



University of Miskolc,
Hungary



**MultiScience - XXXIV. microCAD
International Multidisciplinary
Scientific Conference
23-24. September 2021**

**ONLINE
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
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<http://multiscience.uni-miskolc.hu>

DETAILED PROGRAMME

of the MultiScience - XXXIV. microCAD International Multidisciplinary Scientific Conference
University of Miskolc, 23-24 September, 2021

23 September (Thursday) 2021

PLENARY SESSION

VENUE: <https://meet.google.com/mym-ibjw-hma>



- 10⁰⁰ – 10¹⁰ **Opening address and remarks**
Prof. Dr. Péter SZŰCS Vice-Rector of the University of Miskolc
- 10¹⁰ – 10⁴⁵ **Dr.h.c.prof.Ing. Michal CEHLÁR,PhD** *Dean of the Technical University of Kosice, Slovakia*
Critical Raw Materials as a Part of Sustainable Development
- 10⁴⁵ – 11²⁰ **Prof. Dr. Zita HORVÁTH** *Rector of the University of Miskolc, Hungary*
Third Mission Activity of the University of Miskolc
- 11²⁰ – 11²⁵ *Short film about the University of Miskolc*
- 11²⁵ – 13⁰⁰ *Break*
- 13⁰⁰ – 18⁰⁰ **Presentations in the parallel sessions**

24 September (Friday) 2021

- 9⁰⁰ - 13⁰⁰ **Presentations in session**

SUSTAINABLE NATURAL RESOURCES MANAGEMENT I.

VENUE:

https://teams.microsoft.com/l/meetup-join/19%3ameeting_MjFhYmEzOWUtMTlkYy00NTNkLThmNDEtMjQ4MzAzYmM3MDYx%40thread.v2/0?context=%7b%22Tid%22%3a%22c43201f8-7cd8-4144-9080-ec5947253558%22%2c%22Oid%22%3a%22fe7dbfa3-9c18-4877-b245-c8c7ae496d77%22%7d

Chairman: Károly JÁRMAI *full professor*

Secretary: Raghawendra P. S. SISODIA *PhD Student*

Date: 23 September, 2021

- 12.50 **Opening speech by the Session Chair**
- 13.00 **Yannick Harrel** University of Petrosani, Romania
Electromobility in the Automotive Industry: A Technological and Geopolitical Shift
- 13.15 **Imre Marada, János Bihari** University of Miskolc, Hungary
Design of a New Type of Drive Units for the Analysis of Small Plastic Gears
- 13.30 **Mikihito Hirohata¹, Tomonori Nakahara¹, Károly Jármai²** Osaka University, Japan¹, University of Miskolc, Hungary²
Life Cycle Cost Analysis on Anti-corrosion Coatings for Steel Bridges in Japan
- 13.45 **Elke Glistau¹, Sebastian Trojahn¹, Ágota Banyainé Tóth²** Otto von Guericke University Magdeburg, Germany¹, University Miskolc, Hungary²
Logistic 4.0: Smart Infrastructure
- 14.00 **Stephan Trautsch, Heike Mrech, Karl-Heinrich Grote, Christiane Beyer** Otto-von-Guericke-University Magdeburg, Germany
Direct and Flexible Mesh Contour Coupling for Airfoil Optimisation
- 14.15 **Jesús Miguel Sánchez Gil, Tom-Robin Teschner, László Könözy** Cranfield University, Great Britain
Implementation of the Fractional-Step, Artificial Compressibility with Pressure Projection (FSAC-PP) Method into Openfoam for Unsteady Flows
- 14.30 *Break*
- 14.45 **István Tüske, György Hegedüs** University of Miskolc, Hungary
Analysis of Machine Tools with Parallel Kinematics
- 15.00 **József Túri** University of Miskolc, Hungary
Some Remark of Random Graphs
- 15.15 **Ákos József Lengyel, István Ecsedi, Attila Baksa, Dávid Gönczi** University of Miskolc, Hungary
Bounds for the Electrical Resistance for Homogeneous Conducting Body of Rotation
- 15.30 **Ákos József Lengyel, István Ecsedi, Attila Baksa, Dávid Gönczi** Hungary
Saint-Venant's Torsion of Thin-Walled Nonhomogeneous Open Elliptical Cross Section

