



16TH INTERNATIONAL SCIENTIFIC CONFERENCE  
ON CIVIL AND ENVIRONMENTAL ENGINEERING  
FOR PHD. STUDENTS AND YOUNG SCIENTISTS

UNDER AUSPICES OF PROF. ING. DUŠAN KATUNSKÝ, DSc.  
THE DEAN OF THE FACULTY OF CIVIL ENGINEERING.

IN THE HIGH TATRAS, SLOVAKIA  
ON 17-19 APRIL 2024



AUTHORITY  
FOR SPATIAL PLANNING  
AND CONSTRUCTION  
OF THE SLOVAK REPUBLIC

MINISTRY  
OF ENVIRONMENT  
OF THE SLOVAK REPUBLIC

MINISTRY  
OF TRANSPORT  
OF THE SLOVAK REPUBLIC

MINISTRY  
OF EDUCATION, RESEARCH,  
DEVELOPMENT AND YOUTH  
OF THE SLOVAK REPUBLIC

TOPICS

- BUILDING INFORMATION MODELING
- BUILDING PHYSICS AND SERVICES
- CONSTRUCTION ECONOMICS,  
MARKETING AND MANAGEMENT
- CONSTRUCTION TECHNOLOGY,  
ORGANIZATION AND MANAGEMENT
- ENVIRONMENTAL ENGINEERING
- INDOOR ENVIRONMENT
- HYDROTECHNICAL ENGINEERING
- INNOVATIONS IN CONSTRUCTION
- MATERIAL ENGINEERING AND RECYCLING
- STATICS, DYNAMICS AND MODELING
- STRUCTURAL ENGINEERING AND  
BRIDGES
- SUSTAINABLE ARCHITECTURE AND  
ENERGY EFFICIENCY
- SUSTAINABLE CIVIL AND  
ENVIRONMENTAL ENGINEERING
- SUSTAINABLE WATER  
MANAGEMENT
- TRANSPORT AND  
GEOTECHNICAL ENGINEERING
- URBAN ENGINEERING

Technical University of Košice, Faculty of Civil Engineering

# 16th International Scientific Conference Civil and Environmental Engineering

17th-19th April 2024,  
High Tatras, Slovakia.



## Program:

**Wednesday, April 17, 2024**

10.00 – 12.00	Registration
12.00 – 14.00	-
<b>Chairs:</b>	<b>Congress hall</b> <b>Zuzana Vranayová - Denis Konovalov</b>
14.00 – 14.10	Opening of the conference <b>Dušan Katunský, Dean of the Faculty of Civil Engineering</b>
14.10 – 14.20	Michal Gorás, František Vranay <b>Use of renewable sources with thermal accumulation of solar energy for the energy consumption of buildings</b>
14.20 – 14.30	Pavol Knút, Mária Kocúrková, Štefan Petkanič <b>Survey of biosolar roofs in the world</b>
14.30 -14.40	Zuzana Dická <b>The impact of shading by vegetation on the level of daylight in buildings</b>
14.40 -14.50	Štefan Gorás, Dušan Katunský <b>Restoration of historic buildings from daylight perspective</b>
14.50 -15.00	Kristián Hutkai, Dušan Katunský, Richard Baláž <b>The effect of internal insulation on the course of temperatures in the perimeter wall</b>
15.00 -15.30	Coffee break
15.30 -15.40	Ján Domanický, František Vranay <b>The reduction of the energy demand of a hall-type object through vegetative roof constructions.</b>
15.40-15.50	Ivana Halászová, Mária Kozlovská <b>Perception of a remodular sustainable building unit using in a university campus environment: A Questionnaire Survey</b>
16.00-16.30	Sponsor presentation Peter Serfözö <b>Construction of the Volvo Industrial Park in Valaliky</b>
16:30-17:30	Sponsor presentation Miroslav Garaj <b>Využívanie prostriedkov digitalizácie v stavebníctve</b>
19.00	Welcome drink, Dinner

**Thursday, April 18, 2024**

<b>Chairs:</b>	<b>Congress hall</b> <b>Andrej Šoltész - Samuel Berezňanin</b>
9.00-9.10	Wael Almikaeel, Lea Čubanová <b>Unraveling Seasonal Dynamics: Inter-Station Correlations and Hydrological Assessments of Topľa River in the Bardejov Basin</b>
9.10-9.20	Crisan Claudia Alice, Vermesan Horatiu <b>Natural gums as green corrosion inhibitors for mild steel</b>
9.20-9.30	Marián Dobranský <b>Hydrotechnical Assessment of the Flow of the Hnilec River in the town of Gelnica</b>
9.30-9.40	Juraj Mušuta <b>Deformation characteristics of asphalt mixtures</b>
9.40-9.50	Miriama Čambál Hološová, Adriana Eštoková <b>Chemical Parameter Changes of Cement Composites after Sulphate Corrosion</b>
9.50-10.00	Muhammad Merei <b>Empowering Communities for Sustainable Water Management: Insights from Justdiggīt and the Paani Foundation</b>
10.00-10.10	Roumiana Zaharieva, Yana Kancheva, Daniel Evlogiev, Nikolay Dinov <b>Pre-demolition audit as a tool for appropriate CDW management - case study of a public building</b>
10.10-10.20	Kostiantyn Sokolchuk <b>Permeable Pavement for Flood Risk Reduction: Case Study of Trebišov, Slovakia</b>
10.20-10.30	Andrea Hrubovčáková, Peter Mésároš, Marcela Spišáková <b>A Comprehensive Research Study on Digital Tools in Building Renovation</b>
10.30-10.40	Ján Brindza, Ján Erdélyi, Peter Kyrinovič <b>The preliminary findings from tests of the mobile mapping system</b>
10.40-11.00	<i>Coffee break</i>
<b>Chairs:</b>	<b>Congress hall</b> <b>Vojtěch Václavík - Mária Grazianová</b>
11.00-11.10	Alexander Jiponov, Lazar Georgiev <b>Sheet pile walls as a part of the substructure of bridges. Practical application in denmark.</b>
11.10-11.20	Pavlo Vegeera, Viktor Borzovič, Zinoviy Blikharskyy <b>Experimental data of RC beams shear strength with different shear span and strengtning by FRCM system</b>
11.20-11.30	Klymenko Yevhenii, Shapoval Larisa, Grynyova Iryna, Borzovic Viktor <b>Analysis of the calculation and experimental method for determining the bearing capacity of stone structures</b>

