



TUNELY A PODZEMNÉ STAVBY 2024

TUNNELS AND UNDERGROUND CONSTRUCTION 2024

Konferencia s medzinárodnou účasťou
Conference with International Attendance

21.-23.10.2024
Hotel Patria, Štrbské pleso



ASSOCIATION
INTERNATIONALE DES TUNNELIERS
ET DE COUVERTURES SOUS-TERRAINES

ITA

INTERNATIONAL TUNNELING
AND UNDERGROUND SPACE
ASSOCIATION

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Slovenská
tunelárska
asociácia



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Dear colleagues, dear guests,

On behalf of the Slovak Tunnelling Association, we welcome you to the Tunnels and Underground Construction 2024 conference. After six years, we are looking forward to spending time together again with experts and tunnelling enthusiasts from Slovakia and neighbouring countries. Our intention is to build on the successful Tunnels and Underground Structures conferences held in 2015 and 2018 in Žilina.

Over the past six years, we have witnessed a further quantitative and qualitative shift in Slovak tunnelling. During this period, the Ovčiarsko, Žilina, Prešov and Bikoš motorway tunnels, as well as the Miločov and Diel railway tunnels, were put into operation. The construction of the Okruhliak tunnel has also started and the construction of the Španí Háj tunnel will start shortly. In addition to these, the Višňové and Čebrať tunnels are currently under construction and the time for their commissioning is approaching.

The papers that will be presented at the conference will be related to the experience from the preparation, implementation and operation of tunnels in Slovakia and abroad. During the two days of lectures, authors dealing with the design, implementation, geotechnical investigation, operation and reconstruction as well as safety issues of traffic tunnels will present their work. Risk management and contractual relations in the preparation and implementation of construction are important, although not widely discussed topics.

In addition to the traditional specialist areas, we have for the first time expanded the conference to include the topic of sustainability. In the field of transport construction, sustainability is represented by the desire to strike a balance between economic and social development and the protection of the landscape and the environment. The very placing of transport infrastructure underground is considered to be one of the principles of sustainability. In this topic, we want to address the need to apply sustainability principles in the conceptual and detailed design of tunnels, taking into account not only their construction, but also to a large extent their operation.

The conference programme also includes excursions to the ongoing construction of the Čebrať and Okruhliak motorway tunnels, which are at a completely different stage of construction, the former being almost completed and the latter in the early stages of construction.

We are honored that the Minister of Transport and Construction, Mr. Jozef Ráž, has granted his patronage to our conference and our thanks also go to the management of the National Motorway Company for their extensive support of our conference.

We believe that the three conference days will create sufficient space for the general public to exchange professional knowledge in the field of preparation, construction and operation of underground structures and tunnels, as well as for social contacts between Slovak and foreign experts in tunnels and underground structures.

We look forward to seeing you together.

Ing. Miloslav Frankovský
Chairman of the Slovak Tunnelling Association

Ing. Viktória Chomová
Chairwoman of the Conference Preparatory Committee



Members of the Preparatory Committee and the Scientific Council

Preparatory Committee

Ing. Viktória Chomová, chairwoman

Ing. Tibor Bielokostolský

Ing. Peter Bóna

Mgr. Katarína Dudáková

Ing. Miloslav Frankovský

Mgr. Silvia Jáhnová

Ing. Martin Konček, PhD

Mgr. Michal Kubiš, PhD

Ing. Pavel Kusý, PhD

Ing. Ján Kušnír

Ing. Soňa Masarovičová, PhD

Ing. Ivan Michale

Ing. František Očkaják

Ing. Ľuboš Rojko, PhD

Ing. Jaroslav Štrba

Ing. Robert Zwilling

Scientific Council

Prof. Dipl.-Ing. Dr. Vladimír Benko, PhD, chairman

Ioannis Fikiris, MSc., DIC

Prof. Ing. Jana Frankovská, PhD

Prof. Ing. Matouš Hilar, PhD

Dr. Monika Mitew-Czajewska

Doc. Ing. Jan Pruška, PhD

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Auspices



With the support of





Registration

Registration fee

Category	Late after 30.9.2024
Ordinary participant	380 €
Public administration	190 €

The registration fee includes:

- admission to the professional programme
- entrance to the exhibition
- entrance to the poster presentation
- technical excursions
- refreshments during the conference
- conference materials
- entrance to the conference dinner

Registration at the venue

Registration for the conference will take place on the ground floor opposite the Patria Hotel reception.

