



UNIVERSITY OF NATURAL RESOURCES  
AND LIFE SCIENCES, VIENNA

**EUROSTRUCT 2023 - European Association  
on Quality Control of Bridges and Structures**

# **Digital Transformation in Sustainability**

**2<sup>nd</sup> Conference  
25-29<sup>th</sup> September 2023, Vienna**

**Editors:  
Alfred Strauss  
Konrad Bergmeister**

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# WELCOME TO EUROSTRUCT 2023

Life-cycle civil engineering relates to the design, inspection, monitoring, assessment, maintenance and rehabilitation of civil engineering structures in order that they meet long-term availability and sustainability requirements with particular emphasis on technical safety, efficiency and ecology throughout their lifetime. In addition, climate change currently presents the engineering industry with major challenges. In cooperation with all those involved, this far-reaching change towards a life-cycle-oriented planning and maintenance philosophy must be implemented quickly and efficiently. New definitions of performance parameters and performance levels over the entire life-cycle are necessary.

The contributions of EuroStruct 2023 will address the latest advances and cutting-edge research in the field of quality control and life-cycle management and include new concepts and innovative applications related to all of the aspects of the life-cycle management of structures and infrastructure systems.

The objective of EuroStruct is to promote international cooperation in the field of sustainable life-cycle civil engineering for the purpose of enhancing the welfare of society. The first such conference was held in Padova, Italy (August 29-September 1, 2021). The second will be held in Vienna at the University of Natural Resources and Life Sciences, September 25-29, 2023 and will bring together all the very best work going on in the field of sustainability and life-cycle civil engineering. 290 abstracts were submitted from more than 35 countries in the Call for Papers for EuroStruct 2023 of which 210 were selected for final publication as technical papers and for presentation. The areas addressed include aging of structures, deterioration modelling, durable materials, earthquake and accidental loadings, sustainability, fatigue and damage, structure-environment interaction, design for durability, failure analysis and risk prevention, lifetime structural optimisation, long-term performance analysis, performance-based design, service life prediction, time-variant reliability, uncertainty modelling, damage identification, field testing, health monitoring, inspection and evaluation, rehabilitation techniques, strengthening and repair, structural integrity, decision making processes, human factors in life-cycle engineering, life-cycle cost models, lifetime risk analysis and optimisation, whole life costing, artificial intelligence methods, bridges and viaducts, high-rise buildings, offshore structures, precast systems, runway and highway pavements as well as tunnels and underground structures.

BOKU is one of the most innovative universities for sustainability and is pleased to offer a forum for discussing current knowledge and presenting sustainable problem-solving approaches from research and engineering practice. There is an open access ce/papers proceeding by Ernst & Sohn, A Wiley Brandform, of the Second International Symposium on Quality Control of Bridges and Structures which contain 206 full papers presented at EuroStruct 2023 from 35 countries. The chairs wish to wholeheartedly thank all contributing authors and those individuals who were actively involved in the organization of the conference.

We look forward to meeting all of you at the EuroStruct 2023 Conference.

Sincerely,

Alfred Strauss, Konrad Bergmeister



**Alfred Strauss**  
University of Natural  
Resources and Life Sciences  
Vienna, Austria  
Chair, EUROSTRUCT 2023



**Konrad Bergmeister**  
University of Natural  
Resources and Life Sciences  
Vienna, Austria  
Chair, EUROSTRUCT 2023

# CONFERENCE ORGANIZATION

## ORGANIZING ASSOCIATION

**EUROSTRUCT**  
European Association on Quality Control of  
Bridges and Structures  
<https://eurostruct.org/>

## CONFERENCE CHAIRS

**Alfred Strauss**  
University of Natural Resources  
and Life Sciences (BOKU), Austria

## STEERING COMMITTEE

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## ORGANIZING INSTITUTION

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University of Natural Resources  
and Life Sciences, Vienna, Austria  
<https://boku.ac.at/>

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and Life Sciences (BOKU), Austria

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University of Natural Resources  
and Life Sciences (BOKU), Austria

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University of Natural Resources  
and Life Sciences (BOKU), Austria

**Felix Mariacher**

University of Natural Resources  
and Life Sciences (BOKU), Austria

**Florentina Doina Ionescu**

University of Natural Resources  
and Life Sciences (BOKU), Austria

**Johannes Hron**

University of Natural Resources  
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University of Natural Resources  
and Life Sciences (BOKU), Austria

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University of Natural Resources  
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University of Natural Resources  
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University of Natural Resources  
and Life Sciences (BOKU), Austria

**Florentina Doina Ionescu**

University of Natural Resources  
and Life Sciences (BOKU), Austria

**Sérgio Fernandes**

Anser, Arquitectura e Engenharias, Santo Tirso,  
Portugal

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University of Natural Resources  
and Life Sciences (BOKU), Austria

**Sérgio Fernandes**

Anser, Arquitectura e Engenharias, Santo Tirso,  
Portugal

## CONFERENCE WEBSITE

<https://eurostruct.org/eurostruct-2023>

## LOCAL ORGANIZING COMMITTEE

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University of Natural Resources  
and Life Sciences (BOKU), Austria

**Klaus Voit**

University of Natural Resources  
and Life Sciences (BOKU), Austria

**Oliver Zeman**

University of Natural Resources  
and Life Sciences (BOKU), Austria

**Sérgio Fernandes**

Anser, Arquitectura e Engenharias, Santo Tirso,  
Portugal



# CONFERENCE INFORMATION

## VENUE

**University of Natural Resources and Life Sciences (BOKU)**  
 Ilse-Wallentin-Haus  
 Peter-Jordan-Straße 82  
 1190 Vienna, Austria

## REGISTRATION DESK OPENING HOURS

The Secretariat Office of EuroStruct 2023 will be operated from the Registration Desk located on the Ground Floor of the Ilse-Wallentin Building (ILWA).

The Registration Desk will be available during the following opening hours:

Monday, Sep 25 <sup>th</sup>	16:00 – 19:00
Tuesday, Sep 26 <sup>th</sup>	8:00 – 18:15
Wednesday, Sep 27 <sup>th</sup>	8:00 – 17:30
Thursday, Sep 28 <sup>th</sup>	8:00 – 17:30

Conference materials can be collected by registered participants during these hours. Staff from the Organizing Institution will be available to assist participants.

## ON-SITE REGISTRATION

On-site registration will be possible during the Conference within the opening hours of the registration desk. A supplementary fee will be applied to the regular registration fees.

### Onsite registration from September 25<sup>th</sup> to 28<sup>th</sup>

Delegate	€ 825
Student	€ 440

### Extra tickets for Social Events

Extra ticket for Welcome Reception	€ 60
Extra ticket for Gala Dinner	€ 120
Welcome Reception	subject to availability
Gala Dinner	subject to availability

## WI-FI

Wi-Fi internet is available and access information is provided to all registered participants.

### WIFI Login:

WIFI-name: BOKU-Public-Event  
 username: h87500\_wifi\_euro23  
 password: xUg56aEs8u

## WELCOME RECEPTION

The welcome reception will be held on Monday 25<sup>th</sup> on the Ground Floor next to the Ilse-Wallentin Building.

## OPENING CEREMONY

The Opening Ceremony will be held on Tuesday, September 26<sup>th</sup>, from 8:30 to 9:00 in the Aula (Lower Level) of Tüwi Building (TÜWI).

## CLOSING CEREMONY

The Closing Ceremony is scheduled for Thursday, September 28<sup>th</sup> at 17:30 at the Ilse-Wallentin Building, room ILWA1.

## EUROSTRUCT GENERAL ASSEMBLY

The General Assembly of EuroStruct will be held on Tuesday, September 26<sup>th</sup>, from 18:30 to 19:00 in the Ilse-Wallentin Building, room ILWA01.

## LUNCHES & COFFEE BREAKS

Daily lunches will be served in the lunch area on the Ground Floor next to the ILWA building. Coffee breaks will be served at the Ground Floor of Ilse-Wallentin Building.

## SLIDE CENTER & PRESENTATION GUIDELINES

Presentations will be displayed through a centralized A/V system, not being allowed to Speakers the use of their personal laptop computers.

On-site Speakers are required to upload presentations to the slide center (SL) as early as possible on the day of their presentation.

Presentations should be reviewed before uploading to ensure that all fonts appear as expected and all sound/video clips are working correctly. Files should be submitted on a USB stick for easy transfer.

The presentation template can be downloaded from the Conference Website.

## EUROSTRUCT 2023 AWARDS

EuroStruct 2023 awards will be handed over to members of EuroStruct and participants of EuroStruct 2023 for distinguished achievements in the areas of Quality Control and Life-Cycle Civil Engineering. Selections will be based on past achievements.

EuroStruct 2023 Awards comprise the following:

- Honorary Membership
- International Award of Merit
- Early Career Prize
- Outstanding Structure Award - bridges and non-bridges category
- Outstanding Paper Award - scientific paper and technical report category
- YEP Awards - for outstanding contributions by a young engineer at EuroStruct 2023

For these awards, a call for nominations will be made to the Scientific Committee and conference participants. The Awards Committee will review the submissions during the conference. The Eurostruct 2023 Awards will be presented at the Gala Dinner on Wednesday, September 27<sup>th</sup>, 2023.

## CONFERENCE MATERIALS

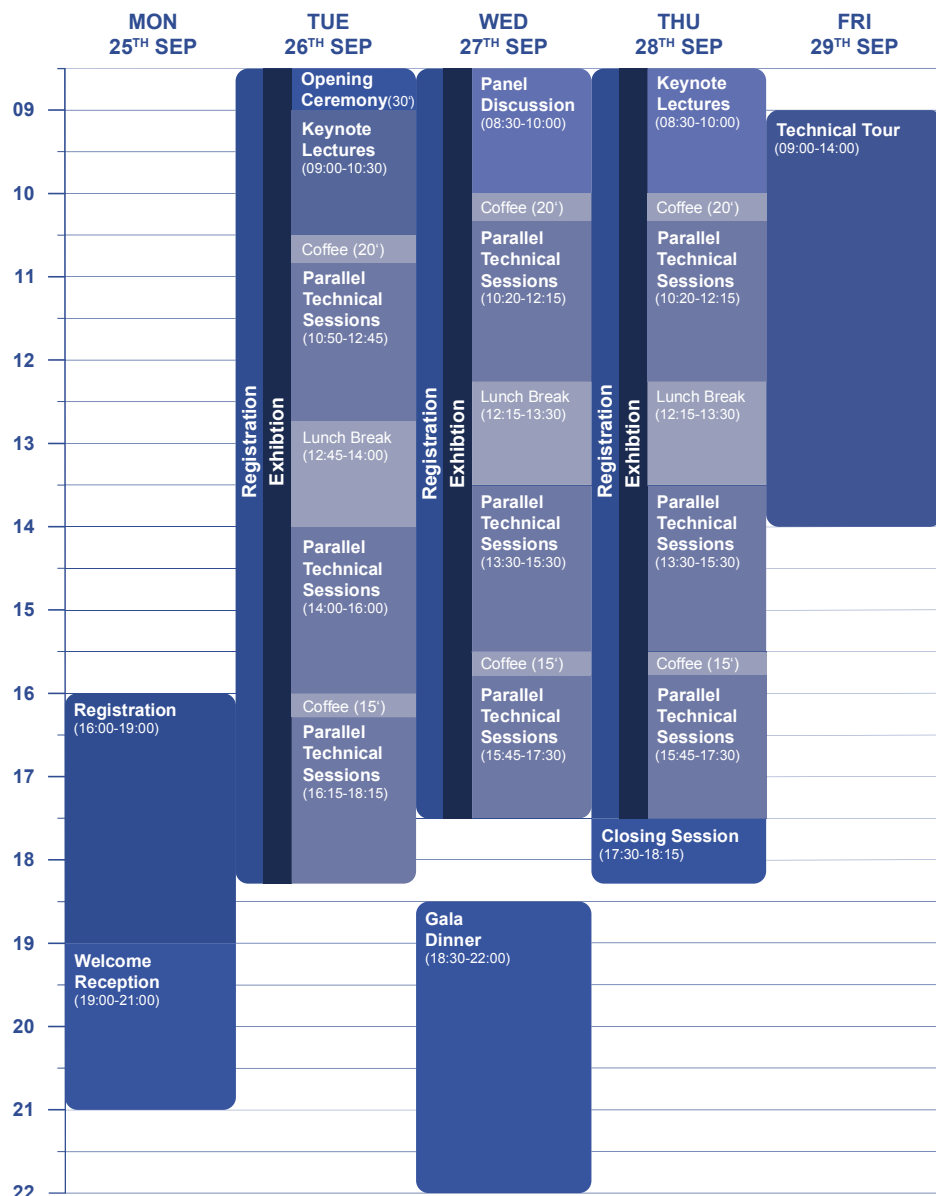
The list of materials to be made available to registered participants will include an identification badge.

