of Automobile Axis
- 14:15 – 14:30 **Zoltán TOMORI**
General Methods of Tooth Modifications
- 14:30 – 14:45 **Géza NÉMETH, József PÉTER, Nándor NÉMETH**
Modeling of an Unusually Loaded Helical Torsion Spring
- 14:45 – 15:00 **Tamás MANKOVITS, Attila VÁMOSI, Imre KOCSIS, Dávid HURI, Imre KÁLLAI, Tamás SZABÓ**
Shape Design of Automotive Rubber Part Using FEM and SVM



- 13:30 – 15:00 **Session PROCESS ENGINEERING**
(Metallographic Laboratory, 1st floor, room E.120)
Chairman: **Lajos GULYÁS PhD**, University of Debrecen
Co-chairman: **Tibor POÓS PhD**, Budapest University of Technology and Economics
Secretary: **András GÁBORA**, University of Debrecen
- 13:30 – 13:45 **Lajos GULYÁS**
Transport Processes of Technical Systems
- 13:45 – 14:00 **Viktor SZABÓ, Evelin VARJU, Tibor POÓS**
Determination of Volumetric Heat Transfer Coefficient in Fluidized Bed Dryer on Full Periods
- 14:00 – 14:15 **Péter LÁNG, Dávid NAGY, László HÉGELY, Ferenc DÉNES**
Simulation Study of Amine Based CO₂ Absorption
- 14:15 – 14:30 **Kristóf HUMMEL, László HÉGELY, Péter LÁNG**
Modelling of Fractional Crystallization
- 14:30 – 14:45 **Rita FARKAS, Zoltán ANDRÁSSY**
Optimization of Buffer Tank Filled with Phase Change Material
- 14:45 – 15:00 **Zoltán ANDRÁSSY, Rita FARKAS**
Optimization of Surface Cooling Systems with Phase Change Material Energy Storage
- 13:00 – 14:15 **Session MATERIALS SCIENCE**
(SMARTMAT Material Technology, 4th floor, room E.414)
Chairman: **Miklós TISZA DSc**, University of Miskolc
Co-chairman: **István BUDAI PhD**, University of Debrecen
Secretary: **Gábor BALOGH**, University of Debrecen
- 13:00 – 13:15 **Miklós TISZA**
New Developments in Automotive Materials
- 13:15 – 13:30 **István BUDAI**
Metallic Emulsions
- 13:30 – 13:45 **Tamás Antal VARGA, Tamás MANKOVITS**
Modelling Questions of Metal Foams
- 13:45 – 14:00 **Gábor BALOGH, András GÁBORA, Zsolt FEKETE, Gyula LOVADI, Márton LÉVAI, István SZÉKÁCS**
New Developments on Abrasion Equipment
- 14:00 – 14:15 **András MOLNÁR, Lajos FAZEKAS, Zsolt CSABAI, Istvánné RÁTHY**
Laser Surface Remelting to Improve the Wear Resistance of Thermal Sprayed NiCrBSi Coatings



