



11th International Conference
Tunnel Safety and Ventilation
Graz, May 9-10, 2022

ROAD TUNNELS

RAILWAY TUNNELS

METRO TUNNELS

ALTERNATIVE PROPULSION SYSTEMS

Location:

Messecongress Graz

Messeplatz 1, 8010 Graz, Austria

Status 2022-05-02

About us

Graz University of Technology



As the name suggests, Graz University of Technology is located in the center of Graz, the second biggest city in Austria. With eight institutions of higher education, Graz is a real student city and is regarded as one of the cities of Europe with the highest quality of life. "Science - Passion - Technology" is the guiding principle for research and teaching in all technological and scientific disciplines at TU Graz. The internationally recognized scientific strengths are covered by five Fields of Expertise. TU Graz is dedicated to work closely with well-known scientific institutions and businesses in Austria and abroad. Successful teams of students, talented up-and-coming scientists, ambitious researchers and a lively start-up scene enjoy an inspirational environment as well as access to top-quality equipment.

Institute of Thermodynamics and Sustainable Propulsion Systems



The Institute of Thermodynamics and Sustainable Propulsion Systems at Graz University of Technology is dedicated to providing innovative and internationally recognized teaching and research in the interconnected system energy, engines, traffic and environment and to contributing to the solution of problems that affect the environment.

Research Area Traffic and Environment



Focus of the Research Area Traffic and Environment is placed on ventilation, fire safety and environmental issues concerning road and rail tunnels. Activities here entail undertaking theoretical investigation, system design, onsite testing of ventilation and safety systems, and performance of fire and systems tests. An additional focus is placed on urban air quality, pollution dispersion and air quality measurements, including an accredited measurement laboratory for measuring particles of the fractions PM_{10} and $PM_{2.5}$ as well as the pollutants NO_x , NO and O_3 .



Exhibition - Participating Companies



Monday, May 09, 2022

Hall "Styria"

09:00

Opening P. Sturm | TU Graz, ATH. Eichlseder | TU Graz, Head of ITnA, ATH. Kainz | TU Graz, Rector, AT

09:25

Current status of the two major tunnel projects, Koralm Tunnel and Semmering Base Tunnel, along the new Südbahn Railway line

H. Steiner, G. Gobiet | ÖBB Infrastructure AG, AT

09:50

Road infrastructure and sustainability - how do they fit together?

A. Fromm | ASFINAG Bau Management GmbH, AT

10:15

Tunnel Ventilation and UN 2030 Sustainability Goals – we have a story to tell

A. Dix | ALARP Consulting, AU

10:40

Coffee Break at Trade Show sponsored by AQUASYSChaired by Sonja Wiesholzer | Austrian Federal Ministry for Climate Protection, AT

11:25

Current status of the work in PIARC's technical committee 4.4 „Tunnels“

I. Kaundinya | BAST, PIARC, DE

11:50

Tunnel performance tests

G. Rattei | ASFINAG, AT

12:15

NFPA 502: A report on standard updates and activity

N. Harvey | Mott MacDonald, US

12:40

Lunch supported by the Mayor of Graz, Mrs. E. KahrChaired by Rune Brandt | HBI Haerter AG, CH

14:10

On smoke stratification in a 1-D tunnel ventilation model

I. Riess | Riess Ingenieur GmbH, CH

14:35

Numerical investigation of the Koralm tunnel fire tests using an autonomous meshing approach with adaptive mesh refinement

M. Vângö | Convergent Science GmbH, AT

15:00

CFD for tunnel smoke control – a model validation

M. Beyer | Stacey Agnew Pty Ltd, AU

15:25

Coffee Break at Trade ShowChaired by Antoine Mos | CETU, FR

16:10

Selection of a road tunnel ventilation system using VentSim software

M. Borowski | AGH University of Science and Technology, PL

16:35

On heat transfer coefficients and temperature distribution in longitudinally ventilated tunnel fires

M. Šekularac | University of Montenegro, ME

19:30

Conference Dinner supported by the Governor of Styria, Mr. H. Schützenhöfer

Hall "Graz"

Monday, May 09, 2022

Sponsored by:



