



TECHNICAL UNIVERSITY
OF CLUJ-NAPOCA
FACULTY OF MACHINE BUILDING
DEPARTMENT OF MANUFACTURING ENGINEERING

MTeM
2013

11th INTERNATIONAL CONFERENCE
**MODERN TECHNOLOGIES
IN MANUFACTURING**

FINAL PROGRAM

Cluj-Napoca
ROMANIA
17th - 19th October 2013

WELCOME MESSAGE

Dear Guests and Friends,

On behalf of the organizing committee of the 11-th International Conference MTeM 2013, I wish you a warm welcome to Cluj-Napoca! Please find details regarding the timetable of the 9 conference sections, in this program.

The aim of the MTeM Conference is to bring together experts in Manufacturing Engineering, in order to exchange ideas and make new connections to extend and develop partnerships between the researchers from Romania and other European Countries.

Applied research is a priority within the Department of Manufacturing Engineering (DME) from Technical University of Cluj-Napoca. Academic staff from DME is actively involved in research, in order to produce knowledge, besides the teaching activities at all three levels: undergraduate, master and doctorate level.

The most important gain from the cooperation with industry is for the students, who benefit from attending the updated courses, where the topics and solutions are from the actual industry, on how to sort out real tasks and challenges that the industry is facing in our days. In this manner, the students have the opportunity to be involved and taught with the hands on practical issues, related to the industrial companies that the DME is cooperating with. One significant result produced by the DME in 2013 was a F1 race car, assembled within the DME (<http://www.youtube.com/watch?v=mcvft21cJac>). Some of the components were manufactured at DME and many other components were supplied by the German industrial partner.

BIOMAPIM – „new **BIO**compatible **MA**terials for **P**ersonalized **I**mplants **M**ade by SLS and SLM” - is a major interdisciplinary research project led by DME from TUC-N, being funded by the Romanian government (<http://www.biomapim.utcluj.ro/index.html>). This research project ends in October 2013 and significant results are disseminated within the International Seminar organised by DME – TUC-N on 17-18 October 2013, in connection with the 11-th MTeM International Conference, organised by DME in Cluj-Napoca.

DME has ongoing research within the European projects, such as the FP7 AdM-ERA project. The AdM-ERA International Conference, held in connection with the MTeM International Conference, aims to disseminate the results of the AdM-ERA Project (No. 295016, FP7-INCO-2011-6), to integrate the CMRDI into the European research area, on Additive Manufacturing.

Selected papers from these related events (MTeM Conference, BIOMAPIM Seminar and AdM-ERA Conference) held at Cluj-Napoca in the period 17-19 October 2013, are published within the AJME Journal, volume 11, issues 3 and 4 / 2013.

Let's hope that you will be having fruitful scientific activities during the conference and an enjoyable staying in Transylvania!

Professor Nicolae Balc
Chairman of the MTeM International Conference

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SECTIONS AND VENUE OF THE CONFERENCE

SIGN	NAME	VENUE
MTeM	Plenary Session	Ground floor
S1	Manufacturing Engineering I/II I Chaired by: Ferenc SZIGETI Csaba GYENGE II Chaired by: Karol VELISEK Mircea LOBONȚIU	Room Saturn Thursday, 14:30 – 16:00 Thursday, 16:30 – 18:30
S2	Automation of Manufacturing Systems & Assembly Chaired by: Stanislaw LEGUTKO Oana DODUN	Room Jupiter Thursday, 14:30 – 16:00
S3	Machining Processes Chaired by: János KUNDRÁK Dan BRÂNDAȘU	Room Saturn Friday, 9:00 – 11:00
S4	Cold Metal Forming Chaired by: Ivan KURIC Dorel BANABIC	Room Neptun Friday, 9:00 – 11:00
S5	Additive Manufacturing Chaired by: R.Ian CAMPBELL Petru BERCE	Room Jupiter Friday, 9:00 – 11:00
S6	Non-Conventional Technologies I/II I Chaired by: Igor DRSTVENSEK Laurențiu SLATINEANU II Chaired by: Jozef NOVAK-MARCINCIN Gheorghe OANCEA	Room Neptun Thursday, 14:30 – 16:00 Thursday, 16:30 – 18:30
S7	CAD – CAM Chaired by: Nadežda ČUBOŇOVÁ Dan LEORDEAN	Room Jupiter Thursday, 16:30 – 18:30

