



GEORGE EMIL PALADE
UNIVERSITY OF MEDICINE,
PHARMACY, SCIENCE, AND
TECHNOLOGY OF TARGU MURES

Faculty of Engineering and
Information Technology

The 14th International Conference

INTER-ENG 2020

Interdisciplinarity in Engineering



2020

CONFERENCE PROGRAM

“George Emil Palade” University of Medicine, Pharmacy, Science
and Technology of Târgu Mureş
Faculty of Engineering and Information Technology

www.inter-eng.umfst.ro

8 - 9 October 2020
Târgu Mureş, Romania

Committees

President of the Conference

Călin ENĂCHESCU

Vice Rector

Scientific Committee Members

Liviu MOLDOVAN

President of Scientific Committee, Dean of the Faculty of Engineering and Information Technology,

Dorel BANABIC

Miguel Angel SELLEÉS CANTÓ

László KOVÁCS

Joseph BUHAGIAR

Radu MUNTEANU

Marius CIOCA

Felicia-Veronica BANCUI

Miklos NAGY

Horea POP

Mihail VOICU

Petru BERCE

Vito DATTOMA

Joan LU

Camelia M. PINTEA

Khalil KHALILI

Bogdan ROBU

Péter KÖRTESEI

Adam TIHAMER

Hariklia TSALAPATA

Luís Pinto FERREIRA

Elena Pérez BERNABEU

Dana-Adriana ILUȚIU-VARVARA

Samuel SÁNCHEZ-CABALLERO

Luminita Monica MOLNAR

Hanane YATIMI

Dan CENTEA

Ahmet SASMAZ

Mihail ABRUDEAN

Mihai GAVRILAȘ

Jaione GANZARAIN

Krzysztof DRACHAL

Rakesh MISHRA

Maria PARALIKA

BORBELY Endre

Ioan ABRUDAN

Pal BOZA

Florin IONESCU

Jozef MARCINCIN

Ketil ARNESEN

Adrian OLARU

Simona LACHE

John B. STAV

Alexei TOCA

Bogdan NEAGU

Gabriel BENDEA

Lucian-Ionel CIOCA

Dorin Dumitru LUCACHE

Abdelfatah NASRI

Mohamed LOUZAZNI

Nicoleta-Maria ILIEȘ

Lászlo DÁVID

Cenk SAYIN

Yan ZHANG

Giuseppe GRASSI

Adrian GRAUR

Miroslav SOCHOR

Ionel STAREȚU

Sergiu NEDEVSCHI

Karsten SCHMIDT

Lucian BÂRSAN

Paul BRĂNDAȘU

Bernhard KUP

Mariana STANCIU

Noha A. MOSTAFA

Hansotto DROTLOFF

Achim MORKRAMER

Sathyavageeswaran SATHISH

Florin MOLDOVEANU

LAMÁR Krisztián

Claudiu ACIU

Nicoleta COBÎRZAN

Abdelazim NEGM

Hesham A.E. MAGD

Sorin VLASE

Rachid HERBAZI

Local Organizing and Scientific Committee Members

Gabriela STRNAD
Dorin BICĂ
Sorin ALBU
Răzvan CAZACU
Adrian GLIGOR
Bela GENGE
Stelian OLTEAN
Adrian DUKA
Livi POP
Katalin ÁGOSTON

Barna IANTOVICS
Vasile BOLOȘ
Mircea DULĂU
Zoltán GERMÁN-SALLÓ
Arina MODREA
Sorina MOICA
Mihaela BUCUR
Horatiu-Stefan GRIF
Bogdan BUCUR
Szidónia LEFKOVITS

Cristian-Dragoș DUMITRU
Daniel DRAGOMIR-STANCIU
Diana MĂRGINEAN
Călin AVRAM
Dana RUS
Lucian DULĂU
Daniel LATEȘ
Mihai ȘIMON
Cristina VEREȘ
Traian TURC

Conference Secretariat

Nicoleta SABĂU
Arina MODREA

Contact Information

"George Emil Palade" University of Medicine, Pharmacy, Science
and Technology of Târgu Mureș
Faculty of Engineering and Information Technology
1 Nicolae Iorga Street 540088 Târgu Mureș, România



