



University of Miskolc,
Hungary



**MultiScience - XXXV. microCAD
International Multidisciplinary
Scientific Conference
13-14. October 2022**

PROGRAMME

ORGANIZING COMMITTEE OF THE CONFERENCE

Chairman:	Péter SZÚCS	Vice-Rector for General and Scientific Affairs
Members:	Péter Norbert SZABÓ	Vice-Dean of the Faculty of Earth Science and Engineering
	Tamás KÉKESI	full professor, Faculty of Materials and Metallurgical Engineering
	Gabriella Bogнар VADASZNE	Vice-Dean of the Faculty of Mechanical Engineering and Informatics
	Zoltán VARGA	Vice-Dean of the Faculty of Law
	Zoltán MUSINSZKI	Vice-Dean of the Faculty of Economics
	Renáta KRISTON	Vice-Dean of the Faculty of Arts

The organiser of the Conference is the **UNIVERSITY OF MISKOLC**

Address of the Organizing Committee:
University of Miskolc, Rector's Office
H-3515 Miskolc-Egyetemváros
Phone: (+36-46) 565-111
e-mail: microcad@uni-miskolc.hu
<http://multiscience.uni-miskolc.hu>

DETAILED PROGRAMME

of the MultiScience - XXXV. microCAD International Multidisciplinary Scientific Conference
University of Miskolc, 13-14 October, 2022

13 October (Thursday) 2022

PLENARY SESSION

VENUE: FINTELLIGENCE Centre, Bld. A/4. 3rd floor

- 10³⁰ – 10⁴⁰ **Opening address and remarks**
Prof. Dr. Péter SZŰCS Vice-Rector of the University of Miskolc
- 10⁴⁰ – 11¹⁰ **Kristóf Lehmann, PhD** *Head of the Directorate for International Monetary Policy Analysis and Training of Economic Sciences at the Central Bank of Hungary*
John von Neumann University, MNB Knowledge Centre – Head of Institute for Centre for Sustainable Finance (MNB Institute)
Current Challenges in Global Finances: Are We Entering a New Bretton Woods System?
- 11¹⁵ – 11⁴⁵ **Laszlo S. Toth** *Professor Miskolcinensis at the University of Miskolc, Hungary; Emeritus Professor at the Lorraine University, Metz, France*
Light Weighting of Metal Structures by Metallurgical Means; The Avenue of Severe Plastic Deformation
- 11⁵⁰ – 12⁰⁰ *Break*
- 12⁰⁰ – 13⁰⁰ **Reception**
Venue: Senate Hall Bld. A/4. 1st floor
- 13⁰⁰ – 13³⁰ *Break*
- 13³⁰ – 18⁰⁰ **Presentations in the parallel sessions**
Venue: as listed in the section table

14 October (Friday) 2022

- 9⁰⁰ - 12⁰⁰ **Presentations in session**

SESSIONS AND VENUES OF THE CONFERENCE

Sign	Name	Venue	
Plenary	Plenary session	FINTELLIGENCE Centre	Bld. A/4. 3 rd floor
A	Modern Materials Science and Engineering	Lecture hall VII.	Bld. A/1. 1 st floor, 102.
B	Modern Materials Science and Engineering	Room 312.	Bld. B/1. 3 rd floor
C1	Modern Materials Science and Engineering	Room 341.	Bld. A/4 3 rd floor
C2	Modern Materials Science and Engineering	Room 115.	Bld. A/3 1 st floor
D	Social and Health Innovations	Room Eperjes	Bld. A/6. ground floor 31.

A: MODERN MATERIALS SCIENCE AND ENGINEERING

VENUE: Lecture Hall VII., Bld. A/1. 1st floor 102-103.
Chairman: Péter Norbert SZABÓ *full professor*
Secretary: Ábel Dániel ANTONOVITS *engineer*

