



CETRA 2024

# 8<sup>th</sup> International Conference on Road and Rail Infrastructure

15–17 May 2024  
Cavtat, Croatia

## Final Programme

ORGANIZER  
University of Zagreb  
Faculty of Civil Engineering  
Department of Transportation



SUPPORTING ORGANIZATIONS



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# WELCOME TO CETRA 2024 AND WELCOME TO CAVTAT

The CETRA conference has established itself as a venue where scientific and professional information from the field of road and rail infrastructure is exchanged. The idea on linking research organisations and economic operators has been the guiding concept for the realisation of this conference. Conferences of this kind are undoubtedly a proper place for bringing closer together the economy and university operators, and for facilitating communication and establishing greater confidence that might result in cooperation on new projects, especially those that contribute to greater competition. Lectures organized in the scope of the conference are based on interesting technical solutions and on new knowledge from the field of transport infrastructure as gained on already realised projects, projects currently at the planning stage, and those now under construction, in all parts of the world. In addition to authors from the academic community, lectures were also presented by practical authors, the idea being to ensure the best possible synergy between the theory and practice.

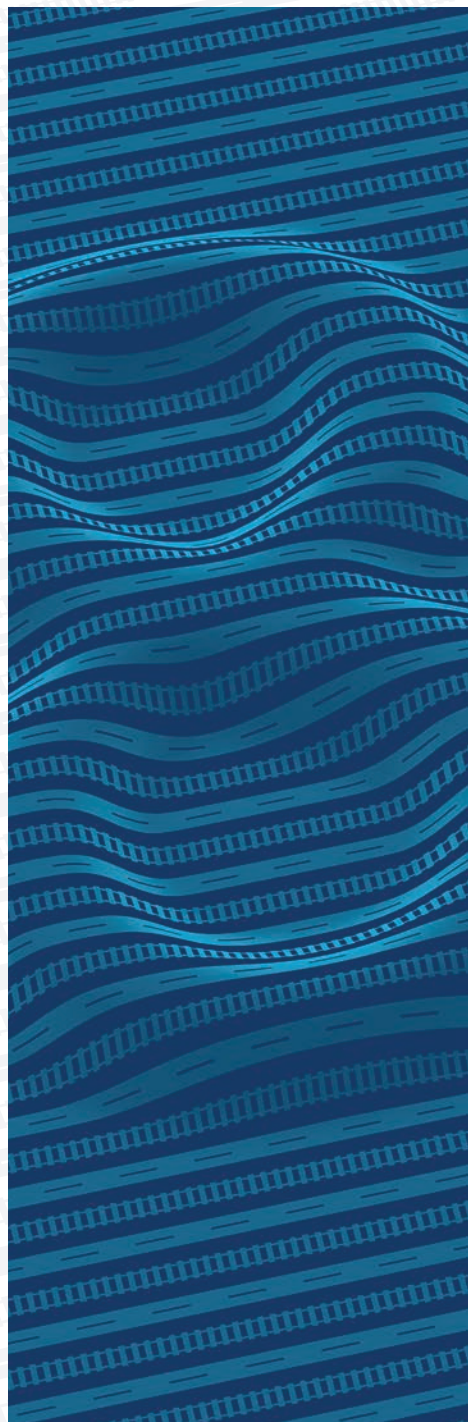
Although the transport needs of nations around the world differ in detail, there is much benefit to be derived by sharing research findings and practical experience. CETRA Conference aims to provide a forum for dialogue on important issues across all disciplines and aspects of the road and rail sectors. The main gaps to be filled are those between researchers and practitioners in design, construction, maintenance, and management of transport infrastructure systems, especially regarding an increased need for sustainable and resilient transport systems – with minimum environmental impacts and able to withstand disruption and absorb disturbance by adapting to changing conditions, including climate change.

CETRA 2024 attracted a large number of papers and presentations from 39 countries and 136 institutions (from that 64 universities). More than 149 papers (from 208 submitted) were presented at the conference and are grouped together in the proceedings entitled Road and Rail Infrastructure VIII. The papers are conveniently divided into twelve chapters and one chapter regarding PhD students with extended abstracts.

The organizers would like to thank all the companies and institutions that provided valuable support for this conference. The persistence of organisers and great perseverance of the authors who have accepted to present their valuable scientific achievements and interesting professional projects present on conference in front of a live audience are the proof that only by acting together, we will be able to overcome challenges that inevitably occur in the society. High quality papers published in the Conference Proceedings are the result of great efforts of the authors and reviewers as they have worked in close synergy to achieve outstanding papers that are included in the proceedings and presented at the conference. We believe that the papers published in the proceedings will be interesting not only to our colleagues in the everyday engineering practice but also to students of technical faculties where disciplines from the field of road and rail infrastructure are studied. We wish you all a pleasant and productive time in Cavtat at CETRA 2024 Conference.