- 15.45 **Nóra Kucska, Zsolt Gulácsi** University of Debrecen, Hungary
Flat-Band Conditions Influenced by Spin-Orbit Interaction in the Presence of External Magnetic Field
- 16.00 **Hazim Albedran, Ali Habeeb Askar, Jármai Károly, Endre Kovács** University of Miskolc, Hungary
Interpolated Spline Method for a Thermal Distribution of a Pipe with a Turbulent Heat Flow
- 16.15 *Break*
- 16.30 **Ali Habeeb Askar, Hazim Albedran, Endre Kovács, Károly Jármai** University of Miskolc, Hungary
Optimal Representation of a Temperature Distribution on a Tube at Constant Heat Flux
- 16.45 **Miklós Béres, Tamás Jenyó, János Majár, Béla Paripás** University of Miskolc, Hungary
Measurement of Vibrations of the A/2 Building at the University of Miskolc by LASER Interferometric Methods
- 17.00 **Zsolt Hegyes, Máté Petrik, Gábor Szepesi** University of Miskolc, Hungary
Particle Separation of a Modified Feed Nozzle Hydrocyclone under Different Operating Parameters
- 17.15 **Issa Omle, Endre Kovács** University of Miskolc, Hungary
New Explicit Algorithm Based on the Asymmetric Hopscotch Structure to Solve the Heat Conduction Equation
- 17.30 **Levente Tugyi, Zoltán Siménfalvi, Gábor L. Szepesi** University of Miskolc, Hungary
Experimental and Theoretical Investigation of Actone Evaporation
- 17.45 **Blanka Orosz, Máté Petrik, Gábor Szepesi** University of Miskolc, Hungary
The Alteration of the Operating Parameters of the Aerocyclone Depending on the Geometry of the Vortex Finder
- 18.00 *Summary*

SOCIAL AND CULTURAL VALUES, RESOURCES AND SOCIAL INNOVATIONS

VENUE: meet.google.com/kjr-ntpn-wqp

Chairwoman: Réka PUSZTAHELYI *associate professor*

Secretary: Ibolya STEFÁN *research fellow*

Date: 23 September, 2021

- 13.00 **Zoltán Rác** University of Miskolc, Hungary
Solutions to Balance the Sub-substance Situation in the Field of Collective Labor Law and Social Dialogue
- 13.15 **Zoltán Eperjesi Wekerle** Business School, Hungary
Climate Finance of the Multilateral Development Banks
- 13.30 **Gábor Mélypataki** University of Miskolc, Hungary
The Role of CSR in the Protection of the Employees
- 13.45 **Alexandra Kulcsár** University of Miskolc, Hungary
Corporate Social Responsibility Through the Example of Wanhua-BorsodChem Zrt.
- 14.00 **Virág Havasi** University of Miskolc, Hungary
Against the Odds-successful Enterprises in the Abaúj Region
- 14.15 **Doğa Başar Sarıipek** Kocaeli University, Turkey
Social Innovation as a Policy Response to Restructure the Welfare State
- 14.30 *Break*
- 14.45 **Andrea Jánosi** University of Miskolc, Hungary
Taking Account of Convictions Handed Down in EU Member States in the Course of New Criminal Proceedings – the Hungarian Legislation
- 15.00 **Szilvia Váradi** University of Szeged, Hungary
Data Protection vs Using Emerging Technologies: How to Fight Against COVID-19 While Staying Legally Compliant?
- 15.15 **Eszter Czibrik** University of Miskolc, Hungary
The Impact of COVID-19 on the Practice of the Hungarian Administrative Procedural Law
- 15.30 **Anna Zámponi** University of Miskolc, Hungary
The Impact of the Development of Digitalization on Proof in Civil Procedures
- 15.45 **Ibolya Stefán** University of Miskolc, Hungary
Challenges of Consumer Protection Regarding Artificial Intelligence
- 16.00 **Réka Pusztahelyi** University of Miskolc, Hungary
Towards a European AI Liability System
- 16.15 *Summary*

SUSTAINABLE NATURAL RESOURCES MANAGEMENT II.