All participants are kindly requested to wear their badge throughout the event.

## PERSONAL BELONGINGS

Participants are advised not to leave personal belongings unattended. Conference organizers and staff are not responsible for any damage or loss that may occur.

# CONFERENCE OVERVIEW



# SCIENTIFIC PROGRAM

## KEYNOTE LECTURES & PANELS

### Tuesday, Sep 26<sup>th</sup>, 2023 – TÜWI-Hall

**Quality control in introducing the new UHPFRC Technology**

**Brühwiler, Eugen**  
Swiss Federal Institute of Technology Lausanne (EPFL)  
Lausanne, Switzerland

**Digitalisation in Structural Engineering**

**Pürgstaller, Andreas & Vötter, Valentina**  
Bergmeister Ingenieure GmbH  
Munich, Germany

### Wednesday, Sep 27<sup>th</sup>, 2023 – ILWA 1

**Digital Transformations in Sustainability**

**Engel, Judith**  
ÖBB INFRA, Vienna, Austria  
Member of the Executive Board of Austrian Federal Railways (ÖBB)  
**Hajdin, Rade**  
University of Belgrade, Belgrade, Serbia  
Expert in Infrastructure Asset Management  
**Limongelli, Maria Pina**  
Politecnico di Milano, Milano, Italy  
Expert in Structural Health Monitoring

**Spiezia, Nicolò**  
M3E and KnowCE, Padova, Italy  
Expert in IoT Technologies  
**Vorwagner, Alois**  
Austrian Institute of Technology (AIT), Vienna, Austria  
Expert in Structural Dynamics

### Thursday, Sep 28<sup>th</sup>, 2023 – ILWA 1

**Circularity in infrastructure management**

**Stipanović, Irina**  
University of Twente, Twente, Netherlands  
Sustainability in engineering

**Gervásio, Helena**  
University of Coimbra, Coimbra, Portugal

## MINI-SYMPOSIA

**Information value-driven infrastructure management: Challenges and opportunities**

**ILWA2 • TuM • MS1**  
Pier Francesco Giordano, Politecnico di Milano, Italy;  
Rui Teixeira, University College Dublin, Ireland;  
Maria Pina Limongelli, Politecnico di Milano, Italy;  
Sebastian Thöns, Lund University, Sweden

**Advances and applications in remote monitoring of civil infrastructure**

**ILWA3 • WeM & WeA • MS2**  
Daniel Tonelli, University of Trento, Trento, Italy;  
Pier Francesco Giordano, Politecnico di Milano, Italy;  
Daniele Zonta, University of Trento, Italy;  
Maria Pina Limongelli, Politecnico di Milano, Italy

## **Railway Bridges**

### **ILWA2 • TuA • MS5**

Rui Calçada, University of Porto, Portugal;  
Túlio Bittencourt, University of São Paulo, Brazil;  
Pedro Aires Montenegro, University of Porto, Portugal;  
Diogo Ribeiro, Polytechnic of Porto, Portugal;  
Hermes Carvalho, Federal University of Minas Gerais, Brazil;  
Marcos Massao Futai, University of Porto, Portugal

## **Railway Bridges and Infrastructure Monitoring**

### **ILWA3 • TuE • MS6**

Muhammad Arslan Khan, University College Dublin, Ireland;  
Abdollah Malekjafarian, University College Dublin, Ireland;  
Vikram Pakrashi, University College Dublin, Ireland

## **Digital Bridge Monitoring: Integration of NDTs and Visualization Tools for Structural and Durability Assessment**

### **ILWA2 & ILWA4 • TuE & ThA • MS7**

Mezgeen Rasol, Université Gustave Eiffel, France;  
Franziska Schmidt, Université Gustave Eiffel, France;  
Ioannis Briakakis, University of Cambridge, United Kingdom;  
Michale Fragiadakis, National Technical University, Greece

## **Bridges' life-cycle risk analysis and management**

### **ILWA3 • TuM • MS9**

Giuseppina Uva, Polytechnical University of Bari, Italy;  
Ilaria Venanzi, University of Perugia, Italy

## **Structural Health Monitoring, Digital Methods and Artificial Intelligence for Lifecycle Performance of Infrastructure Systems**

### **ILWA2 • ThM & ThA & ThE • MS11**

Jens Schneider, Technical University of Darmstadt, Germany;  
Steffen Marx, Technical University of Dresden, Germany;  
Katharina Klemt-Albert, RWTH Aachen University, Germany

## **Corrosion and durability monitoring of bridges and structurespaces**

### **ILWA3 • ThM & ThA • MS12**

Ueli Angst, ETH Zurich, Switzerland  
Sylvia Kessler, Helmut-Schmidt-University / University of the Federal Armed Forces Hamburg, Germany

## **Advances in the safety and integrity of critical infrastructures via the application of artificial intelligence**

### **ILWA3 • ThE • MS13**

Mohamed El Amine Ben Seghier, Hong Kong Polytechnic University, Hong Kong  
Panagiotis Spyridis, Universität Rostock, Germany  
Tarek Zayed, Hong Kong Polytechnic University, Hong Kong  
Alfred Strauss, University of Natural Resources and Life Sciences, Austria

## **Structural reliability assessment of existing post-tensioned concrete bridges**

### **ILWA1 • TuM & TuA • MS 14**

Agnese Natali, University of Pisa, Italy;  
Fabio Micozzi, University of Camerino, Italy;  
Andrea Meoni, University of Perugia, Italy;  
Michele D'Amato, University of Basilicata, Matera, Italy;  
Virginio Quaglini, Politecnico di Milano, Italy

## **Assessment of the condition state of external pre-stressed cable in concrete bridges**

### **ILWA1 • TuE • MS 15**

Andrej Anžljin, Slovenian National Building and Civil Engineering Institute, Slovenia;  
Hermann Weiher, Weiher, Matrics Engineering GmbH, Germany

## **Condition monitoring and assessment of degrading reinforced concrete structures**

### **ILWA1 • WeM & WeA • MS16**

Fritz Binder, ASFINAG Baumanagement GmbH, Austria;  
Stefan L. Burtscher, Burtscher Consulting, Austria

## **Advanced methods and techniques for the quality evaluation of structural upgrade interventions**

### **ILWA1 & ILWA4 • ThM & ThE • MS 18**

Panagiotis Spyridis, Technical University Dortmund, Germany;  
Theodoros Rousakis, Democritus University of Thrace, Greece;  
Daniel Algernon, SVTI Swiss Association for Technical Inspections, Switzerland;  
Sylvia Kessler, Helmut-Schmidt-University / University of the Federal Armed Forces Hamburg, Germany;  
Ingo Münch, Technical University Dortmund, Germany

## **Structural Health Monitoring**

### **ILWA1 • ThA & ThE • MS19**

Vikram Pakrashi, University College Dublin, Ireland;  
Eleni Chatzi, ETH Zurich, Switzerland

## **Modelling and assessment of infrastructures under multiple hazards**

### **ILWA4 • WeM & WeA • MS20**

Mariano Angelo Zanini, University of Padova, Italy;  
Giuseppe Quaranta, Sapienza University of Rome, Italy;  
Cristoforo De Martino, Zhejiang University, China;  
Dario De Domenico, University of Messina, Italy;  
Flavio Stochino, University of Cagliari, Italy

## **Future-oriented European Standardisation on monitoring, safety assessment and maintenance of transport infrastructure**

### **ILWA2 • WeM & WeA & WeE • MS21**

Agnieszka Bigaj-van Vliet, Organisation for Applied Scientific Research (TNO), Netherlands;  
Diego Lorenzo Allaix, Organisation for Applied Scientific Research (TNO), Netherlands;  
Paola Darò, SACERTIS Ingegneria SRL, Italy;  
Belén Riveiro Rodriguez, University of Vigo, Spain;  
Alfred Strauss, University of Natural Resources and Life Sciences, Austria;  
Matthias Weise, AEC 3 Deutschland GmbH, Germany



# PROGRAM SCHEDULE

TUESDAY, SEPTEMBER 26<sup>TH</sup>, 2023

## TÜWI-Hall – Opening Session (08:30-09:00)

## TÜWI-Hall – Keynote Lectures (09:00-10:30)

Chair: **Rade Hajdin**  
University of Belgrade, Serbia  
Co-Chair: **Joan R. Casas**  
Technical University of Catalonia, Spain



Digitalisation in Structural Engineering  
**Pürgstaller, Andreas**



**Vötter, Valentina**  
Bergmeister Ingenieure GmbH  
Munich, Germany

 Quality control in introducing the new UHPFRC Technology  
**Brühwiler, Eugen**  
Swiss Federal Institute of Technology  
Lausanne (EPFL)  
Lausanne, Switzerland

### Coffee break (10:30-10:50)

## Parallel Technical Sessions (10:50-12:45)

ILWA1 • TuM • MS14 Structural reliability assessment of existing post-tensioned concrete bridges  
ILWA2 • TuM • MS1 Information value-driven infrastructure management: Challenges and opportunities  
ILWA3 • TuM • MS9 Bridges' life-cycle risk analysis and management  
ILWA4 • TuM • GS General Session

### Lunch break (12:45-14:00)

## Parallel Technical Sessions (14:00-16:00)

ILWA1 • TuA • MS14 Structural reliability assessment of existing post-tensioned concrete bridges  
ILWA2 • TuA • MS5 Railway Bridges  
ILWA3 • TuA • MS9 Bridges' life-cycle risk analysis and management  
ILWA4 • TuA • GS General Session

### Coffee break (16:00-16:15)

## Parallel Technical Sessions (16:15-18:15)

ILWA1 • TuE • MS15 Assessment of the condition state of external pre-stressed cable in concrete bridges  
ILWA2 • TuE • MS7 Digital Bridge Monitoring: Integration of NDTs and Visualization Tools for Structural and Durability Assessment  
ILWA3 • TuE • MS6 Railway Bridges and Infrastructure Monitoring  
ILWA4 • TuE • GS General Session

Tuesday, September 26<sup>th</sup>, 2023 @ 10:50 – 12:45 (TuM)

**ILWA1**

**MS14** Structural reliability assessment of existing post-tensioned concrete bridges

Chairs: Micozzi, Fabio  
Gioiella, Laura

cepa.202200024  
**Strength reduction curves for corroded seven-wire strands**  
Marra, Matteo\*; Palermo, Michele; Trombetti, Tomaso; Silvestri, Stefano

cepa.202200026  
**Assessment of bridge post-tensioning systems using non-destructive (ND) inspection methods**  
Quaglini, Virginia; Pettorosso, Carlo\*; Cattaneo, Sara; Rossi, Dailia

cepa.202200088  
**Investigation, assessment, strategy for deck widening of existing HWY PT bridges**  
Zoratto, Nadia\*; Giovenale, Paolo; Buttarazzi, Francesca; Di Lorenzo, Alessandra

cepa.202200150  
**Nonlinear analysis procedures for safety assessment of existing RC bridges under traffic loads**  
De Matteis, Gianfranco\*; Carbonari, Sandro; Chisari, Corrado; D'Amato, Michele; Mattei, Francesca; Zizi, Mattia; Braga, Franco; Caprili, Silvia; Dall'Asta, Andrea; Gara, Fabrizio; Salvatore, Walter

cepa.202200153  
**A case study for the reliability evaluation of an existing prestressed bridge according to current standard**  
Poeta, Alberto\*; Micozzi, Fabio; Gioiella, Laura; Dall'Asta, Andrea

**ILWA2**

**MS1** Information value-driven infrastructure management: challenges and opportunities

Chairs: Giordano, Pier Francesco  
Teixeira, Rui

cepa.202200013  
**A common data environment for value-driven data management in German road construction**  
Matthei, Jonathan\*; Götzhäuser, Peter; Klemm-Albert, Katharina; Schulze, Christian; Moharekpour, Milad; Plattenteich, Andreas

cepa.202200012  
**Data driven planning and approval processes of public road construction projects**  
Matthei, Jonathan\*; Klemm-Albert, Katharina

cepa.202200028  
**Remedial measures works programme for Slovenian motorway infrastructure**  
Kušar, Matej\*; Jurgele, Mitja

cepa.202200140  
**Initiation and propagation of failures in steel truss bridges**  
López, Santiago\*; Makoond, Nirvan; Sánchez-Rodríguez, Ana; Adam, José M.; Riveiro, Belén

cepa.202200142  
**Repair and retrofit of bridge structural elements: new cementitious materials**  
Ramaswamy, Ananth\*

cepa.202200352  
**Identification of influencing factors on bridge damages using Bayesian network**  
Miyakawa, Teruyuki\*; Nakamura, Shozo; Nishikawa, Takafumi

