AUSPICES

The conference “Underground Construction Prague 2019” is held under the auspices of the Deputy Mayor of Prague, Adam Scheinherr.

SUPPORTING ORGANIZATIONS

GENERAL INFORMATION ABOUT THE CONFERENCE

Conference name:  Underground Construction Prague 2019
Conference date:  June 3–5, 2019
Conference venue:  Clarion Congress Hotel Prague
Freyova 33, Prague 9 – Vysočany
metro station Vysočanská (line B)
Phone: +420 211 131 111
www.cchp.cz

Official languages:  English and Czech/Slovak. Simultaneous translation will be provided.

CONTACTS

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INVITATION

The ITA-AITES Czech Tunnelling Association cordially welcomes you to 14th International Conference entitled “Underground Construction Prague 2019”, which is held in Prague, the capital of the Czech Republic, June 3–5, 2019. The conference is endorsed by the International Tunnelling and Underground Space Association (ITA-AITES).

This international conference is one of the series of conferences “Underground Construction Prague”, which are held regularly every three years.

Participants of past conferences enjoyed the scientific programme, venue and social programme. The conferences have been attended by distinguished international experts in the field and we look forward to prominent guests also in 2019. For these reasons, “Underground Construction Prague” can be considered as one of the key events of 2019 in the discipline of underground construction.

The joint conference will be held at the Clarion Congress Hotel Prague and will include a technical exhibition and a poster session.

We are looking forward to your active participation and exchange of new information and experience.

Ivan Hrdina
Chairman CzTA ITA-AITES, z. s.

Dr. Alexandr Butovič
Chairman of the Preparatory Committee

Prof. Matouš Hilar
Chairman of the Scientific Council
PREPARATORY COMMITTEE AND SCIENTIFIC COUNCIL

Chairman of the Preparatory Committee:
Dr. Alexandr Butovič – SATRA, spol. s r.o.

Chairman of the Scientific Council:
Prof. Matouš Hilar – 3G Consulting Engineers s.r.o.

International members:
Ioannis Bakogiannis, Greece
Dr. Nick Barton, Norway
Prof. Adam Bezuiven, Belgium
Prof. Tarcisio B. Celestino, Brazil
Heinz Ehrbar, Switzerland
Søren Degn Eskesen, Denmark
Miloslav Frankovský, Slovak Republic
Dr. Vojtech Gall, United States of America
Dr. Robert Galler, Austria
Dr. Tibor Horvath, Hungary
Martin Knights, United Kingdom
Dr. Davorin Kolic, Croatia
Prof. Jakob Likar, Slovenia
Dr. Monika Mitew-Czajewska, Poland
Prof. Charles W. W. Ng, Hong Kong
Prof. Frederic L. Pellet, France
Prof. Wulf Schubert, Austria
Prof. Markus Thewes, Germany
Prof. Giulia Viggiani, Italy
Prof. Shahab Yasrobi, Iran
Prof. Bai Yun, China

Local Members:
Prof. Josef Aldorf – Technical University in Ostrava
Prof. Jiří Barták – Czech Technical University in Prague
Dr. Jaroslav Beňo – Metrostav a.s.
Dr. Eva Hrubešová – Technical University in Ostrava
Libor Mařík – HOCHTIEF CZ a. s.
Dr. David Mašín – Charles University in Prague
Miroslav Novák – METROPROJEKT Praha a.s.
Miloslav Novotný
Dr. Jan Pruška – Czech Technical University in Prague
Dr. Markéta Prušková – CzTA ITA-AITES, z. s.
Lukáš Rákosník – SATRA, spol. s r.o.
Dr. Alexandr Rozsypal
Dr. Pavel Růžička – HOCHTIEF CZ a. s.
Petrá Smejkalová – GUARANT International, spol. s r.o.
Jiří Smolík
Dr. Martin Srbl – 3G Consulting Engineers s.r.o.
Boris Šebesta – Metrostav a.s.
Dr. Richard Šňupárek – Institute of Geonics AS CR, v.v.i.
Dr. Václav Veselý – SG Geotechnika a.s.
Jaromír Zlámal – POHL cz, a.s.
CONFERENCE SCHEDULE