VENUE: <https://global.gotomeeting.com/join/361116021> (Access Code: 361-116-021)

Chairman: Norbert Péter SZABÓ *full professor*

Secretary: István Balázs ILLÉS *department engineer*

Date: 24 September, 2021

- 9.00 **Ildikó Bölkény, Gábor Hegyi, Angéla Váradi Szarka** University of Miskolc, Hungary
Possibilities of Measuring Hydrogen in Natural Gas
- 9.15 **Zoltán Eke** University of Miskolc, Hungary
Municipal Waste Collection Planning Issues
- 9.30 **Al-Hamzawi Mortda Mohammed Sahib** University of Miskolc, Hungary
Optimization of Weight and Elastic Properties for Unidirectional Glass Fiber Reinforced Composites
- 9.45 **Iosif Andras, Andrei Andras, Ciprian Danciu** University of Petroșani, Romania
Rock Excavation Efficiency Improvement by Microwave Treatment
- 10.00 **Nicola Aurelian, Nan Marin Silviu, Iosif Kovacs, Vitan Daniel Cosmin** University of Petrosani, Romania
Researches Regarding the Modernizing of Hydro-Technical Designing Through Assisted Designing
- 10.15 **Marianna Vadászi, Ildikó Bölkény, Domonkos Horváth** University of Miskolc, Hungary
Hydration of Natural Gas Hydrogen Mixture Test Equipment
- 10.30 **Ildikó Fóris, Gábor Mucsi** University of Miskolc, Hungary
Effect of Alternative Foaming Agents for Fabrication of Glass Foam
- 10.45 **László Tamás, Ádám Rácz** University of Miskolc, Hungary
Comparison of Particle Size Distribution of Corundum Produced by Industrial Ball Mill and Material Bed Compression
- 11.00 **Laura Veres, Attila Házy, Luca Kozák** University of Miskolc, Hungary
Application of Artificial Intelligence in Settlement Development Modeling
- 11.15 *Break*
- 11.30 **Abdelrahman Moataz, Norbert Péter Szabó, Mihály Dobróka** University of Miskolc, Hungary
Petrophysical Parameters Estimation using Levenberg-Marquardt and Singular Value Decomposition Inversion Schemes
- 11.45 **Alina Schramm¹, Volker Recksiek², Dudczig Steffen¹, Cristiane Scharf¹, Christos Aneziris¹**
Technical University Bergakademie Freiberg¹, Helmholtz Institute Freiberg for Resource Technology²
Immersion Tests of Various Coated Ceramic Foam Filters in an AZ91 Magnesium Alloy Melt
- 12.00 **Alaaldeen Abdallah Mohammed Abd Elkarim, Alaaldeen Abdallah, Zsolt Veres, Arnold Rónaföldi, András Roósz** University of Miskolc, Hungary
Effect of Solidification Rate on the Micro- and Mesostructure of Columnar to Equiaxed Transition

- 12.15 **Hawkar Muhammed** University of Miskolc, Hungary
Surface Protective Layers of Iron Aluminides Developed on Medium Carbon Steel by the Hot-Dip Aluminizing (HDA) Process
- 12.30 **Fruzsina Fülöp, Mária Maros Berkes** University of Miskolc, Hungary
Complex Tribological Characterization of Advanced, Wear Resistant PVD and PACVD Ceramic Coating Systems
- 12.45 **István Balázs Illés, Tamás Kékesi** University of Miskolc, Hungary
The Possibility of Recovering Indium Metal from Acidic Solutions by Electroless Deposition
- 13.00 **Shiraz Ahmed Siddiqui, Mária Maros Berkes** University of Miskolc, Hungary
Investigation of the Tribological behaviour of Diamond-Like Carbon (DLC) Coatings on X42Cr13 Tool Steel using Reciprocating Ball-on-Plate Test
- 13.15 *Summary*