Note: All actions will be held at Hotel Univers T

THE 11th INTERNATIONAL CONFERENCE
MODERN TECHNOLOGIES IN MANUFACTURING
MTeM 2013

SCHEDULE OF EVENTS

WEDNESDAY October 16th

16.00 - 20.00 Registration
19.30 - 21.30 Welcome drink (Restaurant Hotel Univeris T)

THURSDAY October 17th

8.00 - 9.30 Registration
9.30 - 10.15 Opening Ceremony
10.15 - 10.45 Coffee break
10.45 - 12.45 Plenary Session
13.00 -14.30 Lunch break (Restaurant Hotel Univeris T)

14.30 -16.00 Sessions S2, S1 / I and S6 / I
16.00 - 16.30 Coffee break
16.30 - 18.30 Sessions S7, S1 / II and S6 / II

19.30 Conference Dinner

FRIDAY October 18th

9.00 - 11.00 Sessions S5, S3 and S4
11.30 - 12.00 Closing Ceremony

12.00 - 13.00 Lunch break (Restaurant Hotel Univeris T)

13.30 - 17.00 Trip to Alba Iulia cathedral, citadel and hystorical town

18.30 Wine testing and dinner in Aiud wine Cellar

Thursday, October 17th, 2013

08 ⁰⁰	Registration
09 ³⁰ - 10 ¹⁵	Opening Ceremony
10 ¹⁵ - 10 ⁴⁵	Coffee Break
10 ⁴⁵ - 12 ⁴⁵	Plenary Session (Ground floor)

1. How does Additive Manufacturing fit into mainstream manufacturing?

R.Ian Campbell

2. Guhring Technological Centre from Cluj-Napoca

Eng. Dan Preja, Manager Guhring Cluj

3. Additive Manufacturing for Medical and Industrial Applications

N. Bâlc, P. Berce

13 ⁰⁰ - 14 ³⁰	Lunch break (Restaurant Hotel Univers T)
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Session S2

Room Jupiter

**AUTOMATION OF MANUFACTURING SYSTEMS &
ASSEMBLY**

Chairmen: Stanislaw LEGUTKO, Oana DODUN

- 1. A Few Analysis And Customization Issues Of A New Icim 3000 System: The Case Of The Material Flow, Its Complexity And A Few Issues To Improve**
Daynier Rolando Delgado Sobrino, Peter Košťál
- 2. The Assembly Workspace Of An Intelligent Assembly Cell**
Michala Šimúnová, Karol Velíšek
- 3. Design For Skin & Shape In The Packaging Industry sses**
Panagiotis Kyratsis, Nikolaos Efkolidis, Athanasios Manavis, Stamatia Peristeri
- 4. The Structural Dynamic Modification Of Beam Body Using Inner Reinforcing Cores**
Ladislav Rolnik, Milan Nad
- 5. Analysis Of Variable Changeover Times Impact On The Revenue In Manufacturing Process**
Bartosz Skobiej, Andrzej Jardzioch
- 6. Rapid Product Development Of E-Ticketing Products For Urban Public Transport**
Razvan Udroui

MANUFACTURING ENGINEERING I

Chairmen: Ferenc SZIGETI, Csaba GYENGE

- 1. The Geometric Controlling Of A New Type Spiroid Worm Shaft By Three Coordinate Measuring Machine**
Sándor Bodzás, Illés Dudás
- 2. The Need For Ontology In Product Development**
Sándor Ravai Nagy, Mircea Lobonțiu, Adrian Petrovan
- 3. Technological Solutions For Manufacturing Gears With Asymmetric Teeth**
Sandor Ravai Nagy, Mircea Lobonțiu
- 4. Applying The Six Sigma Methodology To Decrease The Number Of Scrapped Parts On A Manufacturing Line**
Fulea Gheorghe Lucian, Bulgaru Marius, Borzan Marian, Bocanet Vlad
- 5. Research On The Deformations Caused By The Manufacturing Devices Onto The Parts With Low Rigidity**
Nicolae Panc, Ioan Vuscan, Nicolae Balc
- 6. Some Characteristics Aspects Regarding The Precision Manufacturing Of Worm Gears**
Csaba Gyenge, Ancuta Pacurar, Razvan Pacurar, Adrian Radu Sever