**ILWA3**

**MS9** Bridges' Life-Cycle Risk Analysis and Management

Chairs: Uva, Giuseppina  
Venanzi, Ilaria

cepa.202200025  
**A new methodology for the prioritization of visual inspections of bridges and viaducts**  
Meoni, Andrea\*; García-Macías, Enrique; Venanzi, Ilaria; Ubertini, Filippo

cepa.202200077  
**Vulnerability to traffic loads of typical Italian bridges in relation to the evolution of the code framework**  
Bozza, Stefano\*; Fasan, Marco; Noè, Salvatore

cepa.202200101  
**Multi-risk assessment for bridges: the application of the Italian Guidelines**  
Di Sano, Silvia\*; Costa, Giancarlo; Giordano, Pier Francesco; Pregnolato, Maria; Limongelli, Maria Pina

cepa.202200119  
**A LCCA framework for the management of bridges based on data fusion from visual inspections and SHM systems**  
Ierimonti, Laura\*; Mariani, Francesco; Venanzi, Ilaria; Ubertini, Filippo

cepa.202200134  
**Multi source interferometry synthetic aperture radar for monitoring existing bridges: a case study**  
Calò, Mirko; Ruggieri, Sergio\*; Nettis, Andrea; Uva, Giuseppina Segio; Nettis, Andrea; Uva, Giuseppina

**ILWA4**

**GS** General Session

Chairs: Strauss, Alfred  
Apostolidi, Eftychia

cepa.202200016  
**Monitoring the fatigue-induced strain evolution of concrete bridges using fiber optic sensors**  
Becks, Henrik\*; Brockmann, Daniel; Hegger, Josef; Classen, Martin

cepa.202200042  
**Digital life-cycle and asset-management for steel bridges**  
Geßler, Achim\*; Hoffmeister, Benno; Geers, Thorben

cepa.202200055  
**Using distributed fibreoptic sensing to monitor repaired structures reinforced with steel-patches**  
Grefe, Hinrich\*; Stammen, Elisabeth; Dilger, Klaus; Baudone, Tommaso; Arutyunyan, Garnick; Baitinger, Mascha

cepa.202200056  
**Life-cycle performance of noise barriers focusing on installation conditions of fasteners**  
Granzner, Maximilian\*; Strauss, Alfred; Reiterer, Michael; Kari, Hannes

cepa.202200094  
**Optimization of extradosed bridge and analysis of parameters' sensitiveness as a case study on Abay Bridge**  
Lamesgin, Abeba\*; Golla, Alemayehu; Rasool, Ghulam; Jemanenih, Wubishet

cepa.202200123  
**Data based reliability and risk based assessment for service life extension of structures**  
Strauss, Alfred\*; Zimmermann, Thomas; Bergmeister, Konrad

<b>ILWA1</b>
<b>MS14 Structural reliability assessment of existing post-tensioned concrete bridges</b>
<b>Chairs:</b> Meoni, Andrea Apostoldi, Eftychia
cepa.202200162 <b>SAFOTEB project: towards new approaches for the reliability assessment of existing prestressed bridge</b>
Micozzi, Fabio*; Poeta, Alberto; Gioiella, Laura; Natali, Agnese; Celati, Simone; Mazzatura, Isabella; Salvatore, Walter; Meoni, Andrea; Ierimonti, Laura; Venanzi, Ilaria; Ubertini, Filippo; Rinaldo, Antonella; D'Amato, Michele; Cattaneo, Sara; Pettorosso, Carlo; Quaglino, Virginio; Rossi, Dalia; Tilton, Michele; Dall'Asta, Andrea
cepa.202200308 <b>Analysis of the thermal effects on the performance and reliability of post-tensioned integral abutment bridges</b>
Aloisio, Angelo*; Contento, Alessandro; Xue, Junqing; Quaranta, Giuseppe; Briseghella, Bruno; Gardoni, Paolo
cepa.202200686 <b>Evaluation of the pull-out test to determine the residual prestressing in concrete bridges.</b>
Pannuzzo, Paola*; Tilton, Michele; Furlan, Matteo; Techio, Giovanni
cepa.202200347 <b>Uncertainty of the crack width model based on fracture of concrete</b>
Cervenka, Vladimir*; Rimkus, Arvydas; Gribniak, Viktor; Cervenka, Jan
cepa.202200363 <b>Life cycle costs and asset management for protective structures against natural hazards</b>
Hoffmann, Markus; Donev, Valentin; Brauner, Michael
cepa.202200485 <b>Buckling analysis of steel members by extension of EC-3 methods applied to steel plates in bridge girders under patch Loading</b>
Micelli, Francesco*; Maci, Lorenzo; De Vitis, Fabiano Alex
cepa.202200482 <b>Influence of strengthening interventions on the structural performance of a Maillart-type arch bridge: the case of "Ciolo Bridge" in the South of Italy</b>
Micelli, Francesco*; Perrone, Daniele; Aiello, Maria Antonietta

<b>ILWA2</b>
<b>MS5 Railway Bridges</b>
<b>Chairs:</b> De Backer, Hans Carpintero, Ismael

cepa.202200017 <b>Structural collapse assessment of the access bridge to hydroelectric plant "Pacífico Mascarenhas"</b>
Carvalho, Hermes*; Gomes Jr., José; Montenegro, Pedro; Correia, José; Vilela, Paula; Bittencourt, Túlio; Oliveira, Luiza
cepa.202200032 <b>Optimisation of cantilever based energy harvester design for railway bridges</b>
Cámara-Molina, Javier C.*; Romero, Antonio; Galvín, Pedro; Moliner, Emma; Martínez-Rodrigo, María Dolores
cepa.202200049 <b>Does vehicle-bridge interaction resemble the effect of tuned-mass dampers on bridges during earthquakes?</b>
Homaei, Hossein*; Dimitrakopoulos, Elias G.
cepa.202200066 <b>Load-carrying capacity of Vierendeel bridges in Mechelen</b>
Van Bogaert, Philippe; De Pauw, Bart; De Backer, Hans*
cepa.202200078 <b>Development of a new high-speed train load model for dynamic calculation of railway bridges</b>
Reiterer, Michael*; Kwapisz, Maciej; Firus, Andrei; Rupp, Maximilian; Lombaert, Geert
cepa.202200165 <b>Experimental analysis of longitudinal and lateral track-bridge interaction of the ballasted track in railway bridges</b>
Stollwitzer, Andreas*; Bettinelli, Lara; Fink, Josef
cepa.202200330 <b>Structural assessment of an historical steel railway bridge in the north of Spain</b>
Carpintero, Ismael*; Rueda, Jorge

<b>ILWA3</b>
<b>MS9 Bridges' Life-Cycle Risk Analysis and Management</b>
<b>Chairs:</b> Venanzi, Ilaria Uva, Giuseppina
cepa.202200136 <b>Fragility analysis of prestressed concrete girder bridges to traffic loads considering tendon corrosion</b>
Nettis, Alessandro*; Nettis, Andrea; Ruggieri, Sergio; Uva, Giuseppina
cepa.202200147 <b>The holistic multi-level approach of recent Italian guidelines applied to the bridges of Caserta</b>
Bencivenga, Pasquale*; Zizi, Mattia; Palmieri, Gerardo; De Matteis, Gianfranco
cepa.202200149 <b>Risk assessment of a masonry arch bridge: from on-site inspections to continuous monitoring</b>
Borlenghi, Paolo*; Gentile, Carmelo; D'angelo, Manuel; Ballio, Francesco

cepa.202200541 <b>Flood vulnerability assessment: an effective tool to evaluate the lifecycle risk analysis of bridges.</b>
Kosić, Mirko*; Anžlin, Andrej; Bau, Valentina
cepa.202200754 <b>How to deal with uncertainties in the assessment of the global warming potential of bridges</b>
Boros, Vazul*
cepa.202200845 <b>Spanish guides and code specifications on concrete bridges inspection and maintenance: an overview</b>
Martí-Vargas, José R.*; Castro-Bugallo, Carmen; Navarro-Gregori, Juan; Mateu-Sánchez, Juan A.

<b>ILWA4</b>
<b>GS General Session</b>
<b>Chairs:</b> Casas, Joan R.
cepa.202200138 <b>Recent failures of external prestressing grouted tendons: when the ducts take on water...</b>
Germain, Didier*; Labourie, Laurent; Vaurigaud, Bastien; Gailliet, Laurent; Van Schoors, Laetitia; Houel, Adrien; Godart, Bruno
cepa.202200152 <b>Experimental study on the failure process of large shear key joints based on NDT methods</b>
Li, Shengtao; Casas, Joan R.*; Chen, Xudong; Sun, Yangyang; Liu, Duo
cepa.202200154 <b>Dynamic identification and vibration serviceability assessment of a wooden cable-stayed footbridge</b>
Nicoletti, Vanni*; Tentella, Luca; Martini, Riccardo; Quarochioni, Simone; Carbonari, Sandro; Gara, Fabrizio
cepa.202200155 <b>Operational modal analysis for supporting the retrofit design of bridges</b>
Nicoletti, Vanni*; Martini, Riccardo; Amico, Lorenzo; Carbonari, Sandro; Gara, Fabrizio
cepa.202200171 <b>Digitalization of bridge inventory via automated analysis of point clouds for generation of BIM models</b>
Hajdin, Rade*; Richter, Rico; Rakic, Lazar; Diederich, Holger; Hildebrand, Justus; Schulz, Sebastian; Dollner, Jürgen; Bednorz, Jennifer
cepa.202200173 <b>Analysis of the impact of the ribbon track on unconventional fixing on a steel multi-span bridge</b>
Odrobňák, Jaroslav*; Farbák, Matúš; Prokop, Jozef; Vičan, Josef; Vavák, Branislav
cepa.202200599 <b>Fragility analysis of slopes exposed to seismic hazard employing surrogate modeling techniques</b>
Cabanzo, Carlos; Tinoco, Joaquim; Sousa, Hélder S.; Matos, José C.*

<b>ILWA1</b>
<b>MS15 Assessment of the condition state of external pre-stressed cable in concrete bridges</b>
<b>Chairs:</b> Anžlin, Andrej Weiher, Hermann
cepa.202200051 <b>Detection of wire breaks in external pre-stressed cable free length and junction using a magnetic rope testing device</b>
Vaurigaud, Bastien*; Germain, Didier; Chemineau, Hélène; Cherrier, Jean-François; Piednoir, Remi; Guyot, Fabien
cepa.202200127 <b>Experiences in assessment, replacement and repair of external tendons</b>
Weiher, Hermann*
cepa.202200164 <b>Investigation of the unusual deformations of external tendons in concrete highway bridges</b>
Švraka, Ratko*; Bevc, Lojze; Vežočnik, Rok; Hekič, Doron; Anžlin, Andrej
cepa.202200170 <b>Strengthening of precast segmental bridge built in 1960s using external tendons</b>
Moravcik, Martin*; Bujnakova, Petra; Kralovanec, Jakub
cepa.202200207 <b>Extending the life of bridges with external tendons</b>
Ramírez, Guillermo*; Ševčík, Petr
cepa.202200211 <b>The lifetime cycle of external tendons: From installation and monitoring to controlled deconstruction and recycling</b>
Schmitt, Andreas*; Buschlinger, Michael; Heubel, Thomas

