



University of Miskolc,
Hungary



**MultiScience - XXXII. microCAD
International Multidisciplinary
Scientific Conference
5-6 September 2018**

PROGRAMME

WELCOME ADDRESS FROM THE RECTOR

The University of Miskolc, which is the legal successor of the Academy of Mining and Metallurgy (Bergschule) founded in 1735 in Selmechánya (Banska Stiavnica), extends its greetings to the Reader on the occasion of organising the ***MultiScience - XXXIInd microCAD International Multidisciplinary Scientific Conference***.

Over the 31 years of the annual series, this international conference has become a significant meeting of professionals at the University of Miskolc.

The scope of this conference is exceptionally wide. Recognised experts, young researchers, doctoral candidates in engineering, natural, economic, legal and health sciences, as well as in arts and humanities present and discuss their fresh research results. Having completed profound scientific investigations, all the active participants should be proud of their achievements. The topics have been organised in different symposia corresponding to the established centres of excellence at the University of Miskolc.

The written form of the contributions will enrich the archives of the conference available at the web-site and on the CD proceedings, but selected articles will be published also in our internationally indexed thematic journals. It is also our hope that the professional and personal relations can be further developed during the sessions and the social events, resulting in stronger relations of the participants and their institutions.

More than 8000 presentations from about 15 different countries, more than 40 thousand pages of publications and many agreements signed between universities and numerous academic and research proposals witness the achievements of the last 31 years.

I recommend you the program of the ***MultiScience - XXXIInd microCAD International Multidisciplinary Scientific Conference*** in the hope that the presentations, discussions and social events will give you a golden opportunity to cherish and widen your professional relations. I truly believe that your presence, either as a proud speaker or as an interested participant, will contribute to the success of this great scientific event.

Prof. András TORMA
Rector of the
University of Miskolc

SCIENTIFIC COMMITTEE OF THE CONFERENCE

Chairman:	Tamás KÉKESI	Vice-Rector for International Relations and Scientific Affairs
Members:	Péter SZŰCS	Dean of the Faculty of Earth Science and Engineering
	Árpád Bence PALOTÁS	Dean of the Faculty of Materials and Metallurgical Engineering
	Zoltán SIMÉNFALVI	Dean of the Faculty of Mechanical Engineering and Informatics
	Csilla CSÁK	Dean of the Faculty of Law
	Mariann SOMOSI VERES	Dean of the Faculty of Economics
	Mária KOVÁCS ILLÉS	Dean of the Faculty of Humanities
	Emőke KISS-TÓTH	Dean of the Faculty of Health Sciences

DETAILED PROGRAMME

of the MultiScience - XXXII. microCAD International Multidisciplinary Scientific Conference
University of Miskolc, 5-6 September, 2018

5 September (Wednesday) 2018

10³⁰ – 10⁴⁰

Opening address and remarks

András TORMA professor, Rector of the University of Miskolc

Venue: Lecture hall XXI. Bld. A/6 groundfloor 32.

PLENARY SESSION

Venue: Lecture hall XXI. Bld. A/6 groundfloor 32.

10⁴⁵ – 11¹⁵

Tamás KÉKESI professor, pro-rector of University of Miskolc, Hungary
The use of aqueous solutions and electrons to obtain pure Sn, Cu and Fe from waste materials

11¹⁵ – 11⁴⁵

Endre DOBOS assoc. professor, University of Miskolc, Hungary
Citizen observatory – a new approach of environmental monitoring

11⁴⁵ – 12⁰⁰

Break

12⁰⁰ – 13³⁰

Reception

Venue: Senate Room, Main Building A/4. 1st floor

13³⁰ – 14⁰⁰

Break

14⁰⁰ – 18⁰⁰

Presentations in the parallel sessions

Venue: as listed in the section table

19⁰⁰ – 22⁰⁰

Gala Dinner, Awards Ceremony and Social Networking

Venue: University Dining Hall (Entry: only with invitation cards)

6 September (Thursday) 2018

9⁰⁰ – 12⁰⁰

Presentations in the parallel sessions

Venue: as listed in the section table

REGISTRATION FOR THE CONFERENCE

Venue: The Registration Desk is opposite to the entrance of the Main Building (A/4.)

