



The academic and research institutions of Visegrad 4 countries:

Institute of Raw Material Preparation and Environmental Processing,
University of Miskolc, Hungary

Institute of Geotechnics, Slovak Academy of Sciences, Kosice, Slovakia

Institute of Environmental Engineering, VSB-Technical University,
Ostrava, Czech Republic

AGH-University of Science and Technology, Cracow, Poland

Cracow University of Technology, Cracow, Poland

in cooperation with the

Mining Scientific Committee, Hungarian Academy of Sciences

Working Commission, Miskolc Regional Committee, Hungarian Academy of Sciences

and ASSOCIATION OF ENVIRONMENTAL ENTERPRISES

as well as

„Sustainable Raw Material Management Thematic Network–RING 2017”,

EFOP-3.6.2-16-2017-00010 PROJECT

have a pleasure to invite you and your co-workers to participate the

XXI International Waste Recycling Conference



V4 WASTE RECYCLING XXI INTERNATIONAL CONFERENCE

to be held on 22-23 November, 2018

at University of Miskolc, Hungary

Conference website: www.wr21.org

E-mail: wr21@uni-miskolc.hu

V4 WR Board Members

Ljudmilla Bokányi, *UM, Miskolc, Hungary*

Vladimir Cablik, *VSB-TU Ostrava, Czech Republic*

Miroslava Vaclavikova, *IGT SAS, Kosice, Slovakia*

Zbigniew Wzorek, *CUT, Cracow, Poland*

Scientific Committee

Wieslaw S. Blaschke, *PAN, Cracow, Poland*

Ljudmilla Bokányi, *UM, Miskolc, Hungary*

Vladimir Cablik, *VSB-TU Ostrava, Czech Republic*

Slavomir Hredzak, *IGT SAS, Kosice, Slovakia*

Andrzej Jarosinski, *CUT, Cracow, Poland*

Vitazoslav Krupa, *IGT SAS, Kosice, Slovakia*

Radmila Kucerova, *VSB-TU Ostrava, Czech Republic*

Anna Nowak, *CUT, Cracow, Poland*

Imre Gombkötő, *EIT RawMaterials - CLC East*

Rudolf Tomanec, *UB, Belgrade, Serbia*

Barbara Tora, *AGH, Cracow, Poland*

Miroslava Vaclavikova, *IGT SAS, Kosice, Slovakia*

Hong Nguen Vu, *ICHt, Prague, Czech Republic*

Dorota Wawrzak, *JDU Czestochowa, Poland*

Zbigniew Wzorek, *CUT, Cracow, Poland*

József Faitli, *UM, Miskolc, Hungary*

Sándor Nagy, *UM, Miskolc, Hungary*

Chair Person

Ljudmilla Bokányi, *UM, Miskolc, Hungary*

Conference Secretary

Ádám Rácz, *UM, Miskolc, Hungary*

Members

József Faitli, *UM, Miskolc, Hungary*

Gábor Mucsi, *UM, Miskolc, Hungary*

Sándor Nagy, *UM, Miskolc, Hungary*

Contact Address

Ádám Rácz

Institute of Raw Material Preparation and Environmental Processing

Miskolc-Egyetemváros

3515 Hungary

E-mail: wr21@uni-miskolc.hu

General Information

The main topics of the 21st Waste Recycling Conference are devoted to the creation of circular economy and include:

- Recycling and utilisation of industrial wastes (metallurgical, power-engineering, mechanical engineering, chemical industrial, WEEE, end-of-life vehicles, plastics, demolishing waste, mining waste and tailings, etc.);
- Treatment and recycling of municipal solid waste and biowaste;
- Critical raw materials from secondary sources;
- Decontamination and remediation of contaminated areas;
- Waste water treatment and air quality control;
- Business activities in waste recycling;
- Legislation issues of recycling and waste utilization.

Conference language is English, all papers, presentations and communications are required in English. All accepted papers will be published in the ISBN-numbered Conference Proceedings and distributed among the participants. The selected papers will be advised for the publication in the Geosciences and Engineering Journal (HU ISSN 2063-6997), indexed by ProQuest.

Venue

The WR21 conference will take place on the beautiful Campus of University of Miskolc, established in 1735.

Registration, fees and deadlines

All participants are kindly required to complete the registration form on the official [website of the 21st Waste Recycling Conference](#).