Stjepan Lakušić & Željko Korlaet  
Chairmen of CETRA 2024 Conference



# CONFERENCE PROGRAMME – SHORT VERSION

## DAY 1 – Wednesday, May 15<sup>th</sup>

16:00 – 19:00 Registration of the Participants – Hotel Lobby

18:00 – 19:00 A Welcome Cocktail for Participants and Guests – Hotel Terrace

## DAY 2 – Thursday, May 16<sup>th</sup>

08:00 – 09:00 Registration of the Participants – Hotel Lobby

Hall A | Ragusa

Hall B | Orlando

Hall C | Bobara

09:00 – 09:30 **Opening Ceremony**

09:30 – 10:15 **Keynote Lecture**

A CONSTITUTIVE MODEL FOR HYDRO-MECHANICAL ANALYSIS OF GRANULAR MATERIALS SUBJECT TO CYCLIC LOADING  
**Prof. Nasser Khalili, University of New South Wales, Australia**

10:15 – 11:00 **Keynote Lecture**

INNOVATIVE SYSTEM FOR 3D MEASUREMENT OF S&C CRITICAL PARAMETERS  
**Prof. Stasha Jovanovic, University of Novi Sad, Serbia**

11:00 – 11:30 Coffee Break

11:30 – 13:00 **A1: Railway Infrastructure Strategic Asset Management**

**B1: Safe Road Infrastructure Planning and Management**

**C1: Railway Superstructure Optimization and Monitoring**

13:00 – 14:00 Lunch Break – 1<sup>st</sup> Floor

14:00 – 15:30 **A2: Road Infrastructure Strategic Planning and Management**

**B2: Active Mobility Infrastructure for Sustainable Urban Transport**

**C2: Railway Superstructure Condition Assessment**

15:30 – 16:00 Coffee Break

16:00 – 17:30 **A3: Road Infrastructure Sustainable Design and (Re)Construction**

**B3: Re-Shaping Urban Mobility**

**C3: Vibration-Based Rail Infrastructure Monitoring and Assessment**

17:30 – 18:00 Coffee Break

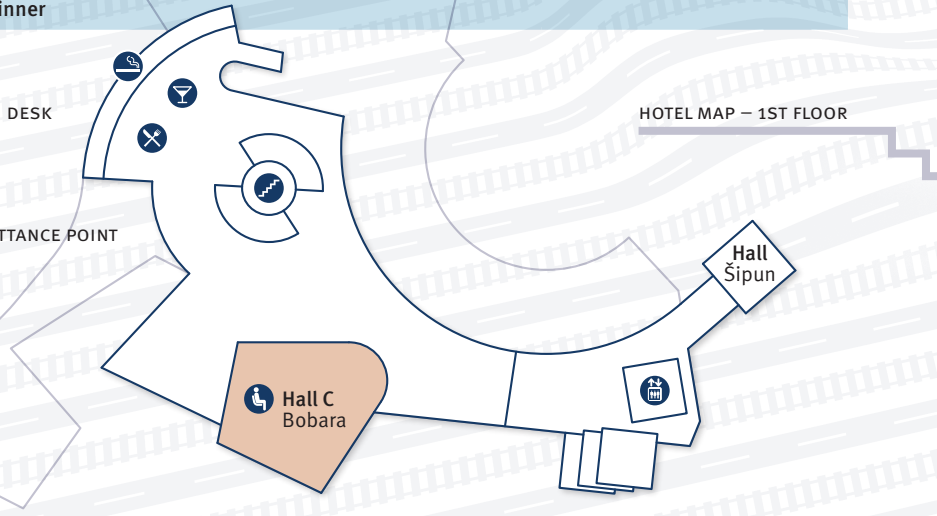
18:00 – 19:30

**B4: Railway Facilities Design and Performance Evaluation**

**C4: Geotechnical Structures Condition Assessment**

20:30 – 23:00 **Gala Dinner**

-  HOTEL RECEPTION
-  CETRA REGISTRATION DESK
-  CONFERENCE HALLS
-  EXHIBITION AREA
-  PRESENTATION ADMITTANCE POINT
-  WELCOME COCKTAIL
-  RESTAURANT
-  BAR
-  TERRACE
-  ELEVATOR
-  STAIRCASE