Opening hours

Sunday 20.10.2024	16:00-18:00
Monday 21.10.2024	08:00-18:00
Tuesday 22.10.2024	08:00-14:00

Nametags

Participants will be given a name badge at registration. It must be worn during the entire conference programme. Only participants wearing a name badge will be allowed to enter the conference halls.



Conference programme

Monday 21.10.2024		
10:00 - 10:30	Opening of the conference	
10:30 - 12:30	Keynote Lecture	
12:30 - 14:00	Lunch	
14:00 - 15:45	Section 1: Design and construction of under- ground structures	Section 3: Geotechnical investigation and monitoring
15:45 - 16:15	Coffee break	
16:15 - 18:00	Section 6: Sustainability in underground construction	Section 4: Technical equipment and operation of underground structures
19:00-23:00	Conference dinner	
Tuesday 22.10.2024		
09:00 - 10:15	Section 4: Technical equipment and operation of underground structures	Section 2: Sanitation reconstruction of under- ground structures
10:15 - 10:45	Coffee break	
10:45 - 12:30	Section 5: Contractual relations and risk management	Section 1: Design and construction of under- ground structures
	Selected Lectures	
12:30 - 12:45	Conference Conclusion	
12:45 - 14:30	Lunch	
14:30 - 15:30	General Assembly STA	
Wednesday 23.10.2024		
09:00 - 13:30	Excursions	



Detailed Programme

Monday 21.10. 2024

Conference hall 1

10:00-10:30 **Opening of the conference**

10:30-12:30 **Keynote Lecture**

Filip Macháček, Národná diaľničná spoločnosť, a.s.

Miloslav Frankovský, Slovenská tunelárska asociácia

Lise Praestegaard, Lorenzo Martelli, European Investment Bank, JASPERS

Vladimír Benko, Slovenská komora stavebných inžinierov

12:30-14:00 **Lunch**

Conference hall 1

14:00-15:45 **Section 1: Design and construction of underground structures**

Chairmen: Róbert Zwilling, Peter Bóna

Urban Highway Lids: Benefits, Safety Considerations and Methodologies
Petr Pospíšil

Criteria Influencing the Design of Roadway Structures in Road Tunnels
Andrea Zuzulová

Road Gallery at VMO Žabovřeská in Brno
Miroslav Lipka

Specific problems of the Čebrať tunnel construction
Peter Bóna

Planned tunnels on the Libeňská spojka route in Prague
Michal Uhrin

Construction of the TD-1 and TD-2 tunnels of the S1 expressway in Poland
Peter Manda



Conference hall 2

14:00-15:45 Section 3: Geotechnical investigation and monitoring

Chairmen: Michal Kubiš, Soňa Masarovičová

New Generation of Eurocodes - Design Principles for Geotechnical Structures
Jan Pruška

Engineering geological and geotechnical conditions found during the tunneling of the TD2 tunnel on the construction of the S1 expressway "Węgierska Górka bypass", Poland
Stanislav Szabo

The use of non-destructive technologies in tunnel diagnostics.
Viktor Setnický

The role of carottage in IG surveys of tunnels and underground structures in general
Martin Procházka

Practical experience and new trends in geodesy used in tunnel construction in Slovakia
Miroslav Krupec

15:45-16:15 Coffee break

Conference hall 1

16:15-18:00 Section 6: Sustainability in underground construction

Chairwomen: Viktória Chomová, Jana Frankovská

Implementation of ESG principles in tunnel construction
Lukáš Ferkl

Sustainability In Underground Construction - Musameer Pumping Station & Outfall Tunnel, Doha – Qatar
Pavel Zuzula

Deep Geological Storage Sites for Energy and Environmental Purposes
Jana Frankovská

How the construction of D1 Turany - Hubová will affect the regime of groundwater, surface water and water resources in the Kopy and Havrana massif
Daniela Sklenářová

Bikoš Tunnel - the first Slovak motorway tunnel with high-efficiency LED lighting: Maximising safety and sustainability in tunnel construction
Juraj Zaťko