	<i>Date</i>	<i>Standard registration</i>	<i>Student registration</i>	<i>Accompanying person</i>
Regular payment	21 November 2018	200 EUR	140 EUR	40 EUR
On-site cash payment	22 November 2018	200 EUR	140 EUR	50 EUR

The registration fee covers the participation in the conference, conference proceedings, coffee breaks and refreshments, lunch and participation in the gala dinner on 22 November, 2018. Active B.Sc., M.Sc. and Ph.D. students are considered as students. For accompanying persons the registration fee includes participation in gala dinner and a guided sightseeing tour on 23 November, 2018.

Detailed registration and paper submission information can be found on the wr21.org homepage!

We are proud to announce the outstanding plenary lecturers of the Conference:



Prof. Dr. Cecilia Hodúr D.Sc. (University of Szeged, Hungary)

Exploitation of Food Waste



Dr. mont. habil. Jürgen Antrekowitsch (Montanuniversität Leoben, Austria)

By-products from metallurgical industry - an important resource for Europe's raw materials strategy



Dr. Sanjay Kumar (CSIR-National Metallurgical Laboratory, India)

Geopolymerising waste for construction materials: innovation, challenges and entrepreneurship

Short Course on Coal Alternatives

The Hungarian Government accepted the Energy Minerals Action Plan at the end of July. We believe that this is a starting point for several important professional actions. The coal is placed again in the focus of not only the energy production, but geology, mining, processing, chemistry etc. industries.

The main objective of the short course is to refresh knowledge about coal, make the new trends and recent results known and understandable for the undergraduate and postgraduate students, and interested professionals in the industry, authorities, and institutions.

The main organizer is the Faculty of Earth Science Engineering, University of Miskolc, also sponsored by the College for Research and Applications of Natural Resources, the Hungarian Mining and Geological Survey, The HAS MAB Committee for Mining, Earth Sciences and Environmental Sciences, the University of Pecs, University of Debrecen, The Raw Materials Branch of the Hungarian Geological Society in the course of the Science Weeks, as a program of the TEXPRESS project, supported by the NTP 2018-SZAKKOLL funds.

The Venue: Miskolc, University of Miskolc, date: November 21, 2018.

- Coal processing methods
- Fly ash – utilization of waste material from thermal power plants
- Coal gasification, coalbed methane
- Coal economy of traditional and alternative energy production

The lectures are held in Hungarian, with English slides and translation into English. The speakers come from the MBFSZ, University of Miskolc, University of Pecs, University of Debrecen, most of them contributors in the recently concluded Utilization of the Hungarian Coal Resources R&D project.

Please indicate your possible participation on the short course until 10 November by email to wr21@uni-miskolc.hu.

Attendance fee is 30 Euro which covers the lectures, study materials, field trip, meals and refreshments during the short course.

Workshop “ X-ray powder diffraction as a powerful tool in waste recycling”

21st November, 2018.

In the framework of the V4 Waste Recycling XXI International Conference the Workshop on the application of X-ray powder diffraction will be organized.

X-ray powder diffraction beyond fundamental scientific research has long become a powerful tool in process engineering, materials production and product development. However, its application in highly heterogeneous systems, like demolition or mining wastes, slurries, slags etc. for the purpose of application testing is still problematic. The main drawback is the requirement of detailed knowledge on crystal structure and material system of minerals and synthetic/artificial (inorganic, organic) products.

The aim of the workshop is to present solutions on the application of quantitative X-ray diffraction to waste recycling by new product development through the results of laboratory scale experiments. The XRD lab has gained direct experience being involved in research projects on the subject. Lectures will be given at the Institute of Mineralogy and Geology of the University of Miskolc by Dr. Ferenc Kristály, senior research fellow (https://www.researchgate.net/profile/Ferenc_Kristaly).

The program from 9:00 to 17:00 (lunch break 12:00-13:00) includes:

- XRD application in waste recycling related research (Dr. Gábor Mucsi Associate Professor)
- General introduction to X-ray diffraction
- Practical demonstrations
- Evaluation of measurements
- Crystalline, nanocrystalline and amorphous material
- Quantitative methods
- Size-strain calculations required in evaluation
- Methods and experiments to validate XRD results
- Discussions, questions

Practical demonstrations include sample and specimen preparation, lab visit and demo measurements at the Institute of Mineralogy and Geology of the University of Miskolc.

The workshop is open for all participants, registration fees (EUR, incl. VAT):

V4 Waste RecyclingXXI standardparticipants	V4 Waste RecyclingXXI studentparticipants	Workshop participants only, standard	Workshop participants only, student
50	25	100	50

Please indicate your possible participation on the short course until 10 November by email to wr21@uni-miskolc.hu.