11.30-11.40	Michala Weissová, Vincent Kvočák, Daniel Dubecký, Lukáš Kapolka <b>Comparative Analysis of Fractional Coefficient in GFRP and Concrete for Enhanced Shear Connector Performance</b>
11.40-11.50	Pellumb Zogu, Markus Schäfer <b>Reliability assessment of composite column according to Monte Carlo Simulation and Latin Hypercube Sampling</b>
11.50-12.00	Žiga Unuk <b>Nonlinear Semi-Numeric Analysis of Three-Point Bending Tests of Notched Polymer Fiber-Reinforced Concrete Prisms</b>
12.00-12.10	Elvira Hodovanets, Vincent Kvočák <b>Comparative analysis of calculations in thin-walled structure design</b>
12.10-12.20	Aset Madiev, Ján Erdélyi, Richard Hont <b>Planes geometry verification program written in Python.</b>
12.20-14.00	-
14:00	<i>Coffee break</i>
14.00-15:00	<b>Poster section</b> <b>Kamila Kotrasova - Mária Kocúrková</b>
1.	Vorlíčková Petra, Kalousek Miloš <b>Increase the internal surface temperature to eliminate surface condensation on the window</b>
2.	Dominik Verčimák, Alena Sičáková <b>Fine proportions of recycles from demolition waste in terms of functionality and potential for use in construction mixtures</b>
3.	Drahorádová Nikola, Ujházy Martina, Kučerová Radmila, Sezima Tomáš <b>Use of physical pretreatment and biodegradation for the removal of antidepressants and psychiatrically active substances from wastewater</b>
4.	Jan Jeřábek <b>Aspects and optimization of the mixture for high performance concrete</b>
5.	Alexandra Vidová, Lea Čubánová <b>Variant proposal of the fish passage using technical and close to nature approach</b>
6.	Katarzyna Klejnowska, Waldemar Mijał, Joanna Gołębiewska-Kurzawska, Julianna Strzelczuk <b>Recycling of end-of-life PV panels - a review of technologies</b>
7.	Radoslav Gandel, Jan Jeřábek, Jaromír Vařák <b>The influence of the use of recycled rubber in concrete on its selected properties</b>
8.	Dawid Sojka, Kr. Pikoń, K. Klejnowska and M. Lewandowska <b>Research of the possibility of separating hydrophobic gel used in gel cables from metal and plastics using wet methods</b>
9.	Procházka Lukáš, Brázdová Adéla <b>Surface modification of alkali-activated materials with regard to durability</b>

10.	Martin Marek, Zdeněk Krejza <b>Sustainable building: Circular economy as a key factor for cost reduction</b>
11.	Oblouková Aneta, Vítková Eva <b>Pricing of water and sewerage charge rates of a selected water management company in the Czech Republic – A case study</b>
12.	Stanislav Blaho, Katarína Gajdošová <b>FEM analysis of FRP RC members</b>
15.00-15.30	Sponsor presentation <b>Metrostav Slovakia a.s.</b>
17.00-17.30	<i>Closing of conference sessions</i>
19.00	<i>Competitions, Informal discussion</i>

## Friday, April 19, 2024

<b>Chairs:</b>	<b>Congress hall</b> <b>Kamila Kotrasova - Jana Budajová</b>
10.00-10.10	Jana Budajova <b>The circularity of roof constructions</b>
10.10-10.20	Alena Vargová, Marian Vertal' <b>The wetland as an element of the roof garden</b>
10.20-10.30	Mária Kocúrková, Pavol Knut <b>Vegetation facades from a physics perspective</b>
10.30-10.40	Denis Konovalov, Dušan Katunský, Jozef Švajlenka <b>Information model of the building and its application in selected phases of the life cycle</b>
10.40-10.50	Samuel Berezňanin, Mária Kozlovská <b>The potential of prefabricated technologies for rental housing</b>
10.50-11.00	Peter Mésároš, Maria Grazianova <b>Cultural heritage management from traditional methods to digital systems: a review from BIM to digital twin</b>
11.00-12.00	<i>Discussion</i>