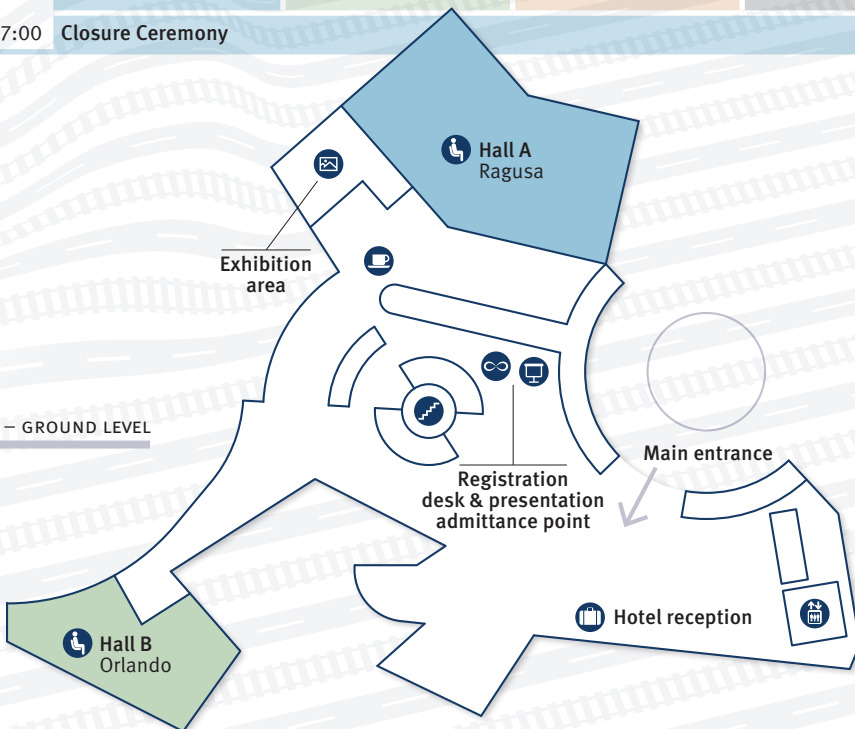


HOTEL MAP – 1ST FLOOR

**DAY 3 – Friday, May 17<sup>th</sup>**

	Hall A   Ragusa	Hall B   Orlando	Hall C   Bobara	Hall Šipun
09:00 – 10:30	A5: Design and Evaluation of Asphalt Pavement Mixtures	B5: Railway Facilities and Vehicles Operation Optimization and Management	C5: Safe Road Infrastructure Design	Workshop: Project URITMIS
10:30 – 11:00	Coffee Break			
11:00 – 12:30	A6: Innovations and Green Technology in Pavement Materials and Engineering	B6: Enhancing Road and Rail Safety through Novel Structural Health Monitoring Applications on Bridges	C6: Safe Road Infrastructure Monitoring and Analysis	Workshop: Project URITMIS
12:30 – 13:30	Lunch Break – 1 <sup>st</sup> Floor			
13:30 – 15:00	A7: Pavement Structures Monitoring and Condition Assessment	B7: Transportation Structures Monitoring and Optimization	C7: Road Transport Operation Management and Service Quality	
15:00 – 15:30	Coffee Break			
15:30 – 16:45	A8: Railway Infrastructure Strategic Planning and Modernization		C8: PhD Session – Miscellaneous	
16:45 – 17:00	Closure Ceremony			

HOTEL MAP – GROUND LEVEL



# CONFERENCE PROGRAMME – DETAILED VERSION

## DAY 2 – Thursday, May 16<sup>th</sup>

### Thursday, May 16<sup>th</sup> Session A1

**Railway Infrastructure Strategic Asset Management**  
Moderators: Ivo Haladin & Stasha Jovanovic

Time	ID	Paper Title / Author(s)
11:30 – 13:00	1744	CURRENT TECHNICAL FEATURES AND DEVELOPMENT TRENDS OF HIGH-SPEED RAILWAY IN CHINA <b>Rongshan Yang</b>
	1719	LJUBLJANA RAILWAY STATION UPGRADE <b>Luka Šoško, Jure Raspor &amp; Stipe Šoško</b>
	1608	NEW PROCESS OF DETERMINATION OF THE POTENTIAL AND SCOPE OF THE RAILWAY INFRASTRUCTURE <b>Milan Dedík, Jozef Gašparík, Zdenka Bulková &amp; Vladislav Zitrický</b>
	1594	UTILIZATION OF REGIONAL LINES AS ALTERNATIVE ROUTES FOR THE IMPROVEMENT OF THE RESILIENCE OF THE RAILWAY INFRASTRUCTURE IN CASE OF EMERGENCIES <b>Adriana Pálková, Zdenka Bulková &amp; Jaroslav Mašek</b>
	1517	LCA COMPARISON OF SLAB TRACK VS. BALLASTED TRACK <b>Dieter Knabl &amp; Matthias Landgraf</b>
	1518	AN INVESTIGATION OF REASONS AND CONSEQUENCES OF DETERIORATED HYDRAULIC CAPACITIES OF CULVERTS CONCERNING RAILWAY TRACK STABILITY <b>Niyazi Özgür Bezzin</b>
13:00 – 14:00	Lunch Break	

### Thursday, May 16<sup>th</sup> Session B1

**Safe Road Infrastructure Planning and Management**  
Moderators: Saša Ahac & Dario Babić

Time	ID	Paper Title / Author(s)
11:30 – 13:00	1617	REVIEW OF LOW-BUDGET MEASURES FOR THE PREVENTION OF TRAFFIC ACCIDENTS AT LEVEL CROSSINGS <b>Danijela Barić &amp; Silvestar Grabušić</b>
	1532	EVALUATION OF AVAILABLE SIGHT DISTANCE ESTIMATION METHOD ON RURAL ROADS ACCORDING TO CROATIAN REGULATION <b>Ivica Stančerić, Šime Bezina, Željko Stepan &amp; Tamara Džambas</b>
	1629	ENHANCEMENT OF ROAD SAFETY: A PROPOSED REVISION OF THE REGULATIONS FOR THE DESIGN OF PUBLIC ROADS IN CROATIA <b>Igor Majstorović, Ivica Stančerić, Ana Rigo &amp; Željko Stepan</b>
	1660	SURFACE DRAINAGE AND AQUAPLANING RISK IN ROAD INFLECTION ZONES <b>Vladan Ilić, Nikola Milovanović, Miloš Lukić, Dejan Gavran, Sanja Fric, Filip Trpčevski &amp; Stefan Vranjevac</b>
	1586	APPLICATION OF THE IHSDM FOR ANALYSIS OF ROAD DESIGN CONSISTENCY AND ASSESSMENT OF THE NUMBER AND TYPE OF TRAFFIC ACCIDENTS: A CASE STUDY OF THE CROATIAN STATE ROAD DC1 <b>Biljana Maljković, Dražen Cvitanić &amp; Deana Breški</b>
	1595	PARTICIPATION OF AUTONOMOUS VEHICLES IN REAL-LIFE TRAFFIC: AN ASSESSMENT OF THE BEHAVIOUR OF ROAD USERS <b>Vladislav Kondratovič, Jurgita Rimkuvienė &amp; Donatas Čygas</b>
13:00 – 14:00	Lunch Break	