Monday, June 3, 2019
09:00–09:15  Opening Ceremony
09:15–10:25  Keynote Lectures I and II
10:25–10:50  Coffee break
10:50–12:00  Keynote Lectures III and IV
12:00–13:30 Lunch
13:30–15:30 Parallel Panel discussion and Session 5
15:30–16:00 Coffee break
16:00–18:00 Parallel Sessions 1 and 3
20:00–23:00 Conference dinner at the Břevnov Monastery

Tuesday, June 4, 2019
08:30–10:30 Parallel Sessions 2 and 7
10:30–10:50 Coffee break
10:50–12:30 Parallel Sessions 4 and 5
12:30–14:00 Lunch
14:00–16:00 Parallel Sessions 1 and 6
16:00–16:30 Coffee break
16:30–18:30 Parallel Sessions 3 and 4

Wednesday, June 5, 2019
08:00–14:00 Technical Excursions

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DETAILED PROGRAMME

MONDAY, JUNE 3, 2019

HALL ZENIT + NADIR
09:00–09:15 Opening Ceremony

09:15–10:25 Keynote Lectures I and II
Chairs: Matouš Hilar, Alexandr Butovič

09:15–09:50 Luděk Sosna (Czech Republic)
Tunnel construction on state transport infrastructure

09:50–10:25 Milan Majer (Czech Republic)
Tunel Ejpovice – experience from the preparation and construction of the longest Czech railway tunnel

10:25–10:50 Coffee break

10:50–12:00 Keynote Lectures III and IV
Chairs: Matouš Hilar, Alexandr Butovič

10:50–11:25 Konrad Bergmeister (Austria)
The longest underground structure in the world – Brenner Base Tunnel

11:25–12:00 Vojtech Gall (United States of America)
The Gateway Program – the Hudson River tunnel project in New York, New Jersey

12:00–13:30 Lunch
13:30–15:30 Parallel Panel discussion and Session 5

HALL ZENIT Panel discussion: Preparation and construction of long railway tunnels

Chairs: Heinz Ehrbar, Konrad Bergmeister, Martin Srb

Construction of two high-speed railway tunnels with length exceeding 20 km is planned in the Czech Republic (tunnel Prague – Beroun on the tract Prague – Nürnberg and Ore mountain base tunnel on the tract Prague – Dresden). International experts with experience from similar projects will discuss relevant topics.

13:30–13:50 Invited Lecture:
Heinz Ehrbar (Switzerland)
Selection of the optimum tunnel system for long railway tunnels with regard to the entire lifecycle

13:50–14:10 Jiří Zmítko (Czech Republic) / Sabine Kulikov (Germany):
Geological and geotechnical problems of the cross-border base tunnel under Ore Mountains on Dresden – Prague high speed railway

14:10–15:30 Panel discussion:
Martin Srb (Czech Republic) – moderator
Konrad Bergmeister (Austria) – head of the Brenner base tunnel
Heinz Ehrbar (Switzerland) – former head of the Gotthard base tunnel
Hans-Peter Vetsch (Switzerland) – former head of safety and operation of the Gotthard base tunnel
Gerhard Harer (Austria) – former head of the Koralm base tunnel
Sabine Kulikov (Germany) – the Ore Mountain base tunnel preparation

HALL NADIR Session 5 – Numerical modelling, BIM, research and development

Chairs: Shahab Yasrobi, Eva Hrubešová, David Mašín

13:30–13:50 Robert Galler (Austria): Underground energy storage by advanced adiabatic compressed air

13:50–14:10 Agustin Ruiz Lopez (United Kingdom): Structural assessment of a segmental grey cast iron ring under typical distortion levels caused by nearby tunnelling

14:10–14:30 Maciej Ochmański (Poland): A numerical study of the effects of lining imperfection in EBP tunnelling

14:30–14:50 Janosch Stascheit (Germany): Application of building information modelling in a tunnelling project and the data exchange with a process controlling software

14:50–15:10 Jiří Platil (Czech Republic): Use of the BIM method in designing new Prague metro D-line stations

15:10–15:30 Marko Andrejašič (Slovenia): Particularities of tunnel primary support modeling in BIM environment
15:30–16:00 Coffee break

16:00–18:00 Parallel Sessions 1 and 3

**HALL ZENIT** Session 1 – Conventionally excavated tunnels

*Chairs: Davorin Kolic, Libor Mařík, Pavel Růžička*

16:00–16:20 **Invited Lecture:** 
Robert Galler *(Austria)*
Challenges during tunnel construction of the underground research center ZAB – Zentrum am Berg