Session S6 / I

Room Neptun

NON-CONVENTIONAL TECHNOLOGIES I

Chairmen: Igor DRSTVENSEK, Laurentiu SLĂTINEANU

- 1. The Design Rules Of Wavguide Shapes For Ultrasonic Machining Technologies**
Lenka Čičmancová, Milan Nadř
- 2. Surface Precision On The Circular Abrasive Waterjet Machining Of Ceramic Aluminium Oxides**
Alexandru Filip, Horatiu Bulea
- 3. Research On 3d Metal Sculpturing By Water Jet Cutting Versus Cnc Machining**
Ioan Alexandru Popan, Alexandru Carean, Alina Ioana Luca, Vasile Ceclan, Nicolae Balc
- 4. Comparison Between The Accuracy And Efficiency Of Edmwc And Wjc**
Alina Ioana Luca, Ioan Alexandru Popan, Monica Balas, Lucia Blaga, Nicolae Balc
- 5. Rapid Manufacturing Methods For Obtaining Bent Tubular Parts Made Of Carbon/Epoxy Composite**
Bere Paul, Emilia Sabau, Liana Hancu, Adian Popescu
- 6. Quality Claseses For Craters Generate With Laser Beam In Glass**
Melian Ciprian, Breabăn Florin, Deprez Pascal, Lobonțiu Mircea

Session S7

Room Jupiter

CAD - CAM

Chairmen: Nadežda ČUBOŇOVÁ, Dan LEORDEAN

- 1. Application Of Augmented Reality Technologies In Virtual Manufacturing**
Jozef Novak-Marcincin, Ludmila Novakova-Marcincinova
- 2. Converting 3d Points Clouds To Planar Shaped Solids**
Mircea Viorel Dragoi
- 3. Creation Of Software For The Transformation Of Step-Nc Data**
Nadežda Čuboňová
- 4. Computer Aided Reverse Engineering System Used For Customized Products**
Gheorghe Oancea, Nicolae Valentin Ivan, Roxana Pescaru
- 5. Description Of Maintenance Activities On Devices Of Computer Integrated Manufacturing**
Nadežda Hankeová, František Pecháček
- 6. Software Post-Processing Of Data Structure Obtained From Measuring Device Ballbar Qc20**
Ivan Kuric, Matus Kosinar
- 7. Turning Autocad Into CAM Software**
Robert Kiss and Daniela Popescu
- 8. Contributions Regarding The Application Of Fmea Analysis To Measuring With A Coordinate Measuring Machine**
Fulea Gheorghe Lucian, Bulgaru Marius, Borzan Marian, Bocanet Vlad

Session S1 / II

Room Saturn

MANUFACTURING ENGINEERING II

Chairmen: Karol VELISEK, Mircea LOBONȚIU

- 1. Studies About Thread Milling Programming Methods**
Alexandru Carean, Alexandru Popan, Mariana Carean
- 2. Redesign A Metering Pupm Using Dfma Techniques: A Case Study**
Stanislav Sula, Balc Nicolae
- 3. Optimization Of Cutting Toolg Geometrical Parameters Using Taguchi Method**
Nicoleta Lungu
- 4. Chip Removal Characteristics In Rotational Turning And The Effect Of The Tool Diameter Alteration**
János Kundrák, István Sztankovics, István Deszpoth
- 5. Dynamical Two-Dimensional Simulation Of Orthogonal Metal Cutting**
Ferenc Szigeti, Gyula Varga, Gergely Dezső
- 6. Experimental Analysis Of Sliding Burnishing**
Gyula Varga, Sovilj Bogdan, Istvan Pasztor
- 7. Rsearch On Manufacturing Process Of Hardened Steel Parts Through Hard Turning**
Pascalau Nelu, Carean Alexandru
- 8. Research On Decreasing The Auxiliary Times In Computer Numerical Control Cnc Manufacturing**
Erika Wagner

NON-CONVENTIONAL TECHNOLOGIES II

Chairmen: Jozef NOVAK-MARCINCIN, Gheorghe OANCEA

- 1. Ram Electrical Discharge Machining Of Small Diameter External Surfaces Of Revolution**
Slatineanu Laurentiu, Margareta Coteata, Lorelei Gherman, Oana Dodun, Irina Besliu, Stefan Stoica
- 2. Ceramic Materials A Solution To Increase Performance Of Engines With Internal Burns**
Ioan Radu Sugar, Mihai Banica
- 3. Comparative Research Of Two Machining Methods: Laser Beam And Abrasive Water Jet**
Stanislaw Legutko, Grzegorz Krolczyk, Marek Wolf
- 4. Experimental Study On Mechanical Behavior Of Glass Fiber Reinforced Polymer Composites Under Axial Compression**
Sabău Emilia, Balc Nicolae, Bere Paul, Borzan Cristina, Ceclan Vasile
- 5. Thermo-Physical Modeling Of The Environment Thermal Insulation Coating Closed On The Side Of The Internal And External In The Wall**
Rexhep Selimaj, Sabrije Osmanaj