Thursday, May 16<sup>th</sup>  
Session C1

**Railway Superstructure Optimization and Monitoring**  
Moderators: Maja Ahac & Otto Plášek



Time	ID	Paper Title / Author(s)
11:30 – 13:00	1592	<b>INDUCTIVE RAILWAY TURNOUT HEATING SYSTEMS – A REVIEW OF SCIENTIFIC PUBLICATIONS</b> <b>Julian Heger</b>
	1521	<b>FROM MIXED TRAFFIC TO URBAN TRANSPORT: ACHIEVING LONGEST SERVICE LIVES AND LOWEST MAINTENANCE NEEDS BY TAILOR-MADE RAIL SOLUTIONS WITH SMART MICROSTRUCTURES</b> <b>Rainer Hochfellner &amp; Lukas Prettner</b>
	1738	<b>CLIMATE CHANGE AND RAILWAY INFRASTRUCTURE: CHALLENGES AND ADAPTIVE MEASURES</b> <b>Ivo Haladin, Katarina Vranešić &amp; Franka Meštrović</b>
	1525	<b>PROJECT NONIS – DEVELOPMENT OF OPTIMIZED AND SUSTAINABLE INSULATED RAIL JOINT SYSTEMS</b> <b>Maximilian Bürgler &amp; Stefan Marschnig</b>
	1589	<b>PREDICTIVE ANALYTICS FOR ENHANCING PERFORMANCE AND SAFETY IN CONTINUOUSLY WELDED RAIL</b> <b>Zsolt László Orbán &amp; Laurențiu Mărculescu</b>
	1599	<b>OPTIMIZING RAIL INTEGRITY – DEFINING NEW STRESS-FREE TEMPERATURE INTERVALS FOR CONTINUOUSLY WELDED RAIL (CWR)</b> <b>Laurențiu Mărculescu &amp; Zsolt Laszlo Orban</b>
	1676	<b>RAIL STRUCTURE INTERACTION ANALYSIS FOR BRIDGE ACROSS RIVER VATRAK IN THE STATE OF GUJRAT, INDIA</b> <b>Jithin C, Vasanth Kumar Samyayya &amp; Subir Das</b>
	1673	<b>ANALYSING RAIL STRUCTURE INTERACTION IN OPEN WEB STEEL GIRDERS WITH VARIED SPANS: A COMPREHENSIVE CASE STUDY</b> <b>Jithin C, Prayas Taludkar &amp; Vasanth Kumar Samyayya</b>
13:00 – 14:00	Lunch Break	



REMARK: Official languages of the conference are Croatian and English. We kindly ask the participants to acquire devices for simultaneous translation that will be available in front of congress hall A (Ragusa).

NAPOMENA: Službeni jezici konferencije su hrvatski i engleski. Ljubazno molimo sudionike konferencije da koriste uređaje za simultano prevodenje koji će biti dostupni u konferencijskoj dvorani A (Ragusa).

**Thursday, May 16<sup>th</sup>  
Session A2**

**Road Infrastructure Strategic Planning and Management**  
Moderators: Vesna Dragčević & Aleksandra Deluka Tibljaš



Time	ID	Paper Title / Author(s)
14:00 – 15:30	1559	ADDRESSING CHARGING INFRASTRUCTURE LOCATION PROBLEM CONSIDERING DYNAMIC DEMAND AND SUPPLY <b>Ilyas Cihan Aksoy, Mehmet Metin Mutlu &amp; Yağın Alver</b>
	1552	ANALYSIS OF THE LOCATION FOR THE ACCOMMODATION OF THE NEW TRAM AND BUS DEPOT OF GSP BEOGRAD <b>Ljiljana Milić Marković, Ljubo Marković &amp; Dragana Biber</b>
	1666	KEY INDICATORS AFFECTING THE EVOLUTION OF ROAD TRAFFIC IN ROMANIA <b>Robert Adrian Sandu &amp; Carmen Răcănel</b>
	1616	ROAD ASSET MANAGEMENT MANUAL OF THE WORLD ROAD ASSOCIATION PIARC <b>Darko Kokot &amp; Vittorio Nicolosi</b>
	1639	ROAD INFRASTRUCTURE MANAGEMENT USING MODERN TECHNOLOGICAL APPROACHES IN THE LIGHT OF LIMITING BARRIERS <b>Stefan Sedivy, Martina Jackova, Ingrid Zuziakova, Zuzana Florkova &amp; Peter Danisovic</b>
	1705	ROAD ASSET EVALUATION MODELS, CASE STUDY <b>Diana Bardhi</b>
	1741	ANALYSIS OF WILLINGNESS TO PAY FOR SLOPE FAILURE RECONSTRUCTION IN THE DEMOCRATIC REPUBLIC OF TIMOR LESTE: USING SURVIVAL TIME ANALYSIS <b>Yuki Minematsu, Makoto Fujiu, Yuma Morisaki, Yosuke Kon &amp; Junichi Takayama</b>
15:30 – 16:00		Coffee Break