Date: 13 October, 2022

- 13.30 Roland Dócs, Mátyás Krisztián Baracza University of Miskolc, Hungary
A New Method of Pressure Drop Modelling in Sandstone Rocks
- 13.45 Ákos Pintér-Móricz, Gyula Varga, Renáta Zákányiné Mészáros University of Miskolc, Hungary
Preparation of Artificially Consolidated Rock Samples to Compare and Modify Their Petrophysical Properties for the Sake of Enhancing Recovery Factor
- 14.00 József Subert, László Rónai, József Lénárt University of Miskolc, Hungary
Development of a Hydraulic and Electric Control System for Pressing Machine
- 14.15 Marcell Kárpi¹, Norbert Tamás² University of Miskolc¹, Ts Hungária Ltd.², Hungary
A Human Safety Approach to Safe Maintenance
- 14.30 Marcell Kárpi, Eszter Járdán, Renáta Zákányiné Mészáros University of Miskolc, Hungary
Human Health Risk Factors Associated with the Application of Nanomaterials – A Review
- 14.45 Marcell Kárpi, Szilvia Szilágyiné Sebők, Renáta Zákányiné Mészáros University of Miskolc, Hungary
Investigating the Reopening Potential of Medium Enthalpy Abandoned Oil Wells with Bayesian Networks
- 15.00 *Break*
- 15.15 Marianna Vadászi, Ildi Bölkény University of Miskolc, Hungary
Hydrogen Storage in Hydrate
- 15.30 Balázs Zákányi, Gábor Nyiri, Péter Szűcs University of Miskolc, Hungary
Investigation of Industrial Waste Heat Storage in Shallow Porous Systems
- 15.45 Moataz M. G. Abdelrahman, Norbert P. Szabo University of Miskolc, Hungary
Meta-Algorithm Assisted Inversion for Petrophysical Properties Prediction
- 16.00 Brigitta Turai-Vurom, Mihály Dobróka University of Miskolc, Hungary
Analysis of the Full Wave Spectra of Laboratory Acoustic Measurements
- 16.15 Brigitta Turai-Vurom, Norbert Péter Szabó University of Miskolc, Hungary
Factor Analysis of Multi-Electrode Geoelectric Field Data
- 16.30 Viktória Kiss, Norbert Péter Szabó University of Miskolc, Hungary
Correlation-Based Imputation Method for Estimating Missing Well Log Data in a Hungarian Groundwater Well
- 16.45 *Break*

A: MODERN MATERIALS SCIENCE AND ENGINEERING

VENUE: Lecture Hall VII., Bld. A/1. 1st floor 102-103.

Chairman: Péter Norbert SZABÓ *full professor*

Secretary: Ábel Dániel ANTONOVITS *engineer*

Date: 13 October, 2022

17.00 **Abdalkarim S. Gharbia, Márton Tóth, Balázs Zákányi** University of Miskolc, Hungary
Adsorption and Desorption Competitive Mechanism for Binary Heavy Metals in Quartz Sand

17.15 **Csaba Ilyés** University of Miskolc, Hungary
Complex Hydrogeological Investigation of the Hajdúdorog Bath

17.30 **Noémi Szász, Andrea Kolencsikné Tóth** University of Miskolc, Hungary
Effect of Detergents on the Consolidation of Clayey Soils

17.45 **Márton Tóth** University of Miskolc, Hungary
Chemical Composition Analysis of Thermal Water of Hajdúdorog

18.00 **András Dobai, Endre Dobos** University of Miskolc, Hungary
Supporting Technical Protection Against Flash Floods by GIS Methodology

18.15 *Summary*

B: MODERN MATERIALS SCIENCE AND ENGINEERING

VENUE: Room 312., Bld. B/1. 3rd floor
Chairman: Tamás KÉKESI *full professor*
Secretary: Balázs István ILLÉS *researcher*