16:20–16:40 **Invited Lecture:** 
Davorin Kolic *(Croatia)*
New railway Divaca-Koper: project development

16:40–17:00 Michele Palomba *(Italy)*: The Aguas Santas tunnel: Design and construction aspects of the widest road tunnel in Portugal

17:00–17:20 Aleš Gothard *(Czech Republic)*: Underground railway tunnels and station of Espoo–Helsinki, Finland

17:20–17:40 Mario Golger *(Austria)*: Granitz Valley tunnel chain – Longest tunnel system of the Koralm railway on the Carinthian side

17:40–18:00 Christoph Deporta *(Austria)*: Brenner Base Tunnel: Jet grouting for Isarco river underpass

**HALL NADIR** Session 3 – Other underground structures, repositories, reconstructions and history

*Chairs: Martin Knights, Richard Šňupárek, Jan Pruška*

16:00–16:20 Jim Rozek *(United States of America)*: Utilizing tunnels to create green space in US urban areas

16:20–16:40 Takao Kono *(Japan)*: Deep excavation work close to the shield tunnel

16:40–17:00 Kamil Bednařík *(Czech Republic)*: Underground railway on the Praha-Výstaviště – Praha–Veleslavín section

17:00–17:20 **Invited Lecture:** 
Martin Knights *(United Kingdom)*
Future of tunnelling: influences, enablers and needs

17:20–17:40 Aristotelis Caravanas *(Bangladesh)*: Karnaphuli road tunnel project in Bangladesh

17:40–18:00 Özgen Kökten *(Turkey)*: 30 m deep excavation braced by diaphragm wall and struts in soft organic clay
TUESDAY, JUNE 4, 2019

08:30–10:30 Parallel Sessions 2 and 7

HALL ZENIT Session 2 – Mechanically excavated tunnels
Chairs: Michael Mooney, Boris Šebesta, Karel Rössler

08:30–08:50 Invited Lecture:
Dymitr Petrow-Ganew (Germany)
Current developments of mechanized tunnelling technology for variable ground conditions

08:50–09:10 Invited Lecture:
Michael Mooney (United States of America)
Artificial intelligence and physical model based performance prediction of EPBM shield tunneling

09:10–09:30 Estelle Claeys (France): Singapore metro – Thomson line – contract T219: Innovations on orchard station and tunnels

09:30–09:50 Štefan Ivor (Czech Republic): Construction of the Ejpovice tunnels

09:50–10:10 Michael Proprenter (Austria): Semmering Base Tunnel

10:10–10:30 Gary Peach (United Kingdom): TBMs: Meeting four challenges in Pakistan’s Lower Himalayas

HALL NADIR Session 7 – Risk management, contractual relationships and funding
Chairs: Ioannis Bakogiannis, Martin Srb, Jaroslav Beňo

08:30–08:50 Martin Knights (United Kingdom): Current procurement of UK tunnelling projects

08:50–09:10 Martin Srb (Czech Republic): Risk management during headrace tunnel reconstruction in Turkey

09:10–09:30 Eugenio Zoppis (Italy): The ground risk under the contracts and the geotechnical baseline reports

09:30–09:50 Invited Lecture:
Ioannis Bakogiannis (Greece)
Design and construction experience of road tunnels with concession contracts

09:50–10:10 Peter Paločko (Slovak Republic): Single tube or none tunnel? Right reasoning matters

10:10–10:30 Ivo Vykydal (Czech Republic): The future of transport construction is in collaboration and digitization – but how to choose the best construction supplier?
10:30–10:50 Coffee break

10:50–12:30 Parallel Sessions 4 and 5

HALL ZENIT  Session 4 – Geotechnical investigation and monitoring
Chairs: Wulf Schubert, Alexandr Rozsypal, Václav Veselý

10:50–11:10 Lina Maria Guayacán-Carrillo (France): Time-dependent behavior of a drift over-excavated in callovo-oxfordian claystone

11:10–11:30 Jiří Svoboda (Czech Republic): Interaction physical models at the Bukov URF

11:30–11:50 Vladimír Nosek (Czech Republic): Tunnel Ejpovice – the automatic monitoring system for measuring deformations