Registration is open:

4 September (Tuesday) 2018	---	13 ⁰⁰ - 17 ⁰⁰
5 September (Wednesday) 2018	8 ⁰⁰ - 12 ³⁰	13 ³⁰ - 16 ⁰⁰
6 September (Thursday) 2017	8 ⁰⁰ - 10 ⁰⁰	---

ORGANISATIONAL COMMITTEE OF THE CONFERENCE

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

Address of the Scientific and Organisational Committee:
University of Miskolc, Rector's Office, International Affairs Team
H-3515 Miskolc Egyetemváros
Phone: (36-46) 565-111/ ext. 1016
e-mail: microcad@uni-miskolc.hu
<http://multiscience.uni-miskolc.hu>

SESSIONS AND VENUES OF THE CONFERENCE

Sign	Name	Venue	
Plenary	Plenary session	Lecture hall XXI.	Bld. A/6 ground floor 32
A	Environment- and Energy Management, Earth Science	Lecture hall VII.	Bld. A/1 1 st floor, 102.
B	Applied Materials Science and Nanotechnologies	Káldor Mihály Lecture hall	Bld. B/1 ground floor 8.
C1	Physics	Room 106.	Bld. A/5 1 st floor
C2	Mechatronics and logistics	Room 106.	Bld. A/5 1 st floor
D1	Innovative automotive, mechanical and energetic design	Room 439.	Bld. A/4. 4 th floor
D2	Material Processing Technologies	Room 44.	Bld. A/4 ground floor
D3	Tribology	Lecture hall XXXV.	Bld. C/2 ground floor
E	Legal Sciences	Faculty of Law	Bld. A/6 ground floor 31.
F-G	Humanities and Social Sciences	Lecture hall XXVIII.	Bld. B/2. ground floor 10/A.
H	Health and Medical Sciences	Bosch Room	Bld. B3-B4 2 nd floor, 207.

SUSTAINABLE NATURAL RESOURCES MANAGEMENT SYMPOSIUM

Chairman: Gábor MUCSI *assoc. professor*

A: ENVIRONMENT- AND ENERGY MANAGEMENT, EARTH SCIENCE

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

Chairman: Gábor MUCSI *assoc. professor*

Secretary: Norbert Péter SZABÓ *assoc. professor*

Date: September 5, 2018

- 14.00 **Zoltán Eperjesi** Wekerle Sándor Business School, Hungary
Sustainable natural gas supply as a factor of competitiveness in the Hungarian economy
- 14.20 **Eszter Bucher** University of Pécs, Hungary
Community life and non-governmental organizations through the example of a village in Ormánság, Drávafok
- 14.40 **Ion Dosa, Bogdan Tomuş** University of Petrosani, Romania
Efficiency of steam generator economizer at different loads
- 15.00 **Anna Kowalska¹, Wiktoria Sobczyk²** State Higher Vocational School in Tarnów¹, AGH University of Science and Technology², Poland
Influence of geodynamic processes on the shape of anthropogenic lakes
- 15.20 **Roland Róbert Romenda, Zsófia Burinda** University of Miskolc, Hungary
Investigation of settling of regular-shape single particles in quiescent air
- 15.40 *Break*
- 16.00 Mária Ambrus, Sándor Nagy, Gábor Mucsi** University of Miskolc, Hungary
The comminution of PCB and LED in order to improve metal recovery
- 16.20 **Armand Abordán** University of Miskolc, Hungary
Invasive weed optimization driven factor analysis for lithological characterization of aquifers
- 16.40 **Buta Singh, Zoltán Szamosi, Zoltán Siménfalvi** University of Miskolc, Hungary
Hydrodynamic factors in an anaerobic digester
- 17.00 **Medet Junussov** University of Miskolc, Hungary
“Looking for “invisible gold” and its concentrations in Arsenic-containing sulfide minerals of Bakyrchik gold deposits”
- 17.20 **Roland Róbert Romenda** University of Miskolc, Hungary
Process engineering design of air flow separators for municipal solid waste preparation
- 17.40 *Summary*

APPLIED MATERIALS SCIENCE AND NANOTECHNOLOGY SYMPOSIUM

Chairman: Tamás TÖRÖK *professor*

B: APPLIED MATERIALS SCIENCE AND NANOTECHNOLOGY

VENUE: Káldor Mihály Lecture Hall, Bld. B/1. ground floor, 8.