**Thursday, May 16<sup>th</sup>  
Session B2**

**Active Mobility Infrastructure for Sustainable Urban Transport**  
Moderators: Maja Ahac & Sanja Fric



Time	ID	Paper Title / Author(s)
14:00 – 15:30	1560	RELATING ACTIVE TRAVELLER EXPECTATIONS TO SURFACE CONDITION MANAGEMENT OF CYCLE FACILITIES <b>Carl Van Geem &amp; Tim Massart</b>
	1689	ANALYSIS OF CYCLING INFRASTRUCTURE – A CASE STUDY OF SPLIT <b>Deana Breški, Biljana Maljković &amp; Martin Matić</b>
	1663	EVALUATION OF A SHARED CYCLE APPLYING A QUEUEING NETWORK <b>Takashi Miyazawa &amp; Kazuyuki Takada</b>
	1563	ENHANCING URBAN SUSTAINABLE MOBILITY: A BINARY LOGISTIC REGRESSION APPROACH TO MODELLING CYCLISTS' BEHAVIOUR <b>Yağın Alver &amp; Elia Odabasi</b>
	1714	SIMULATING THE PROCESSES OF GOODS DELIVERING CARGO BICYCLES <b>Hanna Vasiutina &amp; Vitalii Naumov</b>
	1513	PEDESTRIAN BEHAVIOR ON EGE UNIVERSITY CAMPUS SIDEWALKS <b>Yağın Alver, Ozgen Acet &amp; Pelin Onelcin</b>
	1554	PREDICTING PEDESTRIAN CROSSING SPEED AT UNSIGNALIZED INTERSECTIONS WITH XGBOOST <b>Pelin Onelcin &amp; Yağın Alver</b>
	1605	URBAN TRANSPORT INFRASTRUCTURE AND GREEN INFRASTRUCTURE: ACTIONS TO MITIGATE CLIMATE CHANGE <b>Milica Pavić &amp; Igor Jokanović</b>
15:30 – 16:00		Coffee Break



Thursday, May 16<sup>th</sup>  
Session C2

Railway Superstructure Condition Assessment  
Moderators: Ivo Haladin & Niyazi Özgür Bezin



Time	ID	Paper Title / Author(s)
14:00 – 15:30	1688	IDENTIFYING ISOLATED DEFECTS IN THE BALLAST BED USING A FRACTAL ANALYSIS APPROACH WITH REDUCED WINDOW LENGTH <b>Andrea Katharina Korenjak, Stefan Offenbacher &amp; Stefan Marschnig</b>
	1598	LONG-TERM GEOMETRY EVALUATION IN SWITCHES AND CROSSINGS AND THEIR MUTUAL COMPARISON <b>Lukáš Raif, Miroslava Hruzíková, Otto Plášek &amp; Michal Vyhřídál</b>
	1539	TEMPERATURE DISTRIBUTION AT RAIL AND HEATING ROD RESULTING FROM VARYING THERMAL CONTACT RESISTANCES BETWEEN HEATING ROD AND RAIL OF HEATED SWITCH POINTS <b>Markus Schladitz, Robert Adam &amp; Stephan Schlegel</b>
	1684	ENHANCING RAIL DEFECT DETECTION: COMPARATIVE ANALYSIS OF TWO-LAYER AND FIVE-LAYER CNN NETWORKS <b>Saeed Mohammadkhah, Joaquim Tinoco, Jesus Frias &amp; José Campos e Matos</b>
	1531	CALIBRATION OF AN NDT METHOD FOR DETECTION AND QUANTIFICATION OF ROLLING CONTACT FATIGUE DAMAGE IN MANGANESE STEEL TURNOUTS IN TRACK <b>Christoph Tuschl, Beate Oswald-Tranta &amp; Sven Eck</b>
15:30 – 16:00	Coffee Break	



Dubrovnik Old Town

Thursday, May 16<sup>th</sup>  
Session A3

Road Infrastructure Sustainable Design and (Re)construction  
Moderators: Vesna Dragčević & Sanja Dimter



Time	ID	Paper Title / Author(s)
16:00 – 17:30	1549	MONITORING OF MARINE ENVIRONMENT DURING BRIDGE CONSTRUCTION – PELJEŠAC BRIDGE CASE STUDY <b>Tomi Haramina, Tajana Uzelac Obradović, Katja Franc &amp; Sven Jambrušić</b>
	1657	COMPOSITE BRIDGE DECK SLAB CRACK DESIGN FOR ERECTION WITH PRECAST OMNIA PLATES <b>Anđelko Vlašić, Nijaz Mujkanović, Mladen Srbić &amp; Marija Kušter Marić</b>
	1649	STEPS FROM TRADITIONAL DESIGN TO BIM <b>Isidora Pančić</b>
	1564	RECONSTRUCTION OF THE JARUNSKA ROAD IN ZAGREB AFTER THE EARTHQUAKE <b>Miroslav Šimun, Ante Goran Bajić, Davor Marković &amp; Luka Jurčević</b>
	1534	REDESIGN OF FOUR-LEG URBAN INTERSECTION WITH LIGHT RAIL IN A CORRIDOR OF TWO STREETS: CASE STUDY IN ZAGREB <b>Ivica Stančerić, Marin Puljar–Matić, Tamara Džambas &amp; Šime Bezina</b>
	1726	ROAD BYPASS AROUND THE CITY OF BRČKO – PRESENTATION OF THE SPECIFICS OF THE PROJECT AND CONSTRUCTION OF THE BYPASS <b>Stjepan Kralj, Nataša Mujčić Sukalić &amp; Mario Kralj</b>
	1717	PERFORMANCE-BASED ROAD REHABILITATION AND MAINTENANCE CONTRACTS IN ALBANIA, A REVIEW OF FIFTEEN YEARS OF EXPERIENCE (2008 – 2023) <b>Diana Bardhi</b>
	1725	REHABILITATION OF THE ROAD – INSTALLATION OF THE BAILEY MILITARY LAUNCH BRIDGE <b>Tihomir Tandarić, Matej Tadić &amp; Vesna Dragčević</b>
17:30 – 18:00		Coffee Break