Date: 13 October, 2022

- 13.30 **Mohammed Yasi** University of Miskolc, Miskolc, Hungary
Effect of Cold Pressing, Sintering Time, and Sintering Temperature on Densification of Press and Sintered 17-4PH Materials
- 13.45 **Béla Kondás, Valéria Mertinger** University of Miskolc, Hungary
Investigation Aging Process of Deep Drawing Steels
- 14.00 **Hadeer Waleed Qasim¹, Zsolt Fejes¹, Béla Viskolcz¹, Béla Fiser^{1,2}** University of Miskolc, Hungary¹,
Ferenc Rákóczi II. Transcarpathian Hungarian College of Higher Education, Ukraine²
Experimental and Theoretical Study of Urethane Formation in the Presence of Amine Catalyst
- 14.15 **Lucas Alexandre de Carvalho, Zsolt Lukács,** University of Miskolc, Hungary
Influence of Enhanced Coulomb's Model on the Draw-In of the Hood Inner Panel
- 14.30 **Sarah Karem Mohammed Al-Saudi, Andrea Simon, Róbert Géber** University of Miskolc, Hungary
Preparation and Characterization of Foam Glass From Soda Lime Silicate Glass Waste
- 14.45 **Róbert Géber, Maria Kormashova, Ferenc Móricz** University of Miskolc, Hungary
The Influence of Waste Glass Powder on the Mechanical Properties of Metakaolin-Based Geopolymers
- 15.00 *Break*
- 15.15 **Hanna Zakiyya, Tamas Kékesi** University of Miskolc, Hungary
Anion Exchange Separations Devised to Produce a Suitable Electrolyte for the Electrodeposition of Pure Zinc
- 15.30 **Gábor Szepesi, Blanka Orosz, Máté Petrik** University of Miskolc, Hungary
Optimising the Structural Design of the Aerocyclone to the Preferred Particle Size
- 15.45 **Thuan Duc Mai, András Arnold Kállay** University of Miskolc, Hungary
Hydrogen Production by Steam Gasification of Hungarian Brown Coal Char
- 16.00 **Chaima Sayari** University of Miskolc, Hungary
Investigation of Foamed Glass Using Natural Waste Materials as Foaming Agent
- 16.15 *Summary*

C1: MODERN MATERIALS SCIENCE AND ENGINEERING

VENUE: Room 341., Bld. A/4.3rd floor
Chairman: Attila KÖREI *assoc. professor*
Secretary: Szilvia Szilágyi LENGYEL *assoc. professor*

Date: 13 October, 2022

- 13.30 Sándor Fegyverneki University of Miskolc, Hungary
Robust Interval Estimators of Weibull Parameters by Probability Integral Transformation
- 13.45 Zolt Karácsony, Tamás Glavosits University of Miskolc, Hungary
Existence and Uniqueness Theorems for Pexider Equations
- 14.00 József Túri University of Miskolc, Hungary
Dominating Sets in Random Graphs
- 14.15 Zsuzsa Balajti, Zoltán Mándy University of Miskolc, Hungary
The Influence of the Position and Shape Geometry of the Counter-Conical Motion Transmitter Pin on the Pitch Fluctuation of the Spiroid Worm Machined with Adjusted Shaft
- 14.30 Sorin Vlase Transilvania University of Brasov, Romania
Modern Dimensional Analysis Involved in Engineering Problems
- 14.45 Attila Körei, Szilvia Szilágyi University of Miskolc, Hungary
From Scratch to Python - Lego Robots as Motivational Tools for Coding
- 15.00 *Break*

C1: MODERN MATERIALS SCIENCE AND ENGINEERING

VENUE: Room 341., Bld. A/4.3rd floor
Chairman: Attila KÖREI *assoc. professor*
Secretary: Szilvia Szilágyi LENGYEL *assoc. professor*

Date: 13 October, 2022

- 15.15 **Ákos József Lengyel, István Ecsedi, Attila Baksa** University of Miskolc, Hungary
Saint-Venant Torsion of Thin-Walled Nonhomogeneous Elliptical Tube
- 15.30 **Ákos József Lengyel, István Ecsedi, Attila Baksa** University of Miskolc, Hungary
Solution of the Saint-Venant Torsion of Orthotropic Bar by the Method of Boundary Collocation
- 15.45 **Raid Fekreddine Mknassi¹, Gábor Béres², Zsolt Lukács¹** University of Miskolc¹, John von Neumann University², Hungary
Optimization of Near Plane Strain Tensile Test Specimen Notch
- 16.00 **Raid Fekreddine Mknassi¹, Gábor Béres², Zsolt Lukács¹** University of Miskolc¹, John von Neumann University², Hungary
Study the Near Plane Strain Tensile Test Specimen Using Finite Element Code Abaqus
- 16.15 **Hasanein Rjeib, Gábor Kecskeméti** University of Miskolc, Hungary
An Investigation on Implementing a Scenario on Different Cloud Simulators
- 16.30 **László Kálmán Trautsch, Szilvia Erdős** Budapest University of Technology and Economics, Hungary
Modelling Different Aspects of Final Exam Scheduling Problems for a Graph-Based State Space Reduction Method
- 16.45 *Summary*

C2: MODERN MATERIALS SCIENCE AND ENGINEERING

VENUE: Room 115., Bld. A/3.1st floor
Chairman: Máté PETRIK *assist. professor*
Secretary: Viktória KÁLLAI *research assistant*