+40 265 233 212



+40 265 233 212



<http://inter-eng.umfst.ro>



inter-eng@umfst.ro



<https://www.facebook.com/InterEng/>

Opening Ceremony

Thursday, October 8th; 10:00 – 10:30

On-line, Faculty of Engineering and Information Technology

Welcome Addresses:

Prof.dr. Leonard AZAMFIREI - Rector

Prof. dr. Călin ENĂCHESCU – Vice Rector

Prof. dr. habil. eng. Liviu MOLDOVAN –

- Dean of the Faculty of Engineering and Information Technology

Special Invited talk:

Thursday, October 8th; 10:30 – 11:30

On-line, Faculty of Engineering and Information Technology

Morphological Rule Induction in NLP

Prof. dr. habil. László Kovács – University of Miskolc, Department of Information Technology

IoT-Based Smart Greenhouse Technology and Automated Indoor and Outdoor Irrigation Systems

Prof. dr. eng. Abdelazim M. Negm

Additive Manufacturing Driven Design a Key for Smart Industry Development

Prof. Dr. Mo Elbestawi

Role of IOT in Construction Industry and its Management

Prof. Ahmed Hussein Ibrahim

Parallel Sessions

Thursday, October 8th; 11:30 – 16:00

Location: On-line - Faculty of Engineering and Information Technology

Advanced Manufacturing Technologies and Materials
Room: Online A001 – Faculty of Engineering and Information Technology
Thursday, October 8th 2020; 11:30 – 15:00

Session chairs:

- Gabriela Strnad – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
- Ildiko Peter – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
- Daniel Lateș – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România

CMM Probes Effect During Inner Thread Position Measurement

Ferencz Peti, Petru Serban

Achieving of a Toothed Gear on Presses

Marius Tintelecan, Dana-Adriana Iluțiu-Varvara, Ioana Monica Sas-Boca, Tintelecan Marius

Reuse of the Steel Mill Scale for Sustainable Industrial Applications

Dana - Adriana Ilutiu - Varvara, Marius Tintelecan, Claudiu Aciu, Ioana - Monica Sas - Boca

Peculiarities Regarding the Reconstruction of a Broken Grooved Shaft

Bogdan Bucur, Constantin Bucur, Gabriela Andronic

Modelling and Simulating the Static Structural Response and Lift Off of a Preloaded Bolted Joint on a Flange

Rami Alfattani

Research on Innovation of Pull and Torque Testing Device for Cable Cords

Cristina Havadtői

Fine Electrolytic Tough Pitch Copper Multistage Wiredrawing Pass Schedule Design by Analytical and Numerical Methods

Oscar Rodriguez-Alabanda, Esther Molero, Marius Tintelecan, Guillermo Guerrero-Vacas, Pablo E. Romero, Gustavo Aristides Santana Martinez

Design of a Hybrid 2 Degree of Freedom Lower Limb Exerciser

Daniel Lates, Laura Irina Vlasin, Alexandru Ianosi Andreeva Dimitrova

A New Light Aircraft and Its Design Method

Marius Ion Ghițescu, Marilena Ghițescu, Arina Modrea

Innovative Technologies, Design and Materials in Civil Engineering

Room: Online A002 – Faculty of Engineering and Information Technology

Thursday, October 3th 2020; 11:30 – 15:00

Session chairs:

Răzvan Cazacu – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România

Mihai Simon – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România

Strain and Displacement Measurements in Reinforced Self-Compacting Concrete Beams with Openings using Digital Image Correlation Technique

Alexandra Coșa

Parametric Studies Regarding the Development of Alkali-Activated Fly Ash-Based Geopolymer Concrete Using Romanian Local Raw Materials

Adrian-Victor Lăzărescu, Henriette Szilagyi, Cornelia Baeră, Andreea Hegyi

The Possibility of Using Slag for the Production of Geopolymer Materials and Its Influence on Mechanical Performances – a Review

Brăduț Alexandru Ionescu, Adrian-Victor Lăzărescu, Andreea Hegyi

Influence of the Addition of TiO₂ Nanoparticles on the Self-Cleaning Performance of Cementitious Composite Surfaces

Elvira Grebenișan, Andreea Hegyi, Adrian-Victor Lăzărescu, Brăduț Alexandru Ionescu