<b>ILWA2</b>
<b>MS7 Digital Bridge Monitoring: Integration of NDTs and Visualization Tools for Structural and Durability Assessment</b>
<b>Chairs:</b> Rasol, Mezgeen
cepa.202200022 <b>Toward a BIM-based procedure for the evaluation of a risk prioritization class of bridge structures</b>
Casto, Milena*; Perrone, Daniele; Nascimbene, Roberto; Micelli, Francesco; Calvi, Paolo; Aiello, Maria Antonietta
cepa.202200031 <b>Condition information models in the context of structural health monitoring</b>
Köhncke, Martin*; Keßler, Sylvia

cepa.202200043 <b>Inspection and condition assessment of existing overpass in Sofia, Bulgaria</b>
Jiponov, Alexander*
cepa.202200090 <b>Performance-based assessment of a long span bridge</b>
Makhoul, Nisrine*; Schmidt, Franziska
cepa.202200125 <b>Measurements, simulation, analysis and geolocation in a digital twin tool for bridge management</b>
Chacón, Rolando*; Ramonell, Carlos; Posada, Hector; Tomar, Rahul; de la Rosa, Christian Martínez; Stipanovic, Irina
cepa.202200167 <b>Validation of the digital inspection of bridges</b>
Kreslin, Maja*; Triller, Petra; Eržen, Vid; Žnidarič, Aleš; Slokan, Tomaž; Anžlin, Andrej
<b>ILWA3</b>
<b>MS6 Railway Bridges and Infrastructure Monitoring</b>
<b>Chairs:</b> Hanley, Ciaran
cepa.202200041 <b>Structural condition classification of railway bridge KW51 before, during, and after retrofitting</b>
Al-Ghalib, Ali A.*; Mahmoud, Sawсан M.
cepa.202200091 <b>Incorporating measurement data to improve the fatigue assessment of steel bridges</b>
Kwapisz, Maciej*; Pissermayr, Sebastian; Lachinger, Stefan
cepa.202200098 <b>High-speed drive-by monitoring: field testing with an intercity express train (ICE)</b>
Rupp, Maximilian Michael*; Lorenzen, Steven Robert; Fritzsche, Max Alois; Riedel, Henrik; Kohl, Antonia; Apostoldi, Eftychia; Schneider, Jens
cepa.202200144 <b>QUICK-B-WIM: Large scale application of a moving force identification method on a railway bridge</b>
Riedel, Henrik*; Firus, Andrej; Vosperrnig, Michael; Apostoldi, Eftychia; Schneider, Jens
cepa.202200596 <b>Drive-by frequencies extraction by means of synchrosqueezed wavelet transform</b>
Benedetti, Lorenzo*; Bernardini, Lorenzo; Argentino, Antonio; Cazzulani, Gabriele
cepa.202200608 <b>Structural health monitoring of a steel truss railway bridge studying its low frequency response</b>

cepa.202200024 <b>Strain-based autoregressive modelling for system identification of railway bridges</b>
Anastasia, Stefano; Marcias, Enrique García; Ubertini, Filippo; Gattulli, Vincenzo; Martínez, Pedro Poveda; Gorriz, Benjamin Torres; Chorro, Salvador Ivorra*
<b>ILWA4</b>
<b>GS General Session</b>
<b>Chairs:</b> Matos, José
cepa.202200174 <b>A framework for management of transportation infrastructure based on key performance indicators</b>
Tanasici, Nikola*; Blumenfeld, Tim; Hajdin, Rade; Schiffmann, Frank
cepa.202200176 <b>On mathematical models of degradation processes according to ISO 16204 and fib Model Code</b>
Šomodíková, Martina*; Doležel, Jiří; Lehký, David
cepa.202200178 <b>Inverse analysis and optimization-based model updating for structural damage detection</b>
Lehky, David*; Špíchal, Bohumil; Lamperová, Katarína; Slowik, Ondřej
cepa.202200182 <b>Inspection and maintenance KPIs to support decision making integrated into digital twin tool</b>
Stipanovic, Irina*; Skaric Palic, Sandra; Casas, Joan Ramon; Chacón, Rolando; Ganic, Emir
cepa.202200186 <b>Nonlinear probabilistic structural assessment: findings from Austrian and Czech bridges</b>
Novák, Drahomír*; Strauss, Alfred; Novák, Lukáš; Lehky, David; Šomodíková, Martina; Lipowczan, Martin; Slowik, Ondřej; Doležel, Jiří; Pukl, Radomír; Sattler, Fabian; Apostoldi, Eftychia
cepa.202200274 <b>A unified concrete damage model for monotonic loading and fatigue loading</b>
Guo, Chenggong*; Li, Jie
cepa.202200981 <b>Model updating of plate composite structure using particle swarm optimization algorithm</b>
Quang, Minh Tran; Bento, Ana Margarida; Ferradosa, Tiago; Sousa, Hélder S.; Duc, Binh Nguyen; Cam, Nhung Nguyen Thi; Matos, José Campos e*

## WEDNESDAY, SEPTEMBER 27<sup>TH</sup>, 2023

### ILWA1 – Panel: Digital Transformation in Sustainability (08:30-10:00)

Moderator: **Casas, Joan R.**  
Technical University of Catalonia, Spain

Co-Moderator: **Stipanović, Irina**  
University of Twente, Netherlands



Circularity in infrastructure management  
**Stipanović, Irina**  
University of Twente  
Twente, Netherlands



**Hajdin, Rade**  
University of Belgrade  
Belgrade, Serbia



**Limongelli, Maria Pina**  
Politecnico di Milano  
Milano, Italy



**Spiezia, Nicolò**  
M3E and KnowCE  
Padova, Italy



**Vorwagner, Alois**  
Austrian Institute of Technology (AIT)  
Austria, Vienna

Coffee break (10:00-10:20)

### Parallel Technical Sessions (10:20-12:15)

ILWA1 • WeM • MS16	Condition monitoring and assessment of degrading reinforced concrete structures
ILWA2 • WeM • MS21	Future-oriented European Standardisation on monitoring, safety assessment and maintenance of transport infrastructure
ILWA3 • WeM • MS2	Advances and applications in remote monitoring of civil infrastructure
ILWA4 • WeM • MS20	Modelling and assessment of infrastructures under multiple hazards

Lunch break (12:15-13:30)

### Parallel Technical Sessions (13:30-15:30)

ILWA1 • WeA • MS16	Condition monitoring and assessment of degrading reinforced concrete structures
ILWA2 • WeA • MS21	Future-oriented European Standardisation on monitoring, safety assessment and maintenance of transport infrastructure
ILWA3 • WeA • MS2	Advances and applications in remote monitoring of civil infrastructure
ILWA4 • WeA • MS20	Modelling and assessment of infrastructures under multiple hazards

Coffee break (15:30-15:45)

### Parallel Technical Sessions (15:45-17:30)

ILWA1 • WeE • GS	General Session
ILWA2 • WeE • MS21	Future-oriented European Standardisation on monitoring, safety assessment and maintenance of transport infrastructure
ILWA3 • WeE • GS	General Session
ILWA4 • WeE • GS	General Session

**Gala Dinner** (18:30-22:00)  
Vienna City Hall  
EuroStruct2023 Awards

## Wednesday, September 27<sup>th</sup>, 2023 @ 10:20 – 12:15 (WeM)

ILWA1	
<b>MS16</b>	<b>Condition monitoring and assessment of degrading reinforced concrete structures</b>
Chairs: Binder, Fritz; Burtscher, Stefan L.	
cepa.202200052	<b>Concept to assess the performance on degrading concrete structures components</b>
Binder, Fritz*; Burtscher, Stefan L.	
cepa.202200019	<b>Modernising a monument: The challenges of strengthening and widening a structurally deficient road bridge structure under live traffic</b>
Treacy, Mark*; Jokisch, Frank; Brühwiler, Eugen	
cepa.202200018	<b>Updated load models for short-span road bridges in the range of 2-15 m</b>
Treacy, Mark*; Brühwiler, Eugen	
cepa.202200062	<b>Applications of state of the art NDT techniques in bridge inspections</b>
Rapaport, Guy	
cepa.202200110	<b>Autonomous IOT for condition monitoring, assessment and predictive maintenance - advances</b>
Burtscher, Stefan L.*; Huber, Peter; Binder, Fritz; Bauer, Hannes	
cepa.202200113	<b>Challenges in corrosion surveys on reinforced concrete: practical experiences from more than 20 years</b>
Schneck, Ulrich*	

ILWA2	
<b>MS21</b>	<b>Future-oriented European Standardisation on monitoring, safety assessment and maintenance of transport infrastructure</b>
Chairs: Bigaj-van Vliet, Agnieszka; Strauss, Alfred	
cepa.202200202	<b>Barriers and opportunities towards monitoring and asset management of EU transport infrastructure</b>
Scibilia, Elena*; Hoff, Inge; De Urquía, Miguel A.; Bigaj-van Vliet, Agnieszka	
cepa.202200197	<b>Existing standardization on monitoring, safety assessment and maintenance of the bridges and tunnels</b>
Allaix, Diego Lorenzo*; Bigaj-van Vliet, Agnieszka	

cepa.202200203	<b>How to close the gap between applied strategies for infrastructure maintenance planning and the current state of research?</b>
Köhler, Jochen*; Allaix, Diego Lorenzo; Bigaj-van Vliet, Agnieszka	
cepa.202200196	<b>Future perspectives of standardization for a safe European transport infrastructure</b>
Allaix, Diego Lorenzo*; Bigaj-van Vliet, Agnieszka; Mancini, Giuseppe; Darò, Paola; Strauss, Alfred; Bergmeister, Konrad; Köhler, Jochen	
cepa.202200192	<b>Data-informed safety assessment of existing transport infrastructures</b>
Darò, Paola*; Mancini, Giuseppe; Longo, Monica; Negri, Serena; Bigaj-van Vliet, Agnieszka; Allaix, Diego Lorenzo	
cepa.202200266	<b>Guideline on NDT-supported reliability assessment of existing structures – Current developments in Germany</b>
Küttenbaum, Stefan*; Braml, Thomas; Heinze, Marco; Kainz, Christian; Keuser, Manfred; Lechner, Thomas; Maack, Stefan; Reink, Klaus-Dieter; Schulze, Sebaslian; Soukup, Alexander; Stettner, Christian; Taffe, Alexander; Wöstmann, Jens	

ILWA3	
<b>MS2</b>	<b>Advances and applications in remote monitoring of civil infrastructure</b>
Chairs: Tonelli, Daniel; Giordano, Pier Francesco	
cepa.202200096	<b>Remote monitoring of a concrete bridge using PSInSAR</b>
Lasri, Othmane*; Giordano, Pier Francesco; Limongelli, Maria Pina; Previtali, Mattia	
cepa.202200112	<b>Uncertainty quantification of satellite InSAR-monitoring of bridges: a case study</b>
Tonelli, Daniel*; Valentini, Andrea; Rocca Alfredo, Zorzi, Stefano; Lotti, Alessandro; Zonta, Daniele	
cepa.202200214	<b>Structural health monitoring of curved roadway bridges through satellite radar interferometry and collapse simulation</b>
Farneti, Elisabetta*; Meoni, Andrea; NATALI, Agnese; Celati, Simone; Frascella, Carmine; Lupi, Maria Cristina; Cavalagli, Nicola; Venanzi, Ilaria; Salvatore, Walter; Ubertini, Filippo	

cepa.202200166	<b>A proposal for low cost condition assessment method for existing RC bridges</b>
Stochino, Flavio*; Mistretta, Fusto; Zucca, Marco; Puppio, Mario Lucio	
cepa.202200169	<b>Development of corrosion hazard maps for reinforced concrete bridges</b>
Quaranta, Giuseppe*; Giaccu, Gian Felice; Briseghella, Bruno; Nuti, Camillo	
cepa.202200275	<b>Progressive collapse of hangers in steel arch bridges due to blast loading</b>
Tiotsoy, Franck Kenneth*; Maiorana, Emanuele; Poh'sie, Guillaume Hervé	
cepa.202200285	<b>Buckling strength of cold-formed stiffened thinwalled steel box bridge piers under cyclic loading</b>
Mamaghani, Iraj H.P.*; Mwaura, Njiru	
cepa.202200340	<b>Seismic Response of RC Bridge considering scour effect: a case study of Kathmandu Valley</b>
Shrestha, Ashish*; Shrestha, Bipin; Sahani, Kameshwar	

cepa.202200208	<b>MT-InSAR monitoring for tunnel induced settlements in urban areas</b>
Della Ragione, Gianluigi*; Rocca, Alfredo; Perissin, Daniele; Bilotta, Emilio	
cepa.202200329	<b>Steel-concrete composite bridge repair</b>
Vanova, Patricia*; Dubecky, Daniel; Harabinova, Slavka; Orolin, Peter; Kvocak, Vincent; Lavko, Martin	
cepa.202300036	<b>Intumescent fireproof coatings based on zeolite-like cement matrices</b>
Krivenko, Pavel*; Rudenko, Igor; Konstantynovskiy, Oleksandr	

ILWA4	
<b>MS20</b>	<b>Modelling and assessment of infrastructures under multiple hazards</b>
Chairs: Quaranta, Giuseppe; De Martino, Cristoforo	
cepa.202200135	<b>Analysis of the joint effects of thermal stresses and corrosion on integral abutment bridges</b>
Contento, Alessandro*; Aloisio, Angelo; Xue, Junqing; Quaranta, Giuseppe; Briseghella, Bruno; Gardoni, Paolo	

cepa.202200166	<b>A proposal for low cost condition assessment method for existing RC bridges</b>
Stochino, Flavio*; Mistretta, Fusto; Zucca, Marco; Puppio, Mario Lucio	
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cepa.202200340	<b>Seismic Response of RC Bridge considering scour effect: a case study of Kathmandu Valley</b>
Shrestha, Ashish*; Shrestha, Bipin; Sahani, Kameshwar	



Wednesday, September 27<sup>th</sup>, 2023 @ 13:30 – 15:30 (WeA)