Chairman: Tamás TÖRÖK *professor*

Secretary: Gábor SZABÓ *senior lecturer*

Date: September 5, 2018

- 14.00 **Gábor Szabó, Tamás Mikó, Máté Szűcs** University of Miskolc, Hungary
Technological investigation of rolled product of multilayer aluminium sheets
- 14.20 **Tamás Bubonyi, Péter Barkóczy** University of Miskolc, Hungary
Detection and evaluation of surface decolorization on rolled aluminum-magnesium sheets
- 14.40 **Dávid Halápi, Sándor Endre Kovács, Zsolt Bodnár, Árpád Bence Palotás, László Varga**
University of Miskolc, Philament Ltd. Miskolc, Hungary
Tensile analysis of 3D printer filaments
- 15.00 **Shaymaa Abbas Abdulsada, Tamás I. Török** University of Miskolc, Hungary
Measurements and studying corrosion potential of reinforced concrete samples prepared with and without a green inhibitor and immersed in 3.5%NaCl solution
- 15.20 **Krisztina Román, Bence Szemán, Zita Szabó, Kálmán Marossy** University of Miskolc, Hungary
Mechanical properties and structural changes of PVC-wood composites
- 15.40 **Emese Kurovics, Sergei Kulkov, László Gömze** University of Miskolc, Hungary
Short overview of mullite based ceramic composites reinforced with silicon-carbides
- 16.00 *Break*
- 16.20 **Gustav Hanke** Montanuniversität Leoben, Austria
Characterization and possible multi metal recycling of precipitation residues from Zinc industry
- 16.40 **Jürgen Antrekowitsch** Montanuniversität Leoben, Austria
Metal bearing by-products from metallurgical industry - an important resource for the future
- 17.00 **Balázs Hegedűs, Tamás Kékesi** University of Miskolc, Hungary
Leaching behaviour of the residue from the thermo-mechanical treatment of Aluminium melting dross
- 17.20 **Ali I.Al-Mosawi, Kálmán Marossy** University of Miskolc, Hungary
L.O.I and DSC analyses of antimony trioxide containing plasticised PVC as a function of processing method
- 17.40 **Henrietta Hudák, László Varga** University of Miskolc, Hungary
The strength properties of chemically bonded sand mixtures
- 18.00 **Mahmood Alhafadhi, György Krallics** University of Miskolc, Hungary
Analysis of residual stress during welding oil and gas pipe
- 18.20 *Summary*

LOGISTICS, INFORMATICS AND MECHATRONICS SYMPOSIUM

Chairman: Béla ILLÉS *professor*

C1: PHYSICS

VENUE: Room 106., Bld. A/5. 1st floor, 106

Chairman: Béla PARIPÁS *professor*

Secretary: Endre KOVÁCS *assoc. professor*

Date: September 5, 2018

- 14.00 **Endre Kovács, János Majár** University of Miskolc, Hungary
On some analogous transient phenomena
- 14.20 **László Ujfaludi** Eszterházy Károly University, Hungary
Role of the ice cover in climate changes
- 14.40 **József Vida** Eszterházy Károly University, Hungary
Magic tower – over one decade of activity
- 15.00 **Nóra Kucska, Zsolt Gulácsi** University of Debrecen, Hungary
Effects of spin-orbit interactions on surfaces and interfaces
- 15.20 **Béla Paripás, Miklós Béres** University of Miskolc, Hungary
Optical methods for micrometer resolution distance measurements
- 15.40 *Break*