Behavior of Natural Organic Polymer-Based Plaster Mortars Under the Influence of Water

Alexandra Olga Pinte, Marta Ioana Moldoveanu, Daniela Lucia Manea

Innovative Materials with Complex Applicability

Marta Ioana Moldoveanu, Alexandra Olga Pinte, Daniela Lucia Manea

Possibilities of Recovery of Industrial Waste and by-Products in Adobe Bricks Type Masonry Elements

Gabriela Călătan, Andreea Hegyi, Elvira Grebenișan, Anamaria Cătălina Mircea

Self-Healing Concrete Mix-Design Based on Engineered Cementitious Composites Principles

Tudor Panfil Toader, Anamaria Cătălina Mircea

Romanesque Historical Monuments Reconstruction by Using Original Materials and Recycling of Those That Have Lost Their Historical Value

Anamaria Boca, Tudor Panfil Toader, Călin Mircea

Experimental Study on Hollow Blocks with Wastes

Ligia Georgiana Hanuseac (Cas. Ghalayini), Marinela Barbuta, Liliana Bejan, Raluca Rosu

Fracture Energy of Engineered Cementitious Composites

Anamaria Cătălina Mircea, Tudor Panfil Toader

Management and Education for Sustainable Manufacturing
Room: Online A003 – Faculty of Engineering and Information Technology
Thursday, October 8th 2020; 11:30 – 16:00

Session chairs:

Liviu Moldovan – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România

Mihaela Bucur – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România

Modelling the Implementation of a Sustainable Development Strategy through Process Mapping

Ioana-Miruna Tataru, Elena Fleacă, Bogdan Fleacă, Radu D. Stanciu

Proposing a Maintenance Management System Based on SCOR, TPM and AFNOR in a Supply Chain Vision

Ilyas Mzougui, Firdaus Zair, Aymane Hallouly

New Optimization Technique for Sustainable Manufacturing: the Implementation of the SPC Indicator as Important Element of Satisfaction Measurement

David Ioan Legman, Manuela Rozalia Gabor

The Lean Six Sigma Algorithm – a Pathway for Decreasing Continuous Improvement Projects Failure Rate

Karam Al-Akel, Liviu-Onoriu Marian

The Lean Six Sigma Algorithm – a Roadmap for Implementation

Karam Al-Akel, Liviu-Onoriu Marian

Studies on the use of ISO 7730 in Romanian companies

Mihaela Bucur

Particularities and Sustainability of the Concepts of TQM, Quality Control and Risk Management in the Corporate Insurance Industry. Case Study: Loss and the Incidence of Catastrophic Risks

Narcis Sebastian Păvălașcu, Manuela Rozalia Gabor

Framework Specifications for Evaluation of Quality Improvement and Sustainable Development In Healthcare Facilities

Flaviu Moldovan

Smes and the Digital Technology Adoption: Empirical Evidence from Manufacturing Sector

Emilia Herman

Selection the Basic Lean Manufacturing Techniques in Developing the Model for Industry 4.0 in Kosovo Manufacturing Industry

Fatmir Azemi, Goran Šimunović, Roberto Lujčić, Daniel Tokody

The Importance of Corporate Social Responsibility Among Students In Europe

Mihaela Bucur

Research on Qualified Vocational Training Development in the Context of Digitalization

Marius Miklos Veres, Cristina Veres, Liviu Onoriu Marian, Ancuta Sigmirean, Antoaneta Maria Rauca

Anonymous Detection of Traveler Flows Employing Bluetooth Technologies

Ionut-Cosmin Chiva, Marius Minea, Viviana-Laetitia Minea, Augustin Semenescu

Covid-19: What'S the Impact on Global E-Commerce In the Grocery and Mass Retail Sector? What Are the Logistics Solutions To Promote Its Emergence?