Conference hall 2

16:15-18:00

Section 4: Technical equipment and operation of underground structures

Chairmen: Jaroslav Štrba, Ľuboš Rojko

Tunnel power and backup power - experience, advantages and disadvantages from operating tunnels
Jaroslav Štrba

Národná diaľničná spoločnosť as a basic service operator
Miroslav Svec

Acoustic detection system
Rudolf Prochádzka

Use of UTO video surveillance and video detection - automatic incident detection system in traffic in motorway tunnels in Slovakia
Pavel Vrbičan

From Branisko to the present, changes and developments in tunnel ventilation
Štefan Zeleňák

19:00-23:00

Conference dinner



Detailed Programme

Thursday 22.10. 2024

Thursday 22.10.2024

Conference hall 1

09:00-10:15 **Section 4: Technical equipment and operation of underground structures**

Chairmen: Jaroslav Štrba, Igor Jamnický

10 years of operation of the Tunnel Control Simulator

Peter Danišovič

Emergency services exercises in road tunnels

Marek Flimel

Fire hydrants as a tool to ensure safety in traffic tunnels

Ján Zajac

Technological equipment in tunnels vs. Fire safety in tunnels

Gabriela Vaňová

Conference hall 2

09:00-10:15 **Section 2: Sanitation reconstruction of underground structures**

Chairmen: Ján Kušník, Jan Pruška

Reconstruction and Extension of the Arosa Tunnel in Switzerland

Veronika Kočíčková

Restoration and renewal of the coating in the Bôrik and Horelica road tunnels

Martin Špod

Addition of road tunnels to form a complex tunnel system using the Gotthard Tunnel as an example

Pavol Olejník

Reconstruction of Bratislava Tunnel No. 2

Lukáš Zatkuliak



10:15-10:45

Coffee break

Conference hall 1

10:45-12:30

Section 5: Contractual relations and risk management

Chairmen: Miloslav Frankovský, František Očkaják

Management of uncertainties in tunnelling

Robert Galler

Is the Slovak public procurement construction environment ready for risk management according to international standards?

Ondřej Vaněček

Presentation of the FIDIC Emerald Book

Michal Uhrin

Procurement of tunnel projects in the Czech Republic and Austria

Martin Srb

Current status of tunnelling projects in Poland

Rafał Kuszyk

Selected experiences from the optimization of motorway tunnel routing

Stefan Choma

Conference hall 2

11:00-12:30

Section 1: Design and construction of underground structures

Chairmen: Tibor Bielokostolský, Ivan Michale

R4 Prešov - northern bypass stage II - Okruhliak tunnel

Ján Boltvan

Optimisation of the technical design of the Okruhliak Tunnel

Róbert Zwilling

Advance Design of Traffic Tunnels at Václav Havel Airport

Roman Saly

Gallery as a part of stability measures of the landslide area of a part of the construction D1 Hubová - Ivachnová

Mojmír Štefanec

Planned tunnel constructions on D35 - Dětřichov Tunnel

Marcel Poštek

Selecting the optimal route for the railway tunnel in the centre of Prague

Zděnek Žižka



- 12:30-12:45** **End of conference**
- 12:45-14:30** **Lunch**
- 14:30-15:30** **General Assembly STA**

Thursday 22.10.2024

Wednesday 23.10. 2024

9:00-13:30 **Technical excursions**

- Čebrať Tunnel under construction, D1 Hubová - Ivachnová Motorway
- Okruhliak Tunnel under construction, R4 Expressway Prešov - northern bypass, Stage II
- Branisko motorway tunnel in operation and SSÚD Beharovce

Wednesday 23.10.2024



List of posters

- 1/ Special foundation work in the construction of tunnels with shallow overburden**
Daniela Piliarová, Václav Račanský
- 2/ SIISEL, information system for geomonitoring - the next step towards digitalisation in construction**
Ondřej Kostohryz
- 3/ Problems of rock mass quality assessment of flysch rocks on the example of the Ovčiarско tunnel**
Michal Kubiš
- 4/ Ecoduct D3 Green Bridge Svrčinovec**
Mojmír Štefanec
- 5/ Application of new technology in the construction of metro D using a new ternary binder**
Pavel Růžička
- 6/ Čebрат Tunnel - Design solution and implementation**
Peter Čulík
- 7/ Optimisation of the construction-technical design of the Višňové tunnel in response to new requirements and technical challenges**
Peter Paločko
- 8/ Okruhliak tunnel on R4 Prešov northern bypass stage II is being implemented**
Ján Boltvan
- 9/ Construction of the TD-1 and TD-2 tunnels of the S1 expressway in Poland**
Peter Máša
- 10/ Cable crossings on NDS tunnels**
Miroslav Hollý



Excursions

During the third day of the conference, excursions will be made to ongoing tunnel construction in the vicinity of the conference venue and to the tunnel in operation, including a visit to the operator's workplace.