C2: MECHATRONICS AND LOGISTICS

Chairman: Béla ILLÉS *professor*

Secretary: Péter TELEK *assoc. professor*

- 16.00 **Elke Glistau¹, Norge Isaias Coello Machado²** Otto-von-Guericke University, Germany¹, Central University „Marta Abreu“ of Las Villas, Santa Clara, Cuba²
Logistics 4.0 and the revalidation of logistics concepts and strategies
- 16.20 **Florin-Dumitru Popescu, József Kovács, Sorin Mihai Radu, Andrei Andraş, Ildikó Kertész (Brînaş)** University of Petroşani, Romania
A method of continuous tilt control of the bucket wheel excavators using inclinometers
- 16.40 **Rabab Benotsmane, László Dudás, György Kovács** University of Miskolc, Hungary
Collaborating robots in industry 4.0 conception
- 17.00 **Martin Szabó, Károly Nehéz** University of Miskolc, Hungary
Grading Java code submissions in MeMOOC
- 17.20 **József Túri** University of Miskolc, Hungary
A note on almost sure convergence
- 17.40 *Summary*

INNOVATIVE AUTOMOTIVE, MECHANICAL DESIGN AND TECHNOLOGY SYMPOSIUM

Chairman: Károly JÁRMAI *professor*

D1: INNOVATÍV AUTOMOTIVE, MECHANICAL AND ENERGETIC DESIGN

VENUE: Room 439, Bld. A/4. 4th floor, 439.

Chairman: József Ákos LENGYEL *assist. lecturer*

Secretary: Betti BOLLÓ *assoc. professor*

Date: September 5, 2018

- 14.00 **Ahmed Bouzid, József Vásárhelyi** University of Miskolc, Hungary
Vehicular acoustic doppler velocimetry based on reconfigurable analog and digital design - Theoretical approach and review
- 14.20 **Stela Dinescu, Ildiko Kertész (Brînaş), Marioara Vesa (Benea)** University of Petrosani, Romania
Study on the stress and strain of the drill bits using the finite element method
- 14.40 **Hazim Nasir Ghafil, Károly Jármai** University of Miskolc, Hungary
Comparative study of particle swarm optimization and artificial bee colony algorithms
- 15.00 **Ildikó Kertész (Brînaş), Sorin-Mihai Radu, Florin-Dumitru Popescu, Iosif Andras, Andrei Andras** University of Petroşani, Romania
A numerical method for the calculus of the operation power of the rotor of a bucket wheel excavator
- 15.20 *Break*
- 15.40 **Ákos József Lengyel, István Ecsedi** University of Miskolc, Hungary
Second-order analysis of composite beam-columns with interlayer slip
- 16.00 **Ákos József Lengyel, István Ecsedi** University of Miskolc, Hungary
Torsional deformation of compound circular bars
- 16.20 **Nan Marin-Silviu, Dănuţ Grecea, Aurelian Nicola, Alin Sultan, Gabriel Țuțuianu** University of Petroşani, Romania
Theoretical study concerning the establishment of optimum dimensions of force pipes for hydrotechnical constructions
- 16.40 *Summary*

INNOVATIVE AUTOMOTIVE, MECHANICAL DESIGN AND TECHNOLOGY SYMPOSIUM

Chairman: Károly JÁRMAI *professor*

D2: MATERIAL PROCESSING TECHNOLOGIES

VENUE: Room 44, Bld. A/4. ground floor, 44

Chairman: Marcell GÁSPÁR *assist. profesor*

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

Date: September 6, 2018

- 9.00 **Noureddine Guellouh, Zoltán Szamosi** University of Miskolc, Hungary
The weldability of high strenght steels
- 9.20 **Szabolcs Jónás, Miklós Tisza** Knorr-Bremse Rail Systems Budapest, University of Miskolc, Hungary
Influencers of clinched joints
- 9.40 **Viktória Kállai, L. Gábor Szepesi** University of Miskolc, Hungary
Propane/Propylen separation's examination with simulation
- 10.00 **Yassine Mehdi, Miklós Tisza** University of Miskolc, Hungary
Formability investigations of advanced high strength steels
- 10.20 *Break*
- 10.40 **Antal Nagy, János Kundrák** University of Miskolc, Hungary
Analysis on the influence of the feed rate on 2D and 3D roughness parameters of the face-milled surface
- 11.00 **Raghawendra Sisodia, Marcell Gáspár, Walid Gacem** University of Miskolc, Hungary
Investigation of HAZ softening of AA6082-T6 automotive aluminium alloy by physical simulation
- 11.20 **Bálint Varga, Balázs Mikó Óbuda** University, Hungary
Investigation of geometric accuracy of free-form surface profile
- 11.40 *Summary*