Session S5

Room Jupiter

ADDITIVE MANUFACTURING

Chairmen: R.Ian CAMPBELL, Petru BERCE

- 1. Physico-Mechanical Properties Characterization Of The Parts From Pa 2200 Manufactured By Selective Laser Sintering Technology**
Cristina Stefana Borzan, Petru Berce, Horea Chezan, Emilia Sabău, Sever Adrian Radu, Martin Ridzon
- 2. Research Considering The Fabrication Of Resin Parts Using Silicone Rubber Molds**
Sever-Adrian Radu, Adrian Popescu, Ancuta Pacurar, Razvan Pacurar, Cristina Stefana Borzan
- 3. Patient Specific Instruments For Total Hip Replacement Surgery**
Igor Drstvensek, Tomaz Brajlilj, Matej Paulic, Joze Balic, Tomaz Tomazic
- 4. AdMERA project progress and the update**
Ditta Bezdán
- 5. The development of Medical AM in Egypt under AdMERA project**
Khalid Mahmoud Abdelghany
- 6. Research On Infiltrating Biocompatible Fillers To Produce Composite Implants**
Voicu Mager, Viorica Saplontai, Monica Saplontai, Dan Leordean, Nicolae Balc
- 7. Microstructure And Cytotoxicity Of The Titanium Alloys By Sem Microscopy**
Viorica Saplontai, Voicu Mager, Monica Soplantai, Dan Leordean, Robert Toth, Ileana Cojocar, Nicolae Balc
- 8. Study On Production Of Steel/Tib2 Composite Surface Layer By Friction Stir Processing**
Mohamed Salah Newshy, Mohamed Rafat Elkousy, Nahed Ahmed Abdel-Rahem, Morsy Amin Morsy, Saad Ahmed Khodir

Session S3

Room Saturn

MACHINING PROCESSES

Chairmen: János KUNDRÁK, Dan BRÂNDAȘU

- 1. Research On Accuracy Of Tma-AI 550 Horizontal Machining Center**
Dan Craciun, Iulian Stanasel, Constantin Bungau, Florin Blaga, Rares Pancu, Traian Buidos
- 2. Surface Quality For Conical Parts Manufactured By Incremental Forming On Cnc Lathes**
Alexandru Filip, Ion Neagoe
- 3. Experimental Research Of Effective Cutting Speed Influence On Surface Roughness In Ball End Milling Of C45 Material**
Melian Ciprian, Pasca Ioan, Lobontiu Mircea
- 4. Research Regarding Design And Achievement Of Rotating Titrting Table For 5-Axis Machining**
Dan Craciun, Florin Blaga, Iulian Stanasel, Constantin Bungau, Macedon Ganea
- 5. Study Of The Surface Roughness Of Carbide Blanks Processed By Grinding**
Vulc Silvia, Brindasu Paul Dan
- 6. Grinding Surfaces Of The Carbide Drills For Deep Holes**
Vulc Silvia