11:50–12:10 Invited Lecture: Wulf Schubert (Austria)
Recent developments in face mapping and tunnel health monitoring

12:10–12:30 Tobias Cordes (Austria): On the prediction of the longitudinal displacement profile of a stretch of the Brenner Base Tunnel – Analytical, experimental and numerical approaches

HALL NADIR  Session 5 – Numerical modelling, BIM, research and development
Chairs: Bai Yun, Eva Hrubešová, David Mašín

10:50–11:10 Invited Lecture: Bai Yun (China)
Development of deep underground space in Shanghai

11:10–11:30 Invited Lecture: Shahab Yasrobi (Iran)
Facing the challenges and the elaborations in the design and construction of a complex urban tunnel – case study of Arash-Esfandiar-Niayesh tunnel

11:30–11:50 Franz Tschuchnigg (Austria): Rodundwerk I – Finite element analysis and design

11:50–12:10 Janosch Stascheit (Germany): Combined analytical-numerical face stability calculations for underwater tunnels

12:10–12:30 Pengjiao Jia (China): Study on behaviour of ground surface settlement during construction of adit tunnel in Changchun, China
14:00–16:00 Parallel Sessions 1 and 6

HALL ZENIT  Session 1 – Conventionally excavated tunnels
Chairs: Vojtech Gall, Libor Mařík, Pavel Růžička

14:00–14:20  Jan Korejčík (Austria): Rohtang highway tunnel, NATM experience in Himalayas
14:20–14:40  Jiří Patzák (Germany): Tunel Spitzenberg, A44, Germany
14:40–15:00  Jan Vesely (Switzerland): Passage under Löstavägen at bypass Stockholm – Tunnelling in mixed face conditions
15:00–15:20  Lukáš Krotíl (Germany): Albvorland Tunnel – excavations on the edge of technical possibilities of the NATM and BIM as challenge for designers
15:20–15:40  Ján Kušnir (Slovak Republic): Construction of new railway tunnels of Diel and Milochov
15:40–16:00  Marcel Poštek (Czech Republic): Underground structures of Brno-Prerov railway upgrade, Package 2

HALL NADIR  Session 6 – Equipment, operational safety and maintenance
Chairs: Bernhard Kohl, Hans-Peter Vetsch, Lukáš Rákosník, Miroslav Novák

14:00–14:20  Invited Lecture: Bernhard Kohl (Austria)
Prevention and mitigation of tunnel related collisions

14:20–14:40  Invited Lecture: Hans-Peter Vetsch (Switzerland)
The Gotthard Base Tunnel: safety challenges in long tunnels and consequences for operations

14:40–15:00  Petr Pospisil (Switzerland): Tunnel ventilation – the key to increase safety and save time and costs
15:00–15:20  Paola Clerici (Italy): Automatic Incident Detection software: how video analytics can improve the traffic management of roads and tunnels. Case study: Svrčinovec, Polana, Zilina and Ovciarsko tunnels
15:20–15:40  Alexandr Butovič (Czech Republic): The Blanka tunnel complex – the environmental impact of the construction
15:40–16:00  František Rainer (Czech Republic): Optimization of tunnel traffic control and training of tunnel operators

16:00–16:30 Coffee break
16:30–18:30 Parallel Sessions 3 and 4

HALL ZENIT  Session 3 – Other underground structures, repositories, reconstructions and history
Chairs: Monika Mitew-Czajewska, Richard Šňupárek, Jan Pruška

16:30–16:50 David Krása (Czech Republic): Prague metro line D – an important underground project before starting the implementation

16:50–17:10 Michele Palomba (Italy): Design aspects of İçerenköy station’s main shaft along the Istanbul metro Dudullu-Bostancı

17:10–17:30 Benoit De Rivaz (Belgie): Characteristics of steel and polymer based fibre concrete

17:30–18:10 Jiří Barták (Czech Republic): Oldest European metro system originated in the 19th century

18:10–18:30 Michal Uhrin (Czech Republic): Design of a structural box outset for a road tunnel in Pilsen

HALL NADIR  Session 4 – Geotechnical investigation and monitoring
Chairs: Gerhard Harer, Alexandr Rozsypal, Václav Veselý

16:30–16:50 Lubos Misak (Switzerland): Application of GPR technology in tunnels and other underground structures