INNOVATIVE AUTOMOTIVE, MECHANICAL DESIGN AND TECHNOLOGY SYMPOSIUM

Chairman: Károly JÁRMAI *professor*

D3: TRIBOLOGY

VENUE: Lecture Hall XXXV, Bld. C/2. ground floor

Chairman: Mária MAROS BERKES *assoc. professor*

Co-Chair: Prof. Dr. Michel Fillon *invited speaker, CNRS Director of Research at the Pprime Institute*

Secretary: Andrea BÍRÓ SZILÁGYI *assist. professor*

Date: September 6, 2018

- 9.00 **Michel Fillon** Pprime Institute, University of Poitiers, France
Analysis of textured surface influence in hydrodynamic lubrication - Application to slider and thrust bearings
- 9.25 **Michel Fillon** Pprime Institute, University of Poitiers, France
Analysis of heavily loaded bearings operating under mixed lubrication regime
- 9.50 **Maria B. Maros, Alexandra Németh** University of Miskolc, Hungary
Friction and wear of self-mated and unlike paired tribosystems of Si_3N_4 nanocomposites with multilayer graphene additives
- 10.10 **Andrea Bíró Szilágyi** University of Miskolc, Hungary
Ball-on-disc wear test of plasmanitrided layers
- 10.30 **Géza Németh** University of Miskolc, Hungary
Friction torque of lubricated deep groove ball bearings
- 10.50 *Break*
- 11.00 **Szabolcs SZÁVAI** University of Miskolc, Hungary
High cycle rolling fatigue test of carburized surface - first results
- 11.20 **Alexandra Kitti Németh, Mária Maros Berkes, Noémi László** University of Miskolc, Hungary
Wear maps of SPS sintered Si_3N_4 /MLG nanocomposites
- 11.40 **Viktoria Ferencsik, Gyula Varga** University of Miskolc, Hungary
Examination of the effect of technological parameters on cylindricity deviation and residual stresses when burnishing cylindrical aluminium components
- 12.00 **Shiraz Ahmed Siddiqui, Andrea Biro Szilagy, Maria Berkes Maros** University of Miskolc, Hungary
Wear behaviour of duplex (PN+PVD) layers produced on X42Cr13 steel
- 12.20 *Summary*

LEGAL SCIENCES SYMPOSIUM

Chairman: Zoltán VARGA *assoc. professor*

E: LEGAL SCIENCES

VENUE: Faculty of Law, Bld. A/6. ground floor 31.

Chairman: Zoltán VARGA *assoc. professor*

Secretary: Klaudia MURÁNYI *research assistant*

Date: September 5, 2018

- 14.00 **Anita Paulovics, András Bragyova** University of Miskolc, Hungary
The protection of wildlife
- 14.15 **Ágnes Váradi** Hungarian Academy of Sciences Centre for Social Sciences, Hungary
Access to justice in the case-law of the European Court of Human Rights
- 14.30 **Éva Erdős** University of Miskolc, Hungary
New problems of the international and European tax law - The digital tax avoidance
- 14.45 **Tímea Barzó** University of Miskolc Faculty of Law, Hungary
Public figures and the right to privacy
- 15.00 **Judit Barta** University of Miskolc, Hungary
The private insurances as a possibility of voluntary saving
- 15.15 **Hilda Tóth** University of Miskolc, Hungary
Anomalies in the modification of the civil service relationship
- 15.30 **Zoltán Rácz** University of Miskolc, Hungary
History of the Hungarian Mediaton in Public Administration
- 15.45 *Break*
- 16.00 **Erika Csema-Váradi, Ildikó Pongrácz** University of Miskolc, Hungary
Digitalisation and exclusion
- 16.15 **Klaudia Murányi** University of Miskolc, Hungary
Insight into the legal situation of virtual money in Hungary
- 16.30 **Zoltán Varga** University of Miskolc, Hungary
Pension scheme rules for the EU officials and the transfer of pensions
- 16.45 **Lilla Nóra Kiss** University of Miskolc, Hungary
The brief interpretation of article 50 TEU
- 17.00 **Csenge Halász** University of Miskolc, Hungary
Privacy on the internet - Dream and reality?
- 17.15 **Mário Certicky** University of Miskolc, Hungary
The nature of insurable interest
- 17.30 **Zoltán Nyilasi** University of Miskolc, Hungary
Can the Hungarian state be sued?
- 17.45 *Summary*

HUMANITIES AND SOCIAL SCIENCES SYMPOSIUM

Chairman: Kinga SZABÓ-TÓTH *assoc. professor*

F-G: HUMANITIES AND SOCIAL SCIENCES

VENUE: Lecture hall XXVIII., Bld. B/2. ground floor 10/A.