Date: 14 October, 2022

- 9.00 **Mustafa Hasan, Krisztián Hriczó** University of Miskolc, Hungary
Heating a Greenhouse Using a Solar Air Collector Assisted by Thermal Storage: A Simulation Study
- 9.15 **Zsolt Hegyes** University of Miskolc, Hungary
Improving Hydrocyclone Efficiency by Changing Geometric Parameters
- 9.30 **Viktória Kállai, Péter Mizsey, Gábor L. Szepesi** University of Miskolc, Hungary
Investigation of Material Cost of an Ethane-Ethylene Rectification Column
- 9.45 **Viktória Mikáczó** University of Miskolc, Hungary
Gas Explosion Venting of 20-Litre Vessel Through Various Length of Vent Ducts
- 10.00 *Break*
- 10.15 **Máté Petrik** University of Miskolc, Hungary
General Description of Factor Influencing the Sizing of Fixed Tube Sheet
- 10.30 **Frezgi Tesfom, István Pásztor, Csaba Felhő** University of Miskolc, Hungary
Flat Diamond Ball Sliding Burnishing Surface Roughness Investigation
- 10.45 **Levente Tugyi, L. Gábor Szepesi, Zoltán Siménfalvi** University of Miskolc, Hungary
Explosive Atmosphere Analysis for Simulation of Ace-Tone Source of Release Using Aloha Software
- 11.00 **Tamás Bence Venczel** University of Miskolc, Hungary
Integrated Project Success Management
- 11.15 **Zoltán Eke¹, István Havasi²** Bay Zoltán Nonprofit Ltd for Applied Research¹, University of Miskolc², Hungary
Single-Beam And Multi-Beam Sonar Measurement Comparison
- 11.30 **Ildi Bölkény, Péter Palla, József Lénárt** University of Miskolc, Hungary
Automated Fermentation Control
- 11.45 **Ildi Bölkény, Szilárd Szopkó** University of Miskolc, Hungary
Communication Solutions for Smart Buildings
- 12.00 **Jemal Ebrahim Dessie, Zsolt Lukács** University of Miskolc, Hungary
Design New Anti-Buckling Fixture for Cyclic Tension-Compression Testing of Sheet Metal
- 12.15 *Summary*

D: SOCIAL AND HEALTH INNOVATIONS

VENUE: Room Eperjes, Bld. A/6. ground floor 31.
Chairman: Zoltán VARGA *assoc. professor*
Secretary: Ibolya STEFÁN *PhD Student*

Date: 13 October, 2022

- 13.30 Sára Felszeghi¹, Villani Simona², Serghei Cebanu³ University of Miskolc, Hungary¹, University of Pavia, Italy², Nicolae Testemițanu State University of Medicine and Pharmacy, Republic of Moldova³
Improving Occupational Health and Safety System in Republic of Moldova
- 13.45 Tünde Bajzát University of Miskolc, Hungary
Instrumental Orientation and Motivational Intensity Among Secondary School Students in North-East Hungary
- 14.00 István Juhász Eszterházy Károly Catholic University, Hungary
Factor Analysis of the Personality Dimensions of Sales Associates in the Finance and Insurance Sector
- 14.15 Zoltán Somosi University of Miskolc, Hungary
the Relationship Between Seo and Artificial Intelligence
- 14.30 Erika Varadi-Csema University of Miskolc, Hungary
Elders in the Society 5.0
- 14.45 *Break*
- 15.00 Réka Pusztahelyi University of Miskolc, Hungary
Unfair Commercial Practices and Vulnerability of Consumers in the Digital Marketplace
- 15.15 Ágnes Juhász University of Miskolc, Hungary
Interpretation of Contractual Intention - Some Issues Concerning the Partial Invalidity of the Contract
- 15.30 Ibolya Stefán University of Miskolc, Hungary
Artificial Intelligence: Is it a Product or a Service?
- 15.45 Orsolya Lili Sztermen University of Miskolc, Hungary
Legal Protection of Illegal Trade of Cultural Heritages
- 16.00 Zoltán Rác University of Miskolc, Magyarország
The Links Between Participation and the Special Employee Ownership Scheme
- 16.15 Zoltán Varga University of Miskolc, Hungary
On the Experience of the First Five Years of the Electronic Road Traffic Control System
- 16.30 Noémi Hajdú University of Miskolc, Hungary
Market Entry Opportunities for Pannon Wine Region
- 16.45 *Summary*