Assia El Bakkali, Firdaous Zair, Mohamed Fourka

Social Engineering – the Hidden Control

Edina Albininé Budavári, Zoltán Rajnai

Green Economy and Green Growth – Opportunities for Sustainable Development

Lucretia Dogaru

About Sustainability Between Responsible Consumption and Production

Lucretia Dogaru

Research on Challenges and Prospects of Digital Agriculture

Mihai Anitei, Cristina Veres, Adrian Pisla

Streamlining the Work Process by Reducing Procedural Times In the Field of Electrostatic Powder Painting

József Boér, Petruta Blaga

Making Production More Efficient Using Analysis and Continuous Improvement Methods

Petruta Blaga

Ways To Increase the Efficiency of Production Activity Through the Active Involvement of the Human Factor

Petruta Blaga

An Innovative Guide to Work-Based Learning in the Field of Industry 4.0

Liviu Moldovan

Good Practices and Results for Implementation of a Framework for Sustainable Development in Higher Education

Liviu Moldovan

Professional Communication In English in the Context of the Shifting Educational Paradigm Triggered by Industry 4.0

Dana Rus

Translation, From Pen and Paper to Computer Assisted Tools (CAT Tools) and Machine Translation (MT)

Bianca Han

Power Systems, Energy Efficiency and Renewable Technologies
Room: A004 – Faculty of Engineering and Information Technology
Thursday, October 8th 2020; 11:30 – 16:00

Session chairs:

- Dorin Bică – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Cristian-Dragoș Dumitru – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Adrian Gligor – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România

Solar Photovoltaic Cell Parameters Extraction Using Differential Evolution Algorithm

Rachid Herbazi, Youssef Kharchouf, Khalid Amechnoue, Ahmed Khouya, Adil Chahboun

Algorithm for Smart Home Power Management with Electric Vehicle and Photovoltaic Panels

Lucian Ioan Dulău, Dorin Bică

Energetic Sustainability of Systems

Attila Albini, Edina Albininé Budavári, Zoltán Rajnai

Considerations Regarding the Negative Prices on the Electricity Market

Pavel Atănăsoae, Radu Dumitru Pentiuc, Eugen Hopulele

Overview on Efficient Naval Electric Power Architectures

Mariana Dumitrescu

Isolated Power System Safety Analysis

Mariana Dumitrescu

Coal and Biomasse Co-Combustion:CFD Prediction of Velocity Field for Multi-Channel Burner in Cement Rotary Kiln

Zakia Ngadi, Mohammed Lhassan Lahlaouti

Thermoelectric Generator Based on CuSo4 and Na2SiO3

Mihail Chira, Andreea Hegyi, Henriette Szilagyi, Horațiu Vermeșan

A Review Over Electromagnetic Shielding Effectiveness of Composite Materials

Cezar Afilipoaei, Horatiu Teodorescu-Draghicescu

Thermal Dynamic Behavior in Bi-Zone Habitable Cell with and without Phase Change Materials

Hanae El Fakiri, Lahoucine Ouhsaine, Abdelmajid El Bouardi

Numerical Investigation of a Novel Heat Pipe Radiant Floor Heating System with Integrated Phase Change Materials

Marius Brănoaea, Andrei Burlacu, Vasiliică Ciocan, Marina Verdeş, Robert Ştefan Vizitiu

Technical-Economic Analysis of a Hybrid Thermal Energy Supply System Based on Renewable Energy Sources

Roxana Pătraşcu, Constantin Ionescu, Mihai Rareş Sandu, Diana Ban (Tuţica)

Analysis of the Efficiency of a CHP Plant Coupled with District Heating

Daniel Dragomir-Stanciu, Seyed Mahdi Saghebian

Challenges for the Large Scale Integration of Distributed Renewable Energy Resources in the Next Generations Virtual Power Plants

Adrian Gligor, Tomasz Marciniak, Cristian-Dragoş Dumitru

Technical-Economic Analysis of a Hybrid Energy System Composed of PV and Biomass Obtained from Municipal Solid Waste, Connected to the Grid

Daniel Cornel Bălan, Sorina Mihalea Bălan, Juliana Szakács

Stochastic Models of Particle Trajectories in Turbulent Atmosphere Flows by Using the Langevin Equations

Youssra El Qasemy, Abdelfettah Achahbar, Abdellatif Khamlichi

Computational Fluid Dynamics Simulation to Predict the Airflow and Turbulence in a Wind Farm in Open Complex Terrain