Excursion 1

D1 motorway Hubová - Ivachnová

Čebrať tunnel - installation of technological equipment

Excursion 2

Expressway R4 Prešov - northern bypass, stage II

Okruhliak tunnel - stamping of tunnel tubes

Excursion 3

Branisko motorway tunnel in operation and SSÚD Beharovec operator's workplace

Please wear sturdy footwear and clothing, personal protective equipment will be provided by the construction site.

Čebrať Tunnel

The Čebrať Tunnel is part of the D1 Hubová - Ivachnová section of the motorway. The tunnel has two tunnel tubes with a length of 3,680 m and was conventionally bored according to the principles of the New Austrian Tunnelling Method.

During the first years of construction, significant geotechnical problems appeared in the route of the motorway outside the tunnel - landslides, which significantly affected the construction of the tunnel in terms of their extent. The additional identification of a large landslide area with shear areas at great depth resulted in the rerouting of the motorway and its diversion into the mountainside with the extension of the tunnel to its current length. The Čebrať tunnel and the Višňové tunnel will be the first Slovak double-tube motorway tunnels with a length of more than 3 km with longitudinal ventilation.



Currently, the tunnel is undergoing works on the laying of the roadway with a cement concrete cover, as well as the installation of technological equipment in both tunnel tubes.

Okruhliak Tunnel

After successfully completing and putting Prešov and Bikoš tunnels in operation,, the construction of the Okruhliak tunnel with a length of 1913 m started in September 2023. It is thus the third road tunnel on the bypasses of the third largest Slovak city Prešov. The tunnel is a part of the proposed expressway R4 Prešov - northern bypass II. stage km 4.3 - 14.5, which is a part of the north-south transport connection by the expressway in the section of the state border of Slovakia/Poland - Vyšný Komárnik - Milhošť - state border of Slovakia/Hungary.

Both tunnel tubes of the Okruhliak tunnel are currently being coined from the western portal. The expected conditions of the rock mass include the occurrence of swelling minerals in the route of the tunnel tubes.

Branisko Tunnel

The Branisko Tunnel was the first Slovak motorway tunnel put into operation in 2003. With a length of 4975 m it is still the longest motorway tunnel in Slovakia. The tunnel is located on the D1 motorway, in the section between the towns of Poprad and Prešov.

The tunnel is built and operated with one tunnel tube with two-way traffic. The safety system of the tunnel is supplemented by a parallel escape tunnel connected to the tunnel tube by transverse links. Due to the length of the tunnel and the two-way traffic, a semi-transparent ventilation system with smoke extraction in case of fire through flaps in the intermediate tunnel was designed for the tunnel. A ventilation shaft located approximately 2 km from the western portal is used to extract polluted air or smoke in the event of a fire.

The excursion will also include a visit to the integrated control room for the Branisko Tunnel, located at the Beharovce Administration and Maintenance Centre.



Instruction for speakers

In order to avoid technical problems, we kindly ask you to submit your presentation no later than Friday 18 October 2024 by 12:00, as we will process the presentations further. All presentations will be run by our technician, so it will not be possible to use your own laptop.

There will be a room available in the Hunting Lounge downstairs for speakers during the conference, where you can go through the presentation or prepare in peace.

During your presentation you will have a remote control to control the presentation. On site technician will show you how to operate the controls during the break. If you do not wish to use the remote control, arrangements can be made with onsite technician to scroll through the slides of the presentation on your verbal instruction. There will also be a countdown timer during the presentation, please keep to the time limit. After the presentation there will be an opportunity to ask questions via Slido.