Thursday, May 16<sup>th</sup>  
Session B3

Re-Shaping Urban Mobility  
Moderators: Saša Ahac & Darko Babić



Time	ID	Paper Title / Author(s)
16:00 – 17:30	1585	ASSESSING PREFERENCES FOR THE INTRODUCTION OF A NEW TRAM LINE ON UNIVERSITY OF ZAGREB CAMPUS USING STATED PREFERENCES EXPERIMENT <b>Nikola Kožul, Luka Novačko &amp; Karlo Babojelić</b>
	1704	DEVELOPMENT AND APPLICATION OF ROPEWAY SYSTEMS IN URBAN AREAS <b>Martin Starčević, Mladen Nikšić, Matea Mikulčić &amp; Mario Čičak</b>
	1527	MOBILITY HUBS IN SUBURBAN AND RURAL AREAS – AN OVERVIEW OF THE DEVELOPMENT IN GERMANY AND EXPERIENCES FROM THE RAMO PROJECT <b>Johann Grobe, Marie Werneke &amp; Volker Bleses</b>
	1556	IMPROVING QUALITY OF SERVICE ON THE BUS LINE 236 IN THE CITY OF ZAGREB <b>Marko Slavulj, Dino Šojat, Matija Sikirić &amp; Luka Vidan</b>
	1590	APPLICATION OF MICROSIMULATION MODELLING IN THE ASSESSMENT OF URBAN INTERSECTION RECONSTRUCTION <b>Irena Ištoka Otković, Đuro Zečević, Aleksandra Deluka-Tibljaš, Mirjana Šimunović &amp; Sanja Šurdonja</b>
	1740	RELATIONSHIP BETWEEN SATISFACTION WITH TRANSPORT AND THE AMOUNT OF MONEY SPENT BY CRUISE SHIP PASSENGERS <b>Koki Nakabayashi, Makoto Fujii, Yuma Morisaki &amp; Junichi Takayama</b>
	1603	POSSIBILITIES AND THE EFFECTS OF INTRODUCING SUPERBLOCKS IN ZAGREB LOWER TOWN <b>Karla Javorović, Maja Ahac, Igor Majstorović &amp; Saša Ahac</b>
17:30 – 18:00		Coffee Break

Thursday, May 16<sup>th</sup>  
Special Session C3

Vibration-Based Rail Infrastructure Monitoring and Assessment  
Moderators: Stasha Jovanović, Niyazi Özgür Beşgin & Ivo Haladin



Time	ID	Paper Title / Author(s)
16:00 – 17:30	1519	DEVELOPMENT OF CONTACT STRESSES ON RAILS AND THE NEED FOR SPECIALLY GRADED STEEL FOR RAILWAYS <b>Niyazi Özgür Beşgin</b>
	1582	DYNAMIC BEHAVIOUR OF THE SLEEPER LENGTH TRANSITION IN RAILWAY TURNOUTS <b>Francesco Marangon &amp; Ferdinand Pospischil</b>
	1584	IOT-DRIVEN TRACK HEALTH MONITORING FOR SUSTAINABLE RAILWAY OPERATIONS <b>Hunor Sándor, Zoltán Szántó &amp; Zsolt László Orbán</b>
	1716	DEVELOPMENT OF A LOW-COST TRAIN PATROL SUPPORT METHOD FOR RAILWAY TRACK MAINTENANCE USING A SMARTPHONE <b>Hirofumi Tanaka, Boyu Zhao, Di Su &amp; Tomonori Nagayama</b>
	1729	INTRODUCTION OF A NOVEL SMART SLEEPER DESIGN FOR RAILWAY TRACK CONDITION MONITORING <b>Mehmet Ali Toprak, Bayezid Özden, Oğuzhan Çelik, Gökhan Sapanca, Mehmet Fatih Şahin &amp; Ercan Yüksel</b>
	1715	RAIL-WEB MOUNTED PITCH-CATCH PIEZOELECTRIC SETUP FOR DETECTION OF HEAD CHECKS USING SURFACE ACOUSTIC WAVES <b>Mohsen Rezaei, David Künstner &amp; Hans-Peter Gänser</b>
	1510	THE POSSIBILITY OF USING MACHINE LEARNING FOR NETWORK-WIDE PREDICTIVE MAINTENANCE ON URBAN RAILWAY TRACKS – URITMIS PROJECT CASE STUDY <b>Ivo Haladin, Krešimir Burnač, Maja Baniček, Katarina Vranešić &amp; Nenad Trifunović</b>
17:30 – 18:00		Coffee Break

**Thursday, May 16<sup>th</sup>**  
**Session B4**      **Railway Facilities Design and Performance Evaluation**  
Moderators: Maja Ahac & Danijela Barić