16:50–17:10 Radovan Kukutsch (Czech Republic): Possibilities of using 3D laser scanning in geotechnical practice

17:10–17:30 Ajay Naithani (India): Rock mass characterization and support system for underground pump house cavern – a case study, India

17:30–17:50 Milan Kössler (Czech Republic): Geotechnical monitoring during the excavation of the portals and mining of the Deboreč tunnel on the 4th railway corridor

17:50–18:10 Peter Löwy (Slovak Republic): Real-time tunnel deformation monitoring using fiber-optic FBG sensing systems

18:10–18:30 Hamed Jassim (Iraq): Portal landslide analysis of the New Habat Sultan tunnels in Koya, Kurdistan region, Iraq

POSTER SESSION

The poster session is located in the Tycho hall where a board for each poster can be found.

Poster section will be open:

Monday, June 3, 2019  08:00–18:00
Tuesday, June 4, 2019  08:00–18:30
TECHNICAL EXCURSIONS

The conference participants can choose from five site visits to the underground structures in and around Prague organized on Wednesday morning, June 5, 2019.

English interpretation of all excursions will be provided for foreign participants.

**Excursion A – Tunnels Sudoměřice – Votice**
Departure from Clarion Congress Hotel at 8:00.

**Excursion B – Josef Underground Educational Centre**
Departure from Clarion Congress Hotel at 8:00. We recommend sturdy footwear and warm clothing for the trip underground (constant temperature of +8 °C).

**Excursion C – City of Prague Urban Traffic Control Centre (UTCC Prague)**
Tour participants are to meet at 9:00 in front of the UTCC building.

**Excursion D – Richard Radioactive Waste Repository**
Departure from Clarion Congress Hotel at 8:00.

**Excursion E – Rudolph Adit + Old Wastewater Treatment Plan**
Departure from Clarion Congress Hotel at 8:00.

CONFERENCE DINNER

Date: June 3, 2019  
Venue: Břevnov Monastery, Markétská 1, Prague 6  
Time: 20:00

Admission to this dinner is part of the registration fee of the conference. A ticket for an accompanying person can be bought extra.
TECHNICAL EXHIBITION

The exhibition is located in the foyer of the congress floor and in the Meridian hall, and will be open as follows:

**Monday, June 3, 2019**
08:00–18:00

**Tuesday, June 4, 2019**
08:00–18:30
### Registration

The registration desk is located **on the congress floor of the Clarion Congress Hotel Prague (3rd floor)** and will be open as follows:

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td>Sunday, June 2, 2019</td>
<td>14:30–17:30</td>
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<tr>
<td>Monday, June 3, 2019</td>
<td>08:00–18:00</td>
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<tr>
<td>Tuesday, June 4, 2019</td>
<td>07:30–18:30</td>
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</tbody>
</table>

### Speakers’ Ready Room

All speakers are kindly asked to provide their presentation in electronic version in the Speakers’ Ready Room which is located **in the Quadrant hall**.

Please come to the Speakers’ Ready Room at least 1,5 hours before the beginning of your session. In case your speech has been scheduled for morning session, come to the Speakers’ Ready Room the day before your presentation. It will be open as follows:

<table>
<thead>
<tr>
<th>Day</th>
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<td>Tuesday, June 4, 2019</td>
<td>07:30–18:00</td>
</tr>
</tbody>
</table>

### Official languages of the Conference

English and Czech / Slovak.

### Translation

All presentations will be simultaneously interpreted to Czech and English.

### Internet

Free Wi-Fi connection will be provided in the main foyer of the Clarion Congress Hotel Prague (3rd floor) and in the Meridian hall where the internet corner is located.

### Coffee breaks

Coffee breaks will be served in the foyer and in the Meridian hall where the exhibition is located.

### Lunches

Lunches for registered participants will be served in Veduta restaurant on the 2nd floor of the hotel.

### Parking

The Clarion Congress Hotel Prague offers underground garages of the Fénix shopping center with capacity of 600 lots. The parking fee is not included in the registration fee.

### Certificate of Attendance

Upon request, the Certificate of Attendance in electronic version will be send after the conference.
CONFERENCE PARTNERS

The Czech Tunnelling Association ITA-AITES and the organizers of the 14th International Conference Underground Construction Prague 2019 would like to thank conference partners for their support.

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