<b>ILWA1</b>	
<b>MS16</b>	<b>Condition monitoring and assessment of degrading reinforced concrete structures</b>
Chairs: Binder, Fritz; Burtischer, Stefan L.	
cepa.202200121 <b>Interoperable, platform independent structural health monitoring - Digital twins with long-term availability</b> Krüger, Markus*; Pongratz, Helmut; Miah, Mohammad Shamim; Lienhart, Werner; Binder, Fritz; Willeke, Jan	
cepa.202200159 <b>Durability assessment of the Laureano Gómez Bridge: a key element for new Colombian infrastructure</b> Cassiani, Juan Daniel*; Dugarte, Margareth; Kessler, Sylvia; Arteta, Carlos	
cepa.202200212 <b>Estimation of the shear capacity of decks in existing shorter reinforced concrete bridges</b> Gošte, Neža*; Triller, Petra; Isaković, Tatjana; Kreslin, Maja	
cepa.202200482 <b>Assessment of existing bridges: difficulties and challenges following the Italian experience</b> Buttarazzi, Francesca*; Chiaia, Bernardino; Marano, Giuseppe Carlo; Palmisano, Fabrizio	
<b>Fire modelling and structural assessment of concrete tunnel linings</b> Cardellino, Enrico*; de Silva, Donatella; Bilotta, Antonio; Perovic, Darko; Andreini, Marco; Rios, Oriol; La Mendola, Saverio; Nigro, Emidio	
<b>ILWA2</b>	
<b>MS21</b>	<b>Future-oriented European Standardisation on monitoring, safety assessment and maintenance of transport infrastructure</b>
Chairs: Allaix, Diego Lorenzo; Riveiro Rodríguez, Belen	
cepa.202200194 <b>Dense sensing on roadway bridges network: new approach to data-informed assessment</b> Daró, Paola*; Alovisi, Isabella; Mancini, Giuseppe; Longo, Monica; La Mazza, Dario; Cigada, Alfredo	
cepa.202200189 <b>Monitoring and data-informed assessment of steel bridges - lessons learned from a case study</b> Abspoel-Bukman, Linda*; Bigaj-van Vliet, Joostensz, Ostar	

cepa.202200188 <b>Model updating of in-service bridges using multidisciplinary research - case studies in Spain</b> Riveiro, Belén*; Bouzas, Óscar; Barros, Brais; Conde, Borja; Cabaleiro, Manuel; Sánchez Rodríguez, Ana; Arias-Sánchez, Pedro
cepa.202200193 <b>Framework for proactive maintenance practices for transport infrastructures</b> Daró, Paola*; Alovisi, Isabella; Mancini, Giuseppe; Negri, Serena; Bigaj-van Vliet, Agnieszka; van Meereld, Hendrik
cepa.202200181 <b>Strategies for low limit maintenance thresholds and condition states for bridge structures</b> Strauss, Alfred*; Bergmeister, Konrad; Bigaj-van Vliet, Agnieszka; Daró, Paola; Zimmermann, Thomas; van Meereld, Hendrik
cepa.202200638 <b>Repair and retrofitting of concrete bridge girder using epoxy, micro mortar, and CFRP sheets</b> Ahmed, Khondaker*; Moniruzzaman, Md; Rupa, Kaniz

<b>ILWA3</b>	
<b>MS9</b>	<b>Advances and applications in remote monitoring of civil infrastructure</b>
Chairs: Limongelli, Maria Pina; Zonta, Daniele	
cepa.202200046 <b>UAV-based GPR prototype for structural monitoring of bridges: preliminary results and perspectives</b> Esposito, Giuseppe*; Salari, Alan; Catapano, Ilaria; Erricolo, Danilo; Soldovieri, Francesco	
cepa.202200172 <b>Hyperspectral imaging systems for corrosion detection on remotely operated vehicles</b> Thomas, Dominik*; Gündel, Max	
cepa.202200361 <b>Low frequency piezoelectric micromachined ultrasonic transducers optimized for concrete structures.</b> Sammur, Stephen*; Gatt, Edward; Borg, Ruben Paul	
cepa.202200073 <b>Dual frequency real aperture radar monitoring of a railway bridge</b> Luzi, Guido*; Palamà, Riccardo; Barros-González, Brais; Riveiro-Rodríguez, Belén	

cepa.202200236 <b>The application of modern methods for bridge diagnostics and load testing</b> Stančík, Vojtěch*; Ryjáček, Pavel
cepa.202200200 <b>On the use of domain adaptation techniques for bridge damage detection in changing environment</b> Giglioni, Valentina*; Poole, Jack; Venanzi, Ilaria; Ubertini, Filippo; Worden, Keith

<b>ILWA4</b>	
<b>MS20</b>	<b>GModelling and assessment of infrastructures under multiple hazards</b>
Chairs: Stochino, Flavio; De Domenico, Dario	
cepa.202200353 <b>Seismic performance of RC bridge piers reinforced through FRCM confinement</b> Toska, Klajdi*; Zanini, Mariano A.; Faleschini, Flora	
cepa.202200439 <b>Seismic analysis of intergral bridge considering the influence of soil structure interaction</b> Shrestha, Sudip*; Sahani, Kameshwar; Balla, Biswa Kumar	
cepa.202200600 <b>Multiple hazard assessment of bridges considering interdependencies</b> Stefanidou, Sotiria*; Markogiannaki, Olga; Mikes, Ioannis; Fragiadakis, Michalis	
cepa.202200982 <b>Damage processes and performance indicators for tunnel structures</b> Strauss, Alfred*; Bergmeister, Konrad; Zimmermann, Thomas	
cepa.202200954 <b>Interface shear analysis of UHPC-NC with u-shaped shear stud</b> Lu, Ya*; Lin, Lanri; Zhang, Xing; Shi, Xinbo; Wang, Xiao; Wang, Hao; Yang, Tao; Zhang, Chengwu; Wang, Rui; Wu, Xiangguo	

Wednesday, September 27<sup>th</sup>, 2023 @ 15:45 – 17:30 (WeE)

<b>ILWA1</b>	
<b>GS</b>	<b>General Session</b>
Chairs: Kedar, Amir	
cepa.202200118 <b>Validating the performance of direct fastening (PAF) into concrete with high-speed measuring technology</b> Scholz, Ronja*; Franck, Pascal; Yousef, Alhussain; Spyridis, Panagiotis; Walther, Frank	
cepa.202300155 <b>Evaluation of the snow loads on the snow galleries on the Iron Ore Line in Northern Sweden</b> Saback, Vanessa*; Gonzalez-Libreros, Jaime; Daescu, Cosmin; Hojsten, Tommy; Sas, Gabriel	
cepa.202300156 <b>Demolition of a 65-year-old box-girder prestressed concrete bridge located in Northern Sweden</b> Al Daescu, Cosmin*; Gonzalez-Libreros, Jaime; Wang, Chao; Elfgrén, Lennart; Sas, Gabriel	
cepa.202200141 <b>Structural optimizations of extradosed cable-stayed bridge by using genetic algorithm</b> Simegn, Abeba*	
cepa.202300170 <b>Detecting anomalies in structural response of cable supported bridges: after extreme events</b> Caner, Alp*	

<b>ILWA2</b>	
<b>MS7</b>	<b>Future-oriented European Standardisation on monitoring, safety assessment and maintenance of transport infrastructure</b>
Chairs: Daró, Paola; Weise, Matthias	
cepa.202200201 <b>Importance of digitalization and standardization for bridge and tunnel monitoring and predictive maintenance</b> Weise, Matthias*; Böhm, Michel; Allaix, Diego; Sánchez-Rodríguez, Ana; Rigotti, Mattia	
cepa.202200187 <b>Towards standardized guidelines in digital data acquisition for monitoring and maintenance of European transport infrastructures</b> Justo, Andrés; Sánchez-Rodríguez, Ana*; Varela, María; Arias, Pedro	

cepa.202200191 <b>Towards workflows for the use of AI foundation models in visual inspection applications</b> Rigotti, Mattia*; Antognini, Diego; Assaf, Roy; Bakirci, Kagan; Frick, Thomas; Giurgiu, Ioana; Janoušková, Klára; Janicki, Filip; Jubran, Husam; Malossi, Cristiano; Meterez, Alexandru; Scheidegger, Florian
cepa.202200597 <b>Key performance indicators for building assessment. A case study on an R/C building in Greece.</b> Markogiannaki, Olga*; Stefanidou, Sotiria
cepa.202200204 <b>Semantic knowledge models for decision making in asset management: IM-SAFE Knowledge Base</b> Bektas, Esra*; Oord, Erwin; Kohler, Jochen; Sánchez-Rodríguez, Ana
cepa.202200180 <b>Key performance requirements for objective assessment &amp; through-life management of structures</b> Strauss, Alfred*; Bergmeister, Konrad; Bigaj-van Vliet, Agnieszka; Sánchez Rodríguez, Ana; Daró, Paola; Zimmermann, Thomas

<b>ILWA3</b>	
<b>GS</b>	<b>General Session</b>
Chairs: Pakrashi, Vikram	
cepa.202200827 <b>A new post-installed reinforcement system to extend life time of existing structures as contribution to sustainability</b> Feix, Jürgen*; Lechner, Johannes	
cepa.202200853 <b>Hybrid protective coatings for construction steel bars</b> Matziaris, Katia*; Tsampali, Evangelia; T sardaka, Eirini-Chrysanthi; Stefanidou, Maria	
cepa.202300153 <b>Influence of equipment, weather and personnel experience on the digitalization and damage detection of concrete bridges</b> Gonzalez-Libreros, Jaime H.*; Wang, Chao; Khaloo, Ali; Krishnan, Nikhil; Carolin, Anders; Sas, Gabriel	
cepa.202300154 <b>Shear strengthening of a concrete trough bridge using embedded through-section (ETS) FRP bars</b> Carrasco, Carlos Hermsilla*; Farré, Alfredo García; Gonzalez-Libreros, Jaime; Wang, Chao; Carolin, Anders; Kjellman, Jouko; Sas, Gabriel	

cepa.202200084 <b>Field studies of megagravel transport: relevance for coastal infrastructure engineering</b> Cox, Rónadh; Pakrashi, Vikram*
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<b>ILWA4</b>	
<b>GS</b>	<b>General Session</b>
Chairs: Stipanović, Irina	
cepa.202200693 <b>Indicators for the management of earth-retaining structures</b> Amado, João Luís*; Pratas, M.*; Alexandra; Monteiro, Bernardo; Costa, André; Pinheiro, Maria	
cepa.202200742 <b>Economic assessment of corrosion prevention measures in new structures</b> Cassiani Hernandez, Juan Daniel*; Lozano Valcarcel, Juan Mauricio; Kränkel, Thomas; Gehlen, Christoph; Kefler, Sylvia	
cepa.202200782 <b>How to make monitoring more attractive to bridge owners</b> Wenzel, Helmut*; Wenzel, Moritz	
cepa.202200792 <b>Bond between ultra high-performance fiber reinforced concrete and existing concrete: a review</b> Berthod, Lara; Trento, Daniel*; Faleschini, Flora	
cepa.202200975 <b>Seismic behaviour assessment and rehabilitation of a masonry three-arched bridge</b> Bencardino, Francesco; Curto, Roberta*	
cepa.202200131 <b>Structural assessment of a post-tensioned box girder bridge affected by concrete creep</b> Sconocchia, Giuseppe Galassi*; Mariani, Francesco; Meoni, Andrea; Ierimonti, Laura; Venanzi, Ilaria; Ubertini, Filippo	

## THURSDAY, SEPTEMBER 28<sup>TH</sup>, 2023

### ILWA1 – Keynote Lectures

(08:30-10:00)

Chair: **Konrad Bergmeister**  
University of Natural Resources and Life Sciences (BOKU), Austria

Co-Chair: **Vikram Pakrashi**  
University College Dublin, Ireland



Digital transformation  
**Engel, Judith**  
ÖBB Infra AG  
Austria, Vienna



Sustainability in engineering  
**Gervásio, Helena**  
University of Coimbra  
Coimbra, Portugal

Coffee break (10:00-10:20)

### Parallel Technical Sessions

(10:20-12:15)

ILWA1 • ThM • MS18 Advanced methods and techniques for the quality evaluation of structural upgrade interventions

ILWA2 • ThM • MS11 Structural Health Monitoring, Digital Methods and Artificial Intelligence for Lifecycle Performance of Infrastructure Systems

ILWA3 • ThM • MS12 Corrosion and durability monitoring of bridges and structures

Lunch break (12:15-13:30)

### Parallel Technical Sessions

(13:30-15:30)

ILWA1 • ThA • MS19 Structural Health Monitoring

ILWA2 • ThA • MS11 Structural Health Monitoring, Digital Methods and Artificial Intelligence for Lifecycle Performance of Infrastructure Systems

ILWA3 • ThA • MS12 Corrosion and durability monitoring of bridges and structures

ILWA4 • ThA • MS7 Digital Bridge Monitoring: Integration of NDTs and Visualization Tools for Structural and Durability Assessment

Coffee break (15:30-15:45)

### Parallel Technical Sessions

(15:45-17:30)