Lunch supported by the Mayor of Graz, Mrs. E. Kahr

Chaired by Helmut Steiner | ÖBB Infrastructure AG, AT

Methodology for investigations on the tunnel climate in long railway tunnel - optimization of the design process for cross-passage cooling systems

D. Fruhwirt | Graz University of Technology, ITnA, AT

Empirical validation of seasonal 1D temperature predictions in a 9 km Nordic train tunnel E. Östblom | EQUA Simulation AB, SE

The piston effect test bench for the Grand Paris Express

E. Béraud | Eiffage Energie Système, FR

Coffee Break at Trade Show

Chaired by Günter Rattei | ASFINAG Service GmbH, AT

Every second counts – The safety of people and goods in tunnels. Best practice: innovative fire and security solution using the example of "Zentrum im Berg"

W. Lahner | Honeywell Life Safety Austria GmbH, AT

Rapid fire detection and notification using a dual thermal + optical camera

T. Matsumoto | Sohatsu Systems Laboratory Inc., JP

Experimental study on gender difference in mental stress and walking speed during tunnel fires

W. Li, M. Seike | Hiroshima University, JP

Conference Dinner supported by the Governor of Styria, Mr. H. Schützenhöfer

12:40

14:10

14:35

15:00

15:25

16:10

16:35

17:00

19:30

Tuesday, May 10, 2022

Hall "Styria"

09:00

*Chaired by Bernhard Kohl | ILF Consulting Engineers Austria GmbH, AT***On the accuracy of smoke propagation models in the context of tunnel risk analysis**
O. Heger | ILF Consulting Engineers, AT

09:25

Upgrade of the German Methodology for tunnel risk assessment
G. Mayer | BUNG GmbH, DE

09:50

Influence of alternative energy carriers on tunnel safety – a quantitative consequence Analysis
R. Schmidt | ILF Consulting Engineers, AT

10:15

The application of zone modelling in the risk analysis of tunnels with ARTU software
M. Fronterre | Cantene, IT

10:40

Coffee Break at Trade Show*Chaired by Ingo Kaundinya | BAST, PIARC, DE*

11:25

FIERCE: a cost benefit analysis for tunnel fire safety
M. Schepers | Jensen Hughes, BE

11:50

Influence of redundancy of tunnel ventilation systems on the availability of road tunnels
L. Pölzer | ILF Consulting Engineers, AT

12:15

Validation of a Model Road Tunnel using Fire Experiments Data
A. Klein | ISAC GmbH, DE

12:40

Lunch*Chaired by Ignacio Del Rey | TIPSA, ES*

14:10

Egress-doors in ÖBB railway tunnels - basics, decisions, recommendations
H. Steiner | ÖBB Infra, AT

14:35

Recommendations towards the standardization of the ventilation equipment in road tunnels
J. Suarez | INGENIERIC S.L, ES

15:00

An affordable & suitable alternative: LED Retrofit tunnel lighting
M. Keller | ASFINAG Bau Management GmbH, AT

15:25

Coffee Break at Trade Show*Chaired by Arnold Dix | ALARP Consulting, Barrister-at-Law, AU*

16:05

On the risk of a pressure vessel explosion inside road tunnels
J. Gehandler | RISE, SE

16:30

Determination of Aerodynamic Loads in Rail Tunnels using Measurements
J. Rodler | FVT mbH, AT

16:55

Increasing safety and security by using modern interdisciplinary approaches for underground facilities
N. Gegenhuber | Montanuniversität Leoben, AT

17:20

P. Sturm | **Closing Remarks**

Hall "Graz"

Tuesday, May 10, 2022

*Chaired by Norris Harvey | Mott MacDonald, US***Feasibility study into the implementation of zero flow tunnel ventilation in the schiphol kaagbaan tunnel**

H. Beljaars | HaskoningDHV Nederland B.V., NL

Ventilation in short tunnels as a risk mitigation measure: "A short tunnel can be as dangerous as a long one"

D. Benitez | INTEGRAL S.A, CO

Ventilation strategy and design of intertwining tunnelramps, Oosterweel Link Antwerp

T. Bouwhuis | Witteveen + Bos, NL

Risk-based ventilation design study for the La Linea tunnel

J. Rios Portilla | ILF Consulting Engineers, CO

Coffee Break at Trade Show*Chaired by Frederic Waymel | Egis, FR***Testing the thrust of jet fans in a wind tunnel**