Session S4

Room Neptun

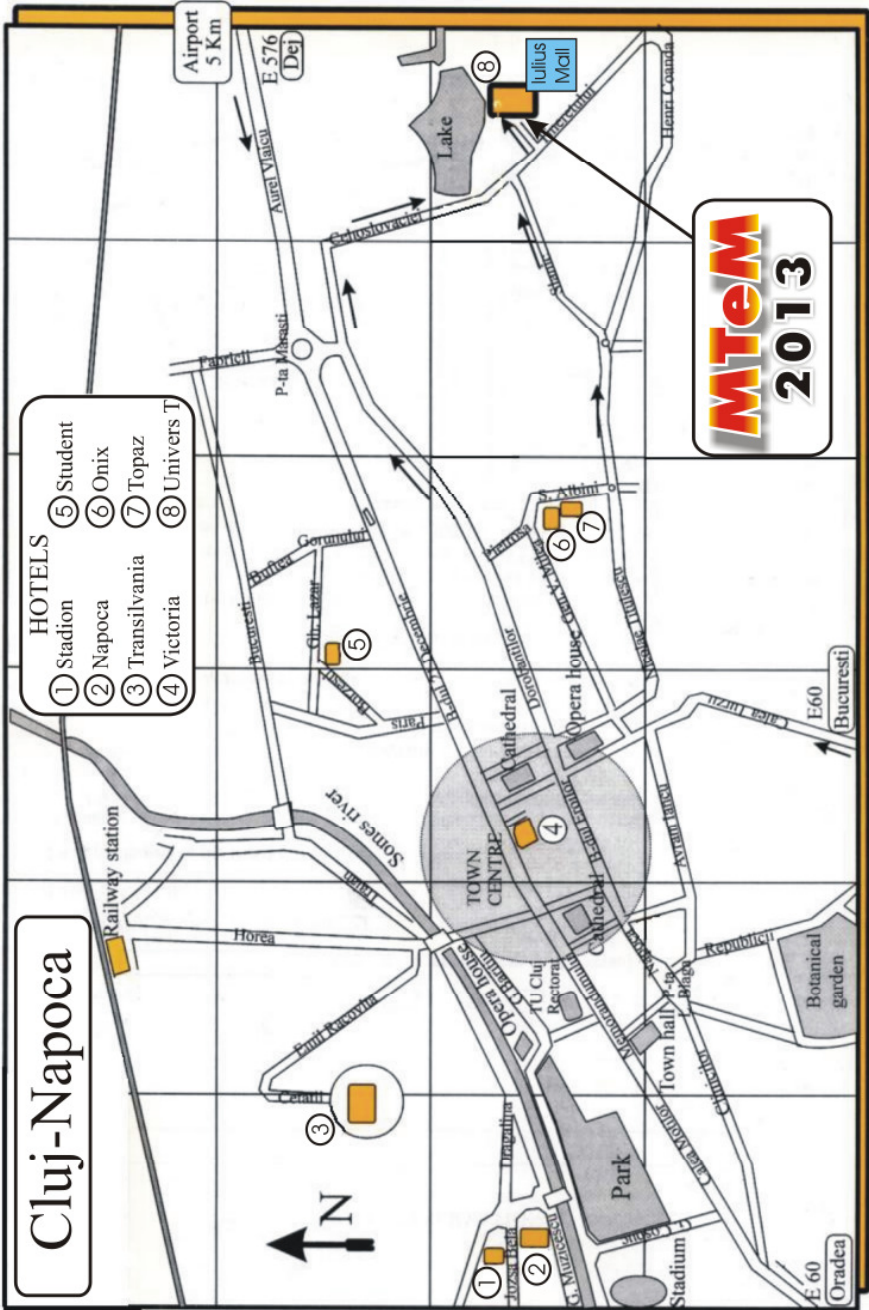
COLD METAL FORMING

Chairmen: Ivan KURIC, Dorel BANABIC

- 1. Analysis Of Drawing Force Variation For Cylindrical Cups In Relation To Die Relative Radius And Angle**
Chiorescu Dan, Nagit Gheorghe, Mihalache Stefan
- 2. Geometric Characteristic In The Relative Spiral Feed And Contact Contour During Cold Orbital Deformation**
Sorin Dumitru Grozav, Vasile Ceclan
- 3. Hydroforming Of Thin Sheets Using A Different Technological Variant Of Forming**
Alina Florentina Budai, Gheorghe Achimas
- 4. Study On Optimization Injection Process By Simulating The Injection Molded Polymer Melt Flow**
Melinte Simon, Alina Crai, Horatiu Iancau, Cosmin Mihai Pop
- 5. Effect Of The Constitutive Law On The Prediction Of The Wall Thickness Distribution Of Square Cup**
Ioan Nicodim, Ioan Ciobanu, Dorel Banabic
- 6. Flow Simulation For An Optimal Polymeric Parts Design**
Liana Livia Hancu, Alin Emanuel Pascu, Horatiu Gheorghe Iancau, Daniela Paunescu
- 7. Mechanical Characteristics Improvement For Extruded Products Made Of Reinforced Polyamide**
Popescu Adrian, Hancu Liana, Radu Sever Adrian
- 8. Structural Analysis Of Tubes Hydroforming**
Vasile Adrian Ceclan, Sorin Dumitru Grozav, Emilia Sabau, Alexandru Ioan Popan, Cristina Stefana Borzan
- 9. Cam Approaches For The Incremental Forming Process**
Radu-Eugen Breaz, Octavian Bologa, Melania Tera, Gabriel Racz

Cluj-Napoca

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