ILWA1 • ThE • MS19 Structural Health Monitoring

ILWA2 • ThE • MS11 Structural Health Monitoring, Digital Methods and Artificial Intelligence for Lifecycle Performance of Infrastructure Systems

ILWA3 • ThE • MS13 Advances in the safety and integrity of critical infrastructures via the application of artificial intelligence

ILWA4 • ThE • MS18 Advanced methods and techniques for the quality evaluation of structural upgrade interventions

### Closing Session

(17:30-18:15)

## Thursday, September 28<sup>th</sup>, 2023 @ 10:20 – 12:15 (ThM)

### ILWA1

**MS18** Advanced methods and techniques for the quality evaluation of structural upgrade interventions

Chairs: Münch, Ingo  
Algemon, Daniel

cepa.202200111  
**Machine learning applications in nondestructive testing of concrete structures**  
Algemon, Daniel\*; Münch, Ingo; Muller, Aurélie; Thurnherr, Claudia

cepa.202200115  
**Cementitious materials with biological additive for enhanced durability in marine environment**

Iovane, Giacomo\*; Kim, Hayeon; Tizzano, Domenico; Mazzolani, Federico M.; Landolfo, Raffaele; Park, Solmoi; Faggiano, Beatrice

cepa.202200137  
**A deterministic model combining NDT to estimate permissible bending loads on trees**

Muench, Ingo\*; Loske, Simon

cepa.202200148  
**Effect of material strength uncertainties on the structural assessment of existing RC bridges**

Zizi, Mattia\*; Di Gennaro, Luciana; Bencivenga, Pasquale; De Matteis, Gianfranco

cepa.202200356  
**Ductility of RC columns confined with FRP sheets**

Apostolidi, Eftychia\*; Liakopoulou, Efstathia; Dritsos, Stephanos; Waldmann-Diederich, Danièle

cepa.202200818  
**External confinement with basalt fiber ropes in existing reinforced concrete structures**

Rousakis, Theodoros\*; Macha, Makrini

### ILWA2

**MS11** Structural Health Monitoring, Digital Methods and Artificial Intelligence for Lifecycle Performance of Infrastructure Systems

Chair: Schneider, Jens  
Klemt-Albert, Katharina

cepa.202200020  
**Towards an automated crack monitoring using distributed fiber optic sensors**

Richter, Bertram\*; Herbers, Max; Marx, Steffen

cepa.202200021  
**Crack monitoring on concrete structures using robust distributed fiber optic sensors**

Herbers, Max\*; Richter, Bertram; Marx, Steffen

cepa.202200029  
**Monitoring on federal highways bridges: current situation, future opportunities & digital implementation**

Hindersmann, Iris\*; Bednorz, Jennifer; Nieborowski, Sonja

cepa.202200050  
**Text recognition for 2D bridge plans using OCR algorithms**

Peng, Mengyan\*; Kang, Chongjie; Marx, Steffen

cepa.202200064  
**Sustainability assessment of bridge structures in the operation phase based on a digital twin**

Jäkel, Jan-Iwo\*; Kaus, Michelle; Klemt-Albert, Katharina

cepa.202200069  
**Concept for AI-supported information allocation based on IFC data**

Faltin, Fabian\*; Gille, Jonathan; Jäkel, Jan-Iwo

### ILWA3

**MS12** Corrosion and durability monitoring of bridges and structures

Chairs: Kessler, Sylvia  
Angst, Ueli

cepa.202200027  
**The role of durability monitoring in taking infrastructure maintenance to the level of industry 4.0**

Angst, Ueli M.\*; Femenias, Yurena Seguí; Moro, Fabrizio

cepa.202200036  
**Long-term resistivity monitoring of a lock – valuable data for different durability issues**

Spörel, Frank\*

cepa.202200053  
**Quality control criteria for gas permeability testing of concrete structures**

Ptacek, Lisa\*; Grba, Damian; Granzner, Maximilian; Sattler, Fabian; Frangopol, Dan M.; Strauss, Alfred

cepa.202200058  
**Optical sensors for the durability assessment of cement-based infrastructure**

Grengg, Cyrill\*; Müller, Bernhard; Zögl, Iris; Sakopanig, Marlene; Mittermayr, Florian; Mayr, Torsten; Sterz, Karl Leonhard; Juhart, Joachim; Galan, Isabel

cepa.202200072  
**Inspection and monitoring of post-tensioned bridges – advantages of electrically isolated tendons (EIT)**

Elsener, Bernhard\*

cepa.202200075  
**Experience and status of instrumented durability monitoring of concrete bridges in Norway**

Hornbostel, Karla\*; Vasshaug, Kristin

Thursday, September 28<sup>th</sup>, 2023 @ 13:30 – 15:30 (ThA)

<b>ILWA1</b>
<b>MS19 Structural Health Monitoring</b>
<b>Chairs:</b> Pakrashi, Vikram Reuland, Yves
cepa.202200063 <b>Laminated glass slabs design challenges: dynamic identification of a fractured pedestrian walkway</b>
Rosso, Marco Martino*; Aloisio, Angelo; Bedon, Chiara; Marano, Giuseppe Carlo
cepa.202200057 <b>The challenges of long-time high-sampled structural health monitoring: a practical feedback</b>
Cartiaux, François-Baptiste*; Semiao, Jorge
cepa.202200065 <b>Unexpected flange crippling of a newly built cyclist bridge</b>
Van Bogaert, Philippe; De Backer, Hans*
cepa.202200085 <b>Structural evaluation by reverse engineering with 3D laser scanner</b>
Jang, Arum*; Jeong, Sanggi; Park, Min Jae; Ju, Young K.
cepa.202200089 <b>A comparison of modal parameter identification tests in laboratory conditions</b>
Đukić, Đorđe*; Anžlin, Andrej; Hekič, Doron; Bohinc, Uroš; Kosič, Mirko
cepa.202200216 <b>Sensory monitoring system of the post-tensioned concrete bridge over the Odra River in Poland</b>
Kuzawa, Mieszko*; Bieñ, Jan
<b>ILWA2</b>
<b>MS11 Structural Health Monitoring, Digital Methods and Artificial Intelligence for Lifecycle Performance of Infrastructure Systems</b>
<b>Chairs:</b> Klemt-Albert, Katharina Marx, Steffen
cepa.202200074 <b>BIM-based immersive meetings for optimized maintenance management of bridge structures</b>
Jahnke, Christoph*; Jäkel, Jan-Iwo; Bott, Dorte; Meyer-Westphal, Markus; Klemt-Albert, Katharina; Marx, Steffen
cepa.202200080 <b>Permanent structural health monitoring of a new prestressed concrete bridge</b>
Wimmer, Johannes*; Braml, Thomas

cepa.202200087 <b>BIM-models of bridges in the operational phase: use cases, phase model and reference architecture</b>
Jäkel, Jan-Iwo*; Klemt-Albert, Katharina
cepa.202200106 <b>Concept for a digital twin of railway bridges on the example of the new Filstal bridges</b>
Naraniecki, Hubert*; Lazoglu, Alex; Marx, Steffen; Zaidman, Igor
cepa.202200132 <b>Virtual axle detector: train axle localization based on bridge vibrations</b>
Riedel, Henrik*; Lorenzen, Steven Robert; Rupp, Maximilian Michael; Fritzsche, Max Alois; Schneider, Jens
cepa.202200158 <b>Long-term validation of virtual sensing of a railway bridge with ballasted superstructure</b>
Lorenzen, Steven Robert*; Berthold, Hagen; Johannes, Max; Fritzsche, Alois; Rupp, Maximilian Michael; Riedel, Henrik; Apostolidi, Eftychia; Schneider, Jens

<b>ILWA3</b>
<b>MS12 Corrosion and durability monitoring of bridges and structures</b>
<b>Chairs:</b> Angst, Ueli Kessler, Sylvia
cepa.202200095 <b>Prediction of corrosion rates in view of climate change with rising temperatures</b>
Moro, Fabrizio*; Keßler, Sylvia; Landi, Filippo
cepa.202200161 <b>Weathering steel bridge structure after 30 years of service - assessment experience#</b>
Wierzbicki, Tomasz*; Królikowska, Agnieszka; Żółtowski, Mariusz
cepa.202200168 <b>Measurement of corrosion rates on reinforcement using the field test</b>
Koteš, Peter*; Zahuranec, Michal; Prokop, Jozef; Strauss, Alfred; Matos, José
cepa.202200264 <b>Probabilistic analysis of corrosion rates and degradation of weathering steel bridges</b>
Sykora, Miroslav*; Kreislova, Katerina; Markova, Jana; Mlcoch, Jan
cepa.202200677 <b>Cutting stock problem (CSP) applied to structural optimization for the minimum waste cost</b>
Cucuzza, Raffaele*; Domaneschi, Marco; Rosso, Marco Martino; Martinelli, Luca; Marano, Giuseppe Carlo

cepa.202200692 <b>Analysis of environmental data obtained from meteorological road stations in Latvia for 20 years</b>
Paegliitis, Ainars*; Paegliite, Ilze; Zugs, Maris

<b>ILWA4</b>
<b>MS7 Digital Bridge Monitoring: Integration of NDTs and Visualization Tools for Structural and Durability Assessment</b>
<b>Chairs:</b> Rasol, Mezgeen Fragiadakis, Michalis
cepa.202200663~ <b>A methodological proposal for the analysis of bridges inspections data according to the Italian Guidelines</b>
Mazzatura, Isabella*; Natali, Agnese; Salvatore, Walter; Principi, Lorenzo; Morici, Michele; Dall'Asta, Andrea
cepa.202200217 <b>Automated creation of an IFC-4 compliant damage model from a digital inspection supported by AI</b>
Further, Peter*; O'Brien, Peter
cepa.202200242 <b>Electromagnetic testing of multi-strand stay cables: novel technique and instrumentation</b>
Semenov, Alexey*; Slesarev, Dmitry
cepa.202200602 <b>Integration of measured data for the seismic fragility assessment of deteriorated bridges</b>
Fragiadakis, Michalis; Prentzas, Ioannis*; Georgioudakis, Manolis; Diamantopoulos, Spyridon; Markogiannaki, Olga; Stefanidou, Sotiria
cepa.202200832 <b>Mixed reality procedures for the maintenance of existing bridges and retaining walls</b>
Savini, Francesca*; Castiglia, Massimina; Gargaro, Danilo; Trizio, Ilaria; Fabbrocino, Giovanni
cepa.202200650 <b>Fire modelling and structural assessment of automated clad-rack warehouses</b>
Autiero, Margherita*; de Silva, Donatella; Bilotta, Antonio; Nigro, Emidio

Thursday, September 28<sup>th</sup>, 2023 @ 15:45 – 17:30 (ThE)

<b>ILWA1</b>
<b>MS19 Structural Health Monitoring</b>
<b>Chairs:</b> Chatzi, Eleni Pakrashi, Vikram
cepa.202200444 <b>A full-scale case study of vibration-based structural health monitoring of bridges: prospects and open challenges</b>
Reuland, Yves*; Garcia-Ramonda, Larisa; Martakis, Panagiotis; Bogoevska, Simona; Chatzi, Eleni
cepa.202200675 <b>Dealing with significant noise levels in vibration-based bridge health monitoring? A novel ARMA+Noise algorithm in the Frisch scheme context</b>
Zonzini, Federica*; Castaldi, Paolo; De Marchi, Luca
cepa.202200286 <b>Numerical investigation on buckling response of cylindrical steel storage tanks under seismic excitation</b>
Ullah, Shafiqat*; Mamaghani, Iraj H.P.
cepa.202200190 <b>Case study: use of SHM to support bridge assessment, maintenance and operation</b>
Paciacconi, Andrea*; Richli, Thomas
cepa.202200874 <b>Experimental validation of DFOS monitoring system for a bridge girder made of wind turbine blade</b>
Rajchel, Mateusz*; Kulpa, Maciej; Siwowski, Tomasz

<b>ILWA2</b>
<b>MS11 Structural Health Monitoring, Digital Methods and Artificial Intelligence for Lifecycle Performance of Infrastructure Systems</b>
<b>Chairs:</b> Marx, Steffen Schneider, Jens
cepa.202200448 <b>A Bayesian framework for simulation-based digital twins of bridges</b>
Arcones, Daniel Andrés*; Weiser, Martin; Koutsourelakis, Faidon-Stelios; Unger, Jörg F.
cepa.202200680 <b>Structural control and health monitoring contributions to service-life extension of bridges</b>
Domaneschi, Marco*; Martinelli, Luca; Cucuzza, Raffaele; Noori, Mohammad; Marano, Giuseppe Carlo

cepa.202200948 <b>Experimental verification of FRP bridge deck's monitoring system based on DFOS sensors</b>
Kulpa, Maciej*; Rajchel, Mateusz; Siwowski, Tomasz; Howiacki, Tomasz