Narjisse Amahjour, Abdellatif Khamlichi

Modelling of Wind Turbines Based on Energy Storage System

Sabra Ahyaten, Jalal El Bahaoui

Automation, Robotics, Biomedical Technologies and Intelligent Systems

Room: A005 – Faculty of Engineering and Information Technology

Thursday, October 8th 2020; 11:30 – 16:00

Session chairs:

- Mircea Dulău – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Zoltán Germán-Salló – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Stelian-Emilian Oltean – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România
Adrian-Vasile Duka – "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș, România

Designing Artificial Intelligence Control Program Model to Be Tested and Implemented in Virtual Reality for Automated Chevrolet Camaro

Lavinia Andrei, Adela-Ioana Borzan, Doru-Laurean Baldean

Developing and Researching an Arm Robot for Public Health Service and Industry in Order to Highlight and Mitigate Its Inherent Technical Vulnerabilities

Florin Alexandru Covaciu, Persida Bec, Doru-Laurean Baldean

Development of an Automated System for Fuel Tank Level Control and Machinery Location Management to Optimize Accessibility and Mobile Tracking

Daniela Popescu, Adela-Ioana Borzan, Doru-Laurean Baldean

Robotic Arms Equipped with Anthropomorphic Grippers for Robotic Technological Processes

Ionel Staretu

Active Vibration Control of FG Thermopiezoelectric Plate Based on Kirchhoff Theory

Loukmane El Khaldi, Khadija Messaoudi, Mustapha Sanbi

A Wire Rod Rolling Mill Digital Twin for the Simulation of the Rolls Replacement Process

Ana María Valdeón Junquera, Javier García González, Joaquín Manuel Villanueva Balsera, Vicente Rodríguez Montequín

Machining Quality Prediction Using Acoustic Sensors and Machine Learning

Stefano Carrino, Jonathan Guerne, Jonathan Dreyer, Hatem Ghorbel, Alain Schorderet, Raphaël Montavon

Control Strategies for Thermal Processes In Chemical Industry

Mircea Dulău

The Effects of the Weighting Functions on the Performances of the Robust Control Systems

Mircea Dulau, Stelian Oltean

Entropy Analysis of Time Series

Zoltán Germán-Salló

Concept Lattice-Based Classification in NLP

László Kovács

Assessing the Capability of Kelm Meta-Model Approach In Predicting the Energy Dissipation In Different Shapes Channels

Seyed Mahdi Saghebian, Daniel Dragomir-Stanciu, Roghayeh Ghasempour

A Machine Learning Approach for DDoS Attack Detection Using Multiple Linear Regression

Swathi Sambangi, Lakshmeeswari Gondi

Designing and Development of an Automated All-Terrain Intelligent Robotic Vehicle for Combat-Mine Detection in Order to Study Faults and Vulnerabilities

Florin-Alexandru Covaciu, Persida Bec, Doru-Laurean Baldean

Vibration Measurement and Analysis Methods

Katalin Agoston

UWB - MMIC Matrix Distributed Low Noise Amplifier

Moustapha El Bakkali, Said Elkhaldi, Intissar Hamzi, Naima Amar Touhami

Dual-Band 28/38 Ghz Inverted-F Array Antenna for Fifth Generation Mobile Applications

Mustapha El Halaoui, Laurent Canale, Adel Asselman, Georges Zissis

Increasing Data Capacity Using a Circular Array Antenna for 5G Applications

Nassima Dhaiman, Abdelmoumen Kaabal, Nabil El Akchioui, Abderrahim El Allati

Wideband Reconfigurable Antenna with Beams Switching for Wireless Systems Applications

Faouzi Rahmani, Naima Amar Touhami, Abdelmounaim Belbachir Kchairi, Nihade Taher

Effect of the Variation in Humidity of the Medium on the GPR Response

Aye Mint Mohamed Mostapha, Gamil Alsharahi, Abdellah Driouach, Ahmed Faize

Design of Transparent Antenna for 5G Wireless Applications

Sanae Azizi, Laurent Canale, Saida Ahyoud, Georges Zissis, Adel Asselman

Design and Simulation of a 10W Class-AB GaN Power Amplifier

Said Elkhaldi, Moustapha El Bakkali, Mahmoud Moubadir, Mohamed Aghoutane, Naima Amar Touhami, Taj-Eddin Elhamadi