Time	ID	Paper Title / Author(s)
18:00 – 19:30	1631	PLATFORM SCREEN DOORS EARTHING AND BONDING STRATEGIES FOR DESIGN AND MAINTENANCE <b>Andrea Mariscotti</b>
	1535	RISK ASSESSMENT FOR PASSENGERS ON STATION PLATFORMS: A QUANTITATIVE APPROACH <b>Alessandro Baldassarra, Cristiano Marinacci &amp; Stefano Ricci</b>
	1615	POTENTIAL APPLICATION OF MAGLEV DERIVED SYSTEM TO IMPROVE RAILWAY PERFORMANCE <b>Arbra Bardhi, Giuseppe Carcasi, Marjorie de Belen, Giovanni De Blasio, Angela Nocita, Camilo Patiño Puerta, Pawel Radziszewski, Stefano Ricci &amp; Luca Rizzetto</b>
	1621	ANALYSIS OF DIFFERENT TRACTION SYSTEMS FOR THE ZILLERTALBAHN <b>Manfred Vohla, Andreas Schöbel &amp; Bernard Rüger</b>
	1561	RAIL TRANSPORT PERFORMANCES ON ELECTRIFIED AND NON-ELECTRIFIED RAILWAY LINES: SUSTAINABLE RAIL TRANSPORT POINT OF VIEW <b>Anna Dolinayová &amp; Peter Morihladko</b>
	1575	STUDY OF CONFIGURATION OF OVERHEAD CONTACT LINE IMAGING DEVICE FOR SHINKANSEN <b>Itaru Matsumura &amp; Chikara Yamashita</b>
	1727	DESIGNING ELDER-FRIENDLY PUBLIC TRANSPORT SYSTEMS: A CASE STUDY AT AIA RAILWAY AND METRO STATION <b>Maria Giannoulaki &amp; Zoi Christoforou</b>
20:30 – 23:00	Gala Dinner	

**Thursday, May 16<sup>th</sup>**  
**Session C4**      **Geotechnical Structures Condition Assessment**  
Moderators: Mario Bačić & Meho Saša Kovačević



Time	ID	Paper Title / Author(s)
18:00 – 19:30	1708	EXPLORING THE IMPACT OF LEVELAMS: GEOTECHNICAL ASSET MANAGEMENT SOFTWARE WITHIN BRISA'S INFRASTRUCTURE <b>Juliana Barros, Miguel Cruz, Marisa Pinheiro, Isabel Gonzalez &amp; Tiago Miranda</b>
	1540	ASSESSING THE SOIL LIQUEFACTION SUSCEPTIBILITY: A COMPARATIVE STUDY OF CPT AND MASW TECHNIQUES IN THE AFTERMATH OF ROAD FAILURE <b>Mario Bačić, Meho Saša Kovačević, Nicola Rossi &amp; Lovorka Librić</b>
	1514	DEFORMATION ANALYSIS DURING TUNNEL EXCAVATION IN POOR ROCK MASS <b>Ekrem Bektašević, Kemal Gutić, Reuf Kadrić, Sead Kadrić &amp; Denijal Sikira</b>
	1670	USE OF GREEN SOIL STABILIZATION FOR PROTECTION OF ROADSIDES AGAINST WIND EROSION <b>Dunja Perić &amp; Arash Oliá</b>
	1542	MODERN SPATIAL MONITORING METHODS FOR GEOTECHNICAL STRUCTURES ALONG THE TRANSPORTATION NETWORKS <b>Marijan Car, Meho Saša Kovačević, Mario Bačić, Irina Stipanovic &amp; Kenneth Gavin</b>
	1700	EARTHWORKS CALCULATION – ANALYSIS OF EXISTING FORMULAS AND SHOWCASING THE FUTURE METHOD FOR VOLUME CALCULATION <b>Fran Šokac</b>
20:30 – 23:00	Gala Dinner	

## PREVIOUS CETRA CONFERENCES

→ **CETRA 2010, 17–18 May 2010, Opatija, Croatia**  
286 participants from 29 countries

→ **CETRA 2012, 7–9 May 2012, Dubrovnik, Croatia**  
255 participants from 39 countries

→ **CETRA 2014, 28–30 April 2014, Split, Croatia**  
212 participants from 41 countries

→ **CETRA 2016, 23–25 May 2016, Šibenik, Croatia**  
153 participants from 36 countries

→ **CETRA 2018, 17–19 May 2018, Zadar, Croatia**  
286 participants from 51 countries

→ **CETRA 2020\*, 20–21 May 2021, Zagreb, Croatia**  
191 participants from 31 countries (on-line)

→ **CETRA 2022, 11–13 May 2022, Pula, Croatia**  
206 participants from 28 countries



## DAY 3 – Friday, May 13th

### Friday, May 17<sup>th</sup> Session A5

**Design and Evaluation of Asphalt Pavement Mixtures**  
Moderators: Josipa Domitrović & Tatjana Rukavina

Time	ID	Paper Title / Author(s)
09:00 – 10:30	1538	INVESTIGATION OF THE ENVIRONMENTAL DEGRADATION OF ASPHALT PAVEMENT MIXTURES <b>Eva Remišová &amp; Dušan Briliak</b>
	1607	CREEP AND RECOVERY OF SBS MODIFIED BITUMEN DEPENDING ON THE PROPERTIES OF BASE BITUMEN AND POLYMER <b>Judita Škuldecké, Audrius Vaitkus &amp; Ovidijus Šernas</b>
	1638	RELIABILITY COMPARISON OF TWO–POINT AND FOUR–POINT BENDING TESTS FOR COARSE AGGREGATE MIXTURES <b>Petr Veselý &amp; Ondřej Dašek</b>
	1681	ELASTIC MODULI OF STABILIZED MIXTURES WITH WOOD ASH <b>Mirjana Šimunović, Pavica Senić Barišić &amp; Sanja Dimter</b>
	1662	EXPERIMENTAL INVESTIGATION ON THE EFFECT OF CRUMB RUBBER ON THE MECHANICAL BEHAVIOUR OF STONE MASTIC ASPHALT (SMA) <b>Mahdi Zakerzadeh, Babak Shahbodagh &amp; Nasser Khalili</b>
	1622	ASSESSMENT OF LIGNIN AS A POTENTIAL BIO–MODIFIER FOR CONVENTIONAL BITUMEN <b>Stavros Kalampokis, Evangelos Manthos &amp; Georgios Matthaïou</b>