- 14:30 – 15:30 **Session PROCESS DEVELOPMENT**
(SMARTMAT Material Technology, 4th floor, room E.414)
Chairman: **István BUDAI PhD**, University of Debrecen
Co-chairman: **Imre KOCSIS PhD**, University of Debrecen
Secretary: **Balázs KOCSI**, University of Debrecen
- 14:30 – 14:45 **János KORPONAI, Ágota BANYAINÉ TÓTH**
The Function of the Replenishment Time in the Purchasing
- 14:45 – 15:00 **Kinga MORAUSZKI, József MENYHÁRT, Attila LAJOS**
Customer Satisfaction, or How we Can Keep a Satisfied Customer
- 15:00 – 15:15 **Imre KOCSIS, Béla KRAKKÓ, Attila VÁMOSI, Krisztián DEÁK**
Multiple Regression Analysis in Time Management
- 15:15 – 15:30 **Balázs KOCSI, István BUDAI**
Optimization of Logistics Processes
- 15:00 – 16:00 **POSTER session** (Aula)
- Ádám MARINKÓ, András NAGY, Balázs DUDINSZKY**
Finite Element Analysis of Pressure Vessels
- Tibor POÓS, Viktor SZABÓ**
Literature Review of the Volumetric Heat Transfer Coefficients on Rotary Drum Dryers
- Tamás ANTAL**
Evaluation of Mathematical Modelling of Thin-layer Freeze Drying
- Eszter SÁRKÖZI, László FÖLDI, László JÁNOSI**
Force and Position Control of Pneumatic Drives
- Olimpia Loredana COROIAN, Csaba GYENGE**
Considerations Regarding the Implementation of Risk Based Maintenance on Main Components of High Power Diesel Engines
- Nicolae JOLDES, Csaba GYENGE**
Some Aspects Regarding the Using of Concurrent Engineering Methods for Management and Implementation of Regional Development Projects
- Anton-Gheorghe POP-SZOVÁTI, Nicolae JOLDES**
Researches Regarding the Improvement of Drives Systems of Mechanical Presses Used at Cold Metal Forming
- Luboslav STRAKA, Hasová SLAVOMÍRA**
Wear of Copper and Graphite Tool Electrodes in the Die-sinking EDM
- Sándor PÁLINKÁS, Ágnes GINDERT-KELE, Bence GAJDÁN**
Planning of Experiments in order to Determine the Relationship Between the Heat Treatment and Durability of Cultivator Tines
- Gyula Attila DARAI, Gábor FILEP, Rita NAGYNÉ KONDOR, Gusztáv Áron SZÍKI**
Dynamics Experiments Applying NI Devices and LabVIEW
- Dávid BUDAI, Miklós TISZA, Péter Zoltán KOVÁCS**
Investigation of Automotive Aluminum Alloys' Formability at Elevated Temperatures



INFORMATION TO CHAIRMEN, TO PRESENTERS AND TO VISITORS

Chairmen, Presenters and on-line registered Visitors are invited for lunch and coffee, 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 day.

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;
- Poster session is scheduled from 15:00 in the Main Hall of the Faculty of Engineering, University of Debrecen. The posters should be posted in the morning before the opening ceremonies and must be removed at the end of the poster session;
- 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

Judit BAK, administrator
Phone: +3652415155/77776
E-mail: iscame@eng.unideb.hu

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COMPANIES LIST

3rd Mechanical Engineering Industrial Exhibition, Debrecen

Company name	Website	Location
Aventics Hungary Kft.	www.aventics.hu	Eger
Coloplast Hungary Kft.	www.coloplast.hu	Nyírbátor
Diehl Aircabin Hungary Kft.	www.diehl.com	Nyírbátor
Enterprise Communications Kft.	www.enterprise-group.hu	Budapest
FAG Magyarország Ipari Kft.	www.schaeffler.hu	Debrecen
FlexLink Systems Kft.	www.flexlink.com	Budapest
HAJDU Autotechnika Ipari Zrt.	www.hajduautort.hu	Téglás
HAJDU Hajdúsági Ipari Zrt.	www.hajdurt.hu	Téglás
Hoya Magyarország Zrt.	www.hoya.hu	Mátészalka
Lego Manufacturing Kft.	www.lego.com	Nyíregyháza
Linamar Hungary Zrt.	www.linamar.hu	Orosháza
Manz Hungary Gépgyártó Kft.	www.manz.com	Debrecen
MSK Hungary Gépgyártó Bt.	www.msk.hu	Nyírbátor
Nyomda-Technika Kft.	www.nyt.hu	Debrecen
Robert Bosch Automotive Steering Kft.	www.bosch-automotive-steering.com	Eger
S&T Consulting Hungary Kft.	www.snt.hu	Budaörs
Seco-Tools Kft.	www.secotools.com	Budapest
SPM Instrument Budapest Kft.	www.spminstrument.com	Budapest
Szimikron Ipari Kft.	www.szimikron.com	Kecskemét
TAKATA Safety Systems Hungary Kft.	www.takata-miskolc.hu	Miskolc
Unilever Magyarország Kft.	www.unilever.hu	Nyírbátor
Werth Magyarország Kft.	www.werth.hu	Monor
ZF Hungária Kft.	www.zf.com	Eger