Wifi: Hotel_Patria_Congress

Password: Patria7755+

Opening hours of the Speakers' Room

Monday 21.10.2024	08:00-18:00
Tuesday 22.10.2024	08:00-13:00

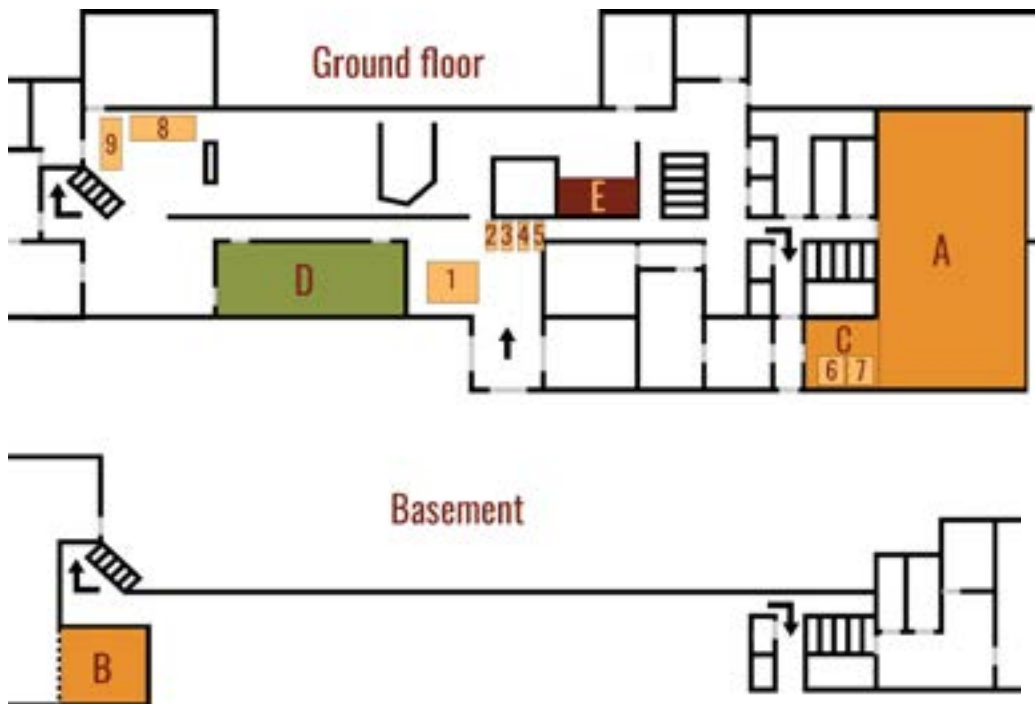
Instructions for posters

Posters will be on display in the Congress Lounge for the duration of the conference. The Lounge will be open from Monday 21.10.2024 from 9:00 to 22.10.2024 until 13:00.

Poster presentations are available during the coffee breaks, if desired.



Exhibition



1/ Národná diaľničná spoločnosť

2/ K-Ten KOVO, s.r.o.

3/ KrampeHarex CZ s.r.o.

4/ Minova Bohemia s.r.o.

5/ ADIKO SK, s.r.o.

6/ Minroc

7/ HGS GROUP

8/ Doprastav, a. s.

9/ Dopravoprojekt, a. s.

A/ Conference hall 1

B/ Conference hall 2

C/ Posters

D/ Room for speakers

E/ Registration



Expo partners



Gonar-Bis Sp. z o.o. is a Polish company with a global presence. It focuses on the production of more than 3,000 tools and equipment for the mining industry, including coal mine tunnels and quarries.



HGS GROUP offers comprehensive solutions in geotechnics, hydrotechnics, hydrogeology, and construction. We have been involved in over 1000 different projects in Poland for both domestic and foreign clients.



KrampeHarex is engaged in the production of dispersed concrete reinforcement. Main products include steel fibers for shotcrete and precast segments as well as polypropylene fibers for fire resistance of concrete.



K-Ten KOVO, Ltd.: We are experts in the manufacture of truss reinforcement for tunnels, rebar for piles, welded rebar for foundations, and bending rebar for concrete. We supply, cut and bend atypical carriages.



MINOVA is one of the leading suppliers of anchoring equipment, grouting materials, grouting and drilling equipment for tunnelling, geotechnics and civil engineering.



Pod záštitou



S podporou



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Partneri



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