<b>ILWA3</b>
<b>MS13 Advances in the Safety and Integrity of Critical Infrastructures via the Application of Artificial Intelligence</b>
<b>Chairs:</b> Ben Seghier, Mohamed El Amine Zayed, Tarek
cepa.202200039 <b>Automatic multi-label classification of bridge components and defects based on inspection photographs</b>
Pâques, Matthieu*; Law-Hine, Didier; Hamedane, Otmane Alami; Magnaval, Allezard, Nicolas

cepa.202200047 <b>Predicting wall thickness loss in water pipes using machine learning techniques</b>
Taiwo, Ridwan*; Ben Seghier, Mohamed El Amine; Zayed, Tarek

cepa.202200070 <b>Scrutinizing the performances of hybrid ANN models for forecasting condition of bridges</b>
Eishaboury, Nehal*; Ben Seghier, Mohamed El Amine; Abdelkader, Eslam Mohammed; Zayed, Tarek

cepa.202200071 <b>A novel chaotic optimization-oriented model for bridge maintenance and rehabilitation planning</b>
Abdelkader, Eslam Mohammed*; Ben Seghier, Mohamed El Amine; Eishaboury, Nehal; Zayed, Tarek

cepa.202200076 <b>Assessment of artificial intelligence-based techniques for the estimation of pile group scour depth</b>
Jafari-Asl, Jafar*; Ben Seghier, Mohamed El Amine; Panagiotis, Spyridis; Strauss, Alfred

cepa.202200133 <b>Data cleansing &amp; overfitting check for interpretable ML in concrete design – a punching shear paradigm</b>
Mellios, Nikolaos*; Spyridis, Panagiotis

<b>ILWA4</b>
<b>MS16 Advanced methods and techniques for the quality evaluation of structural upgrade interventions</b>
<b>Chairs:</b> Spyridis, Panagiotis Rousakis, Theodoros

cepa.202200082 <b>Load-bearing capacity of support block for temporary bridge girder end with L-shaped notch</b>
Li, Ruoxi*; Chen, Yu; Matsuda, Isao; Azuma, Hiroto; Yamaguchi, Takashi

cepa.202200102 <b>Analytical study on yield resistance for staggered arranged high strength bolted frictional joints</b>
Qian, Lin*; Sakura, Ryo; Yamaguchi, Takashi; Hayashi, Gen

cepa.202200103 <b>A coupled behaviour of web and flange on bending buckling of the web of steel box girder</b>
Ikeda, Miku*; Yamaguchi, Takashi; Arai, Shintaro; Hayashi, Gen

cepa.202200104 <b>Effect of surface coating condition on high-friction organic zinc-rich paints for HSFB joints</b>
Zou, Ying*; Yamaguchi, Takashi; Ueno, Keita; Hiraoka, Shinya

cepa.202200105 <b>Life cycle management for service life extension of structures</b>
Strauss, Alfred*; Zimmermann, Thomas; Bergmeister, Konrad

cepa.202200108 <b>Performance of joint structure of bent L-shaped steel members for GFRP wall railings</b>
Sekimoto, Masaki*; Hayashi, Gen; Yamaguchi, Takashi; Kubo, Keigo

cepa.202200973 <b>Performance prediction of anchors in SFRC using minimally invasive and non-destructive techniques</b>
Mellios, Nikolaos*; Kruschwitz, Sabine; Spyridis, Panagiotis



# MAP OF THE CONFERENCE VENUE

The Eurostruct 2023 conference will be held in the Ilse-Wallentin building (ILWA). The Ilse Wallentin Building consists of four upper floors constructed entirely of prefabricated wooden elements except for a concrete core, a concrete base, and a basement. The main access is on the somewhat elevated first floor and can also be reached via a connecting bridge from the neighboring Schwachhöferhaus. The spacious foyer leads directly to a seminar and event room for up to 200 people. The seminar center is named after Ilse Wallentin. She was the first woman graduated from the University of Natural Resources and Life Sciences Vienna in 1924.



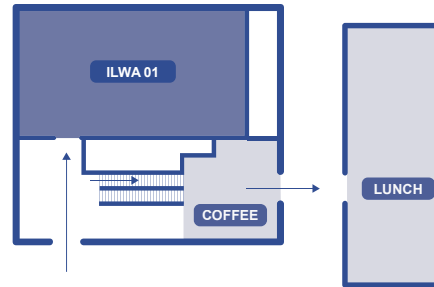
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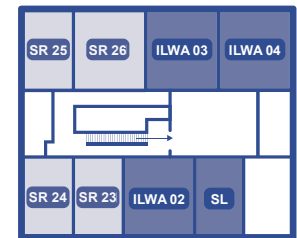
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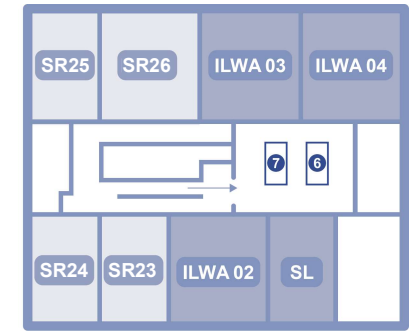
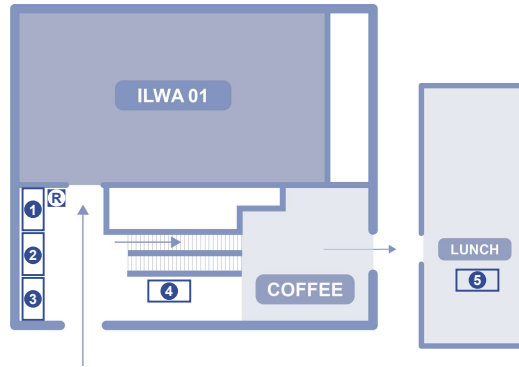
## ILWA Ground Floor (EG)



## ILWA Lower Level (UG)



## EXHIBITION



- 1** **Revotec**  
 Monitoring, Dynamics, Vibration Protection  
 Vienna, Austria  

- 2** **DEWESoft**  
 Data Collection Systems, Measurement and Field Tests  
 Kumberg, Styria, Austria  

- 3** **Manam**  
 Software Solutions for Road/Bridge Management  
 Caesarea, Israel  

- 4** **EuroStruct - Training School 2023**  
 Ljubljana, Slovenia  

- 5** **Červenka Consulting s.r.o.**  
 Nonlinear structural analysis of concrete and reinforced concrete  
 Praha, Czech Republic  

- 6** **Torrent - Materials Advanced Services Ltd.**  
 Air Permeability Testing, Durability Assessment of Concrete  
 Buenos Aires, Argentina; Coldrerio, Switzerland  

- 7** **Innovative Drainage Solutions b.v.**  
 Supplier and partner in developing new drainage methods  
 Elsloo, The Netherlands  

- R** **Registration**  


# SOCIAL PROGRAM

The Conference Social Program includes the attendance of the Welcome Reception on September 25<sup>th</sup>, Gala Dinner on September 27<sup>th</sup>, and Post-Conference Technical Tours on September 29<sup>th</sup>. These events are offered to all registered Conference Delegates and Accompanying Persons.

## WELCOME RECEPTION

**Ilse-Wallentin Building • University of Natural Resources and Life-Sciences • BOKU**  
 Peter Jordan Strasse 82, 1190 Wien  
 Monday, September 25<sup>th</sup>, 2023 • 19:00 - 21:00



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## GALA DINNER

**Festive Hall • Rathaus (Vienna City Hall)**  
 Friedrich-Schmidt-Platz 1, 1010 Wien  
<https://www.wien.gv.at/english/cityhall/>  
 Wednesday, September 27<sup>th</sup>, 2023 • 19:00 - 22:00



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# TECHNICAL VISITS

The following Post-Conference Technical Tours are organized for registered Delegates and Accompanying Persons.

## TECHNICAL TOUR #1 UNDERGROUND EXTENSION U2 AND U5 WITH IABSE AUSTRIA

**Tunnel + Vienna Hofburg Tour**  
 Friday, September 29<sup>th</sup>, 2023 • 09:00 - 15:00  
 Meeting Point: Peter Jordan Strasse 82, 1190 Wien

Registration by Tuesday September 19<sup>th</sup>, 2023 under:  
<https://eurostruct.org/eurostruct-2023/technical-visits-2023/>



### Underground extension U2 and U5

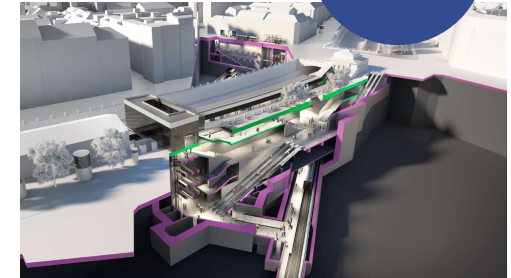
The extension of the U2 and the reconstruction and new construction of the U5 are together the most important future project for Vienna's public transport system. Unlike the most recent subway projects, which are of great importance primarily for the local population with the further development of a specific district, the U2xU5 line interchange brings a noticeable improvement in quality for the overall network.

[Extension and construction of new subway lines \(wien.gv.at\)](https://www.wien.gv.at)

### Vienna Hofburg Tour (Vienna Imperial Palace)

The Vienna Imperial Palace, also known as the Hofburg Palace, is a historic and iconic building located in the center of Vienna, Austria. It has served as the imperial residence of the Habsburg dynasty, one of the most powerful and influential royal families in European history. The palace complex has evolved over centuries, with various additions and renovations.

[Vienna Hofburg Tickets and Tours | musement](https://www.wien.gv.at)



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### Tour Scheduling

09	Departure (09:00-10:00)
10	Onsite visit of the underground extension U2 and U5 (10:00-12:00)
11	Lunch break (12:00-13:00)
12	Vienna Hofburg Tour (13:00-15:00)
13	
14	
15	

## TECHNICAL TOUR #2 OF THE LINZER SUSPENSION BRIDGE WITH IABSE AUSTRIA

### Bridge + Ars Electronica

Friday, September 29<sup>th</sup>, 2023 • 09:00 - 17:00  
Meeting Point: Peter Jordan Strasse 82, 1190 Wien

Registration by Tuesday September 19<sup>th</sup>, 2023 under:  
<https://eurostruct.org/eurostruct-2023/technical-visits-2023/>



### Suspension Bridge in Linz

The 4th bridge across the Danube in Linz is part of Austria's A 26 highway development. It's a four-lane western bypass for Linz, crossing a busy waterway, rail tracks, and two federal highways. The steep rock slopes of the Danube valley allow direct anchoring of supporting cables, eliminating the need for pylons. The bridge's superstructure is a composite steel construction with a central steel box girder and haunched steel crossbeams spaced at hangers' intervals. The suspension cable bundles consist of 12 parallel, fully locked spiral cables with a 95 mm diameter.

Blog Asfinag - Ein Projekt der Superlative: die Donaubrücke der A 26



© structurae.net

© maegspa.com

### Ars Electronica

The Ars Electronica Center (AEC), also referred to as the „Museum of the Future,“ opened in 1996 and has set itself the goal of making the technologies of future generations tangible in the present. In doing so, different directions of art, science and technology are addressed and interwoven. The building was completely rebuilt for the Capital of Culture 2009 and since then has over 3000 m<sup>2</sup> of exhibition space.

Ars Electronica Center – Museum der Zukunft



© tourdata.at

### Tour Scheduling

09 **Departure**  
(09:00-10:00)

10 **Onsite visit of the suspension bridge**  
(10:00-12:00)

12 **Lunch break**  
(12:00-13:00)

14 **Visit of Ars Electronica**  
(13:00-16:00)

16 **Return**  
(16:00-17:00)

## OPTIONAL TOURS

### PROGRAMM FOR ACCOMPANYING PERSONS

The Conference Social Program includes the attendance of the Welcome Reception on September 25<sup>th</sup>, Gala Dinner on September 27<sup>th</sup>, and Post-Conference Technical Tours on September 29<sup>th</sup>. These events will be offered to all registered Conference Delegates and Accompanying Persons.

Optional Tours for Accompanying Persons, Family, and Friends of Conference Delegates have been also organized. The Optional Tours will require a separate registration.



Sagen - Mythen und Legenden •  
Legends - myths and legends

© wienfuehrung.at

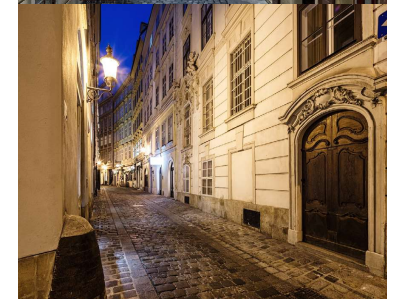


Best of Vienna tour

© geo.de



Pfade in der Wiener Altstadt •  
Paths in the old city of Vienna



© unesco.at © chp-austria.at



# EUROSTRUCT TRAINING SCHOOL 2023

## BRIDGE ASSESMENT TRAINING SCHOOL @ ZAG LJUBLJANA

The objective of the EUROSTRUCT Training School, hosted by ZAG Ljubljana, is the exchange of knowledge and experience in inspection, monitoring and bridge assessment of bridges, to encourage awareness and responsibility of structural engineers towards the needs of society, and to encourage actions necessary for the progress of quality control in bridges and structures.