Chairman: Kinga SZABÓ-TÓTH *assoc. professor*

Secretary: Virág HAVASI *assoc. professor*

Date: September 6, 2018

- 9.00 **Krisztina Varga** University of Miskolc, Hungary
Social innovation - a way to solve social problems
- 9.20 **Gábor Béla Süveges, Zoltán Musinszki** University of Miskolc, Hungary
The main technological and ecological factors of the innovative district heat supply
- 9.40 **Levente Lengyel, Kitti Fodor** University of Miskolc, Hungary
Analysis of effects on life expectancy at birth
- 10.00 **Zoltán Eperjesi** Wekerle Sándor Business School, Hungary
Changes in the relation system of competitiveness and social cohesion in the European Union
- 10.20 *Break*
- 10.40 **Emőke Horváth** University of Miskolc, Hungary
Hungarian foreign policy toward latin american countries 1945-1959
- 11.00 **Tünde Bajzát** University of Miskolc, Hungary
Foreign language teachers' motivation at secondary schools in North-Eastern Hungary – The partial results of a pilot study
- 11.20 **Tünde Bajzát** University of Miskolc, Hungary
The motivation for learning foreign languages at secondary schools in North-Eastern Hungary – The partial results of a pilot study
- 11.40 *Summary*

HEALTH AND MEDICAL SCIENCES SYMPOSIUM

Chairman: Olivér RÁCZ *professor*

H: HEALTH AND MEDICAL SCIENCES

VENUE: Room **BOSCH**, Bld. **B3-B4**. 2nd floor, 207.

Chairman: Olivér RÁCZ *professor*

Secretary: Éva DOJCSÁK KISS-TÓTH

Date: September 5, 2018

- 14.00 **Olivér RácZ^{1,2}, Marcela Linková²** University of Miskolc, Hungary¹, University of Safarik, Slovakia²
Delayed start of insulin treatment in type 2 diabetes
- 14.20 **Andrea Lukács¹, Péter Sasvári², Beatrix Varga¹, Emőke Kiss-Tóth¹, Éva Dojcsák Kiss-Tóth¹**
University of Miskolc¹, National University of Public Service², Hungary
Measuring life orientation of university students
- 14.40 **Mária Csóka, Veronika Rajki** Semmelweis University, Hungary
Methodology of innovative simulation education, and possibilities of objective knowledge level measurement
- 15.00 **Judit Kopkáné Plachy, Barbara Guzi, Andrea Rucska, Emőke Kiss-Tóth** University of Miskolc, Hungary
The prevention of osteoporosis and falls by a six-months long intervention programme for women over 60 years
- 15.20 **Annamária Mató-Juhász** University of Miskolc, Hungary
Importance of the healthy destination
- 15.40 *Summary*

OPTIONAL PROGRAMME

The Organisational Committee of the Conference would like to make your stay more pleasant by organising the

Gala Dinner

19.00, 5 September 2018

Venue: University Dining Hall (*Entry: only with invitation cards*)

Programme

19 ⁰⁰ - 19 ¹⁰	Opening address by the Rector of the University of Miskolc
19 ¹⁰ - 19 ²⁵	Musical and visual block #1 <i>Thematic musical program about the life of researchers and university staff:</i> <i>Extended Happy Metal</i> (the band and friends of the University of Miskolc)
19 ²⁵ - 19 ³⁵	Inauguration of the new honorary citizen of the conference
19 ³⁵ - 19 ⁴⁵	Musical and visual block #2
19 ⁴⁵ - 21 ⁰⁰	Dinner
21 ⁰⁰ - 21 ¹⁰	Musical and visual block #3
21 ¹⁰ -	Networking