10:30 – 11:00 Coffee Break

### Friday, May 17<sup>th</sup> Session B5

**Railway Facilities and Vehicles Operation Optimization and Management**  
Moderators: Andrea Mariscotti & Stefano Ricci

Time	ID	Paper Title / Author(s)
09:00 – 10:30	1640	THE INFLUENCE OF THE VEHICLE LAYOUT ON THE PERFORMANCE OF PUBLIC TRANSPORT <b>Bernhard Rüger</b>
	1648	SPEED PROFILE CALCULATION WITH AN ACCELERATION MODEL: CASE STUDY OF ZAGREB TRAMWAY SYSTEM <b>Igor Majstorović, Maja Ahac &amp; Ivo Haladin</b>
	1641	INCREASING THE EFFICIENCY OF NIGHT TRAINS IMPROVING THEIR USABILITY IN DAYTIME TRANSPORT <b>Bernhard Rüger, Maria Traunmüller, Florian Steiner, Frank Michelberger &amp; Thomas Sauter–Servaes</b>
	1668	DIGITAL DECISION–MAKING SUPPORT FOR RAILWAY NODE CAPACITY OPTIMIZATION: AN APPLICATION TO THE PORT OF TRIESTE <b>Caterina Caramuta, Giovanni Longo, Teresa Montrone &amp; Carlo Poloni</b>
	1512	DAILY TRAVEL DEMAND PREDICTION IN RAIL SYSTEMS USING DEEP LEARNING TECHNIQUES <b>Yalçın Alver &amp; Halil Uğur Ercan</b>
	1600	DEFINITION OF STRATEGICALLY ORIENTED TRANSPORT USERS IN FREIGHT TRANSPORT AT ŽRS <b>Zoran Gajić, Nada Radojčić, Mladen Božić &amp; Nebojša Kovačević</b>

10:30 – 11:00 Coffee Break

Friday, May 17<sup>th</sup>  
Session C5

**Safe Road Infrastructure Design**  
Moderators: Dario Babić & Sanja Fric

Time	ID	Paper Title / Author(s)
09:00 – 10:30	1553	<b>TIME-TO-COLLISION ANALYSIS AT MODERN ROUNDABOUTS</b> <b>Pelin Onelcin &amp; Yalçın Alver</b>
	1664	<b>ANALYSIS OF CRASH SEVERITY AT INTERSECTIONS AND ROUNDABOUTS USING ORDERED AND GENERALIZED ORDERED PROBIT MODELS</b> <b>Roya Eskandar Kamali, Arash Mazaheri &amp; Amir Masoud Rahimi</b>
	1529	<b>INFLUENCE OF TRUCK APRON DESIGN ON TWO-GEOMETRY ROUNDABOUTS' SPEED MANAGEMENT POTENTIAL</b> <b>Saša Ahac &amp; Maja Ahac</b>
	1591	<b>LONGITUDINAL RESEARCH ON INFLUENCE OF TRAFFIC AND URBAN ROAD ELEMENTS ON OPERATIONAL SPEED</b> <b>Sanja Šurdonja, Aleksandra Deluka-Tibljaš, Irena Ištoka Otković &amp; Mirna Klobučar</b>
	1524	<b>EFFECT OF TRAFFIC-CALMING COUNTERMEASURES ON VEHICLE SPEED NEAR A PEDESTRIAN CROSSING – A DRIVING SIMULATOR STUDY</b> <b>Martín-Castresana Santiago, Higuera Santiago, Gabriel Serrano &amp; Maria Castro</b>
	1643	<b>INVESTIGATIONS OF RED-COLOURED SPEED HUMPS INSTALLED ACROSS THE ENTIRE WIDTH OF THE CARRIAGEWAY</b> <b>Tamara Džambas, Ivica Stančerić, Vesna Dragčević &amp; Donatela Topić</b>
10:30 – 11:00	Coffee Break	

Friday, May 17<sup>th</sup>  
Project Workshop

**URITMIS – Urban Railway Infrastructure Predictive Maintenance System Based on Monitoring of Vibro-Acoustic Track Properties:**  
Part 1 – Project Overview  
Moderator: Ivo Haladin

Time	ID	Paper Title / Author(s)
09:00 – 10:30		<b>WELCOME AND INTRODUCTION TO PROJECT BACKGROUND, GOALS, ACTIVITIES AND EXPECTED OUTCOMES</b> <b>Ivo Haladin</b>
		<b>VIBRO-ACOUSTIC CHARACTERISATION OF TRAMWAY MONITORING DATA (CORRUGATION, WELDS, CROSSINGS, SWITCHES)</b> <b>Krešimir Burnać</b>
		<b>NUMERICAL MODELS FOR CONDITION MONITORING AND PREDICTING THE DEGRADATION OF THE TRAMWAY TRACK</b> <b