W. Wegrzynski | ITB Building Research Institute, PL

Measurements and CFD calculations with a MoJet and a Conventional Jet Fan

F. Tarada | Mosen Ltd., UK

Best practice for selection of fan- and drive technology in tunnel ventilation applications

S. Frey | HBI Haerter AG, CH

Lunch***Coffee Break at Trade Show***

09:00

09:25

09:50

10:15

10:40

11:25

11:50

12:15

12:40

14:10

14:35

15:00

15:25

Conference Dinner

Date

Monday, May 09, 2022

We are pleased to invite you to the conference dinner supported by the Styrian Government

19:30 Schlossberg-Restaurant

Am Schlossberg 7, 8010 Graz

www.schlossberggraz.at



Evening event for Technical Visit

Date

Tuesday, May 10, 2022

Participation only in connection to Technical Visit

18:15 Departure from Messecongress Graz

21:30 Departure from "Kreuzwirt am Rosenberg"

Saumgasse 39, 8010 Graz

www.kreuzwirtamrosenberg.at



Technical Visit

Date

Wednesday, May 11, 2022

The Technical Visit will take place at the research facility Research@ZaB - "Zentrum am Berg". We are going to explore the interesting subsurface infrastructure there.

www.zab.at

08:45 **Departure** by bus from Messe Congress Graz

10:30 Arrival "**Zentrum am Berg**"

Lunch

Presentation

Visiting "**Zentrum am Berg**"

Fire Testing

Surface mining blasting at Erzberg

16:00 **Arrival** Graz (expected)



Please take care that we are entering a test site –
hence dirt cannot be avoided!

Safety equipment can be provided, however if possible please bring
your own personal safety equipment (PSE) with you.

Solid shoes are necessary.

For questions or further information please contact us via

tunnel-graz@ivt.tugraz.at

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General Information

Date

International Conference: May 09-10, 2022
 Technical Visit: May 11, 2022

Location

Messecongress Graz, Messeplatz 1, 8010 Graz, Austria

Conference Languages

English and German - Simultaneous translation

Conference Proceedings

Papers and/or presentations will be available for all participants

Scientific Director

Peter STURM
 TU Graz, Institute of Thermodynamics and Sustainable Propulsion Systems

Organizing Committee

Michael BACHER	ITnA - TU Graz, AT
Ivana CERINA	ITnA - TU Graz, AT
Patrik FÖSSLEITNER	FVTmbH, AT
Sabine MINARIK	ITnA - TU Graz, AT
Johannes RODLER	FVTmbH, AT

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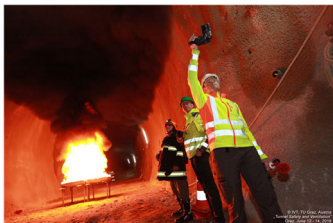
Scientific Committee

Ignacio Del Rey	TYPASA, ES
Arnold Dix	Barrister-at-Law, AU
Robert Galler	Montanuniversität Leoben, AT
Norris Harvey	Mott MacDonald, US
Ingo Kaundinya	BAST, AT
Bernhard Kohl	ILF Consulting Engineers Austria GmbH, AT
Antoine Mos	CETU, FR
Günter Rattei	ASFINAG Service GmbH, AT
Frédéric Waymel	Egis, FR
Sonja Wiesholzer	Austrian Federal Ministry for Climate Protection (BMK), AT
Rune Brandt	HBI Haerter AG, CH

WLAN-Access:

SSID: tunnelsafety Password: graz2022

This was 2018 ...



**This event is
organized by:**



Institute of Thermodynamics and
Sustainable Propulsion Systems



Graz University of Technology

**In cooperation
with:**



Austrian National Committee of the
World Road Association



Österreichische
Forschungsgesellschaft
Straße-Schiene-Verkehr

Endorsed by:





SAVE THE DATE

12th International Conference **Tunnel Safety and Ventilation** Graz, April 15-17, 2024

COVID19 - Recommendation for a secure conference

The safety of our participants is our top priority - we make every effort to ensure that all participants have a safe stay. We kindly ask you observe the usual hygiene measures and to keep distance wherever possible. If you are close to others please wear a FFP2 mask. Thank you for your understanding!