**Venue:** Slovenian National Building and Civil Engineering Institute (ZAG), Ljubljana, Slovenia.  
**Time:** 17. – 20. October 2023  
**Capacity:** 15 – 25 trainees  
**Fee:** €400 per person

### Training school program:

- Expert Insight on Bridge Management
- Design and monitoring of bridges
- Bridge assessment concept, Weigh-in-motion Technology

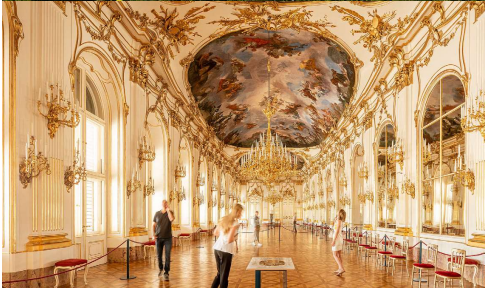
### Highlights:

- Exclusive Site-visit of SHM living lab
- Showcase your work to workgroups
- Networking and learning on real data and case-study structures



Use QR code for a detailed program and registration details.

Schloss Schönbrunn Tickets und Touren • Schönbrunn Palace tickets and tours



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Schloss Belvedere • Belvedere Palace



© arrivalguides.com

Albertina Museum Vienna



© wikipedia.org

Hundertwasserhaus Wien • Hundertwasser House Vienna



© city-walks.info © wikipedia.org



# TRANSPORTATION & LOCAL INFO



## VIENNA INTERNATIONAL AIRPORT (VIE)

The main airport of Vienna, the capital of Austria, is situated in Schwechat, approximately 18 km (11 mi) southeast of central Vienna and 57 km (35 mi) west of Bratislava, the capital of Slovakia. Referred to as the Wien-Schwechat Airport it stands as the largest airport in the country. Austrian Airlines operates primarily from this hub, while low-cost carriers Notably, the airport is equipped to handle wide-body aircraft, including the Airbus A380. With an extensive network of European connections and offering long-haul flights to destinations in Asia, North America, and Africa, it serves as a crucial international gateway for air travel.

With two Airport Service counters on the departures level (Terminal 1, Terminal 3) and one Airport Service counter in the arrivals hall, airport staff is available to provide passengers with advice and assistance.

Facilities available at the airports include tourist information offices and car rental services.

You can also contact the Vienna International Airport by e-mail for service enquiries.



## PUBLIC TRANSPORT

Vienna has a well-developed public transport network. Buses, trains, trams, and underground lines will take you almost anywhere in the city in no time at all. Vienna public transport Wiener Linien operates five underground lines, 29 tram and 127 bus lines, of which 24 are night lines. Night lines only operate between 0.30 am and 5 am. On weekends and public holidays, the Vienna underground remains at the service of its passengers all night. A single ticket costs € 2.40.

### Where to buy a ticket

- ticket machines at most underground stations
- points of advance sale (German)
- tobacconists also sell tickets
- on board the tram at an increased rate of
- € 2.60 per ticket
- Buy tickets online: Wiener Linien Online Shop

### How to validate your ticket

Tickets must be validated before boarding. To validate your ticket stamp the ticket at the blue machines located at the entrance of underground stations as well as on buses and trams. Tickets bought directly from the tram or bus driver are automatically validated and need not be stamped again.



## HOW TO GET TO ILSE-WALLENTIN BUILDING AND TÜWI AT BOKU

The best way to reach the BOKU site area by public transport is with the following lines:

### direction out of town:

- Bus 10A in the direction of Niederhofstraße to the Dänenstraße station
- Bus 37A in the direction of Dänenstraße to the station Dänenstraße
- Bus 40A direction Döbler Friedhof to the station Dänenstraße or Borkowskigasse

### direction towards the city center:

- Bus 10A direction Bahnhof Heiligenstadt to station Dänenstraße
- Bus 37A direction Engerthstraße/Traisengasse to station Dänenstraße
- Bus 40A direction Schottentor to station Dänenstraße or Borkowskigasse

Also, the Suburban line S45 direction Handelskai or Hütteldorf to station Gersthof is a good way to reach BOKU.

The Bus line 10A is connected to the local suburban line (Bhf. Heiligenstadt, Gersthof) and the underground lines U3 (Johnstraße), U4 (Schönbrunn, Meidlinger Hauptstraße), and U6 (Niederhofstraße)

The Bus line 40A is connected to underground line U6 (Währingerstraße Volksoper) and finishes at the city center (Vienna Schottentor/Börse)

The Bus line 37A is connected to underground lines U6 (Dresdner Straße, Spittelau, Nußdorfer Straße), U4 (Spittelau), and the local suburban line (Traisengasse, Spittelau).



## LOCAL INFO VIENNA

### Weather

Vienna in September has temperatures ranging from a minimum of 12°C to a maximum of 21°C. It is a bit milder in September so it is a good idea to bring something to cover up with.

In Vienna, you can expect 3 to 8 rainy days in September. It is a good idea to bring your umbrella so that you are not exposed to bad weather.

### Currency

The currency in Austria is the Euro. You can exchange currency in banks, exchange offices, airports, and hotels. For daily exchange rates, please visit the website of the Österreichische Nationalbank.

If you do not want to exchange your currency, you can use credit or debit cards. MasterCard and Visa are widely accepted by most merchants. A little cash is however recommended for small expenses. Coins are available in €2 and €1. Paper notes are available in the same denominations as the US dollar up to €500 (€5, €10, €20, €50, €100, €200, €500).

### Time Zone

Austria in September observes the Central European Summer Time (CEST, UTC+2), lasting from the last Sunday in March to the last Sunday in October and one hour ahead the Central European Time (CET, UTC+1).

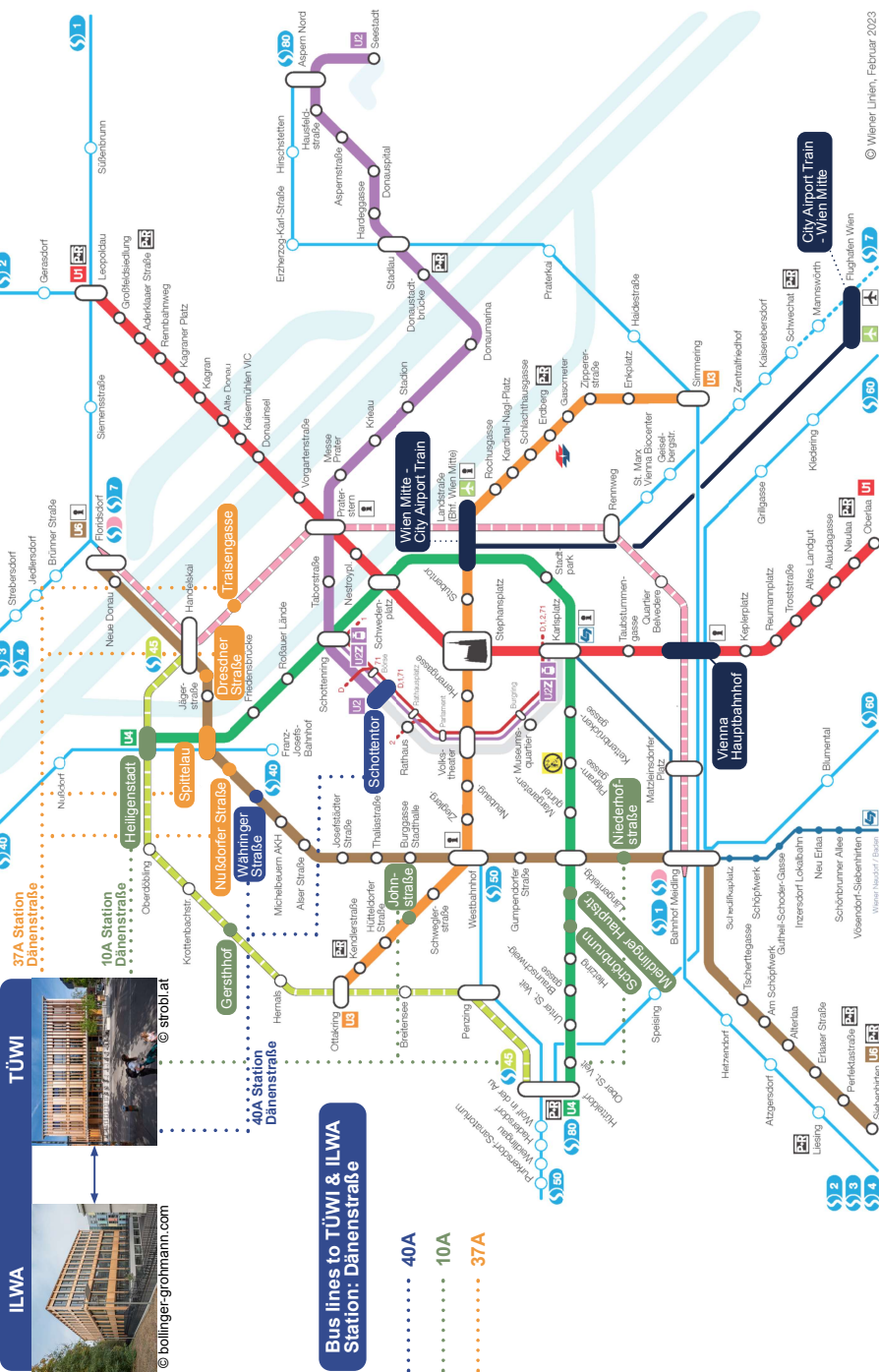
### Electricity

Electricity in Austria is 230 volts, 50 cycles alternating current (AC). Austrian power plugs sockets are designed to accept round pins and the following plug types: type F, type C, and type E





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Bus lines to TÜWI & ILWA Station: Dänenstraße

- ..... 40A
- ..... 10A
- ..... 37A

© Wiener Linien, Februar 2023

# PATRONAGES



Wiener Linien  
Vienna, Austria  
<https://www.wienerlinien.at/>



University College Dublin  
Dublin, Ireland  
<https://www.ucd.ie/>



University of Minho  
School of Engineering  
University of Minho  
Guimarães, Portugal  
<https://www.uminho.pt/>



ATLSS Engineering Research Center  
Lehigh University  
Bethlehem, Pennsylvania, USA  
<https://atlss.lehigh.edu/>



International Association for  
Life-Cycle Civil Engineering  
<https://www.ialcce.org/>



University of Natural Resources  
and Life Sciences  
Vienna, Austria  
<https://boku.ac.at/>



University of Belgrade  
Belgrade, Serbia  
<https://www.bg.ac.rs/>



International Association for Bridge  
Maintenance and Safety  
<http://www.iabmas.org/>



ÖBB Holding-AG  
<https://holding.oebb.at/de/>



Polytechnic University of Catalonia  
Barcelona, Spain  
<https://www.upc.edu/>



Autobahnen- und Schnellstraßen-  
Finanzierungs-Aktiengesellschaft  
<https://www.asfinag.at/>



TMOB-Hub – Transportation  
and Mobility Research  
Guimarães, Portugal  
<https://tmo-hub.pt/>



# EXHIBITORS & SPONSORS



Monitoring, Dynamics,  
Vibration Protection  
Vienna, Austria  
<https://www.revotec.at/de/>



Vienna, Austria  
South Tyrol, Italy  
Munich, Germany  
Bülach, Switzerland  
<https://www.bergmeister.eu/en>



Non-Destructive Testing,  
Image Solutions, Concrete  
Schwerzenbach, Zurich, Switzerland  
<https://www.screeningeagle.com>



Air Permeability Testing, Durability  
Assessment of Concrete  
Buenos Aires, Argentina  
Coldreio, Switzerland  
<http://www.m-a-s.com.ar/>



Supplier and partner in developing  
new drainage methods  
Limburg, Netherlands  
<https://www.bridge-drainage.com>



Nonlinear structural analysis of concrete  
and reinforced concrete  
Praha, Czech Republic  
<https://www.cervenka.cz/>



Software Solutions for  
Road/Bridge Management  
Caesarea, Israel  
<https://www.manamapps.com/en/home>



# EUROSTRUCT



EuroStruct  
Training School 2023  
Ljubljana, Slovenia  
<https://eurostruct.org/training-school-2023/>



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OBERE VIADUKTGASSE 2/8  
1030 WIEN · [www.kob-zt.at](http://www.kob-zt.at)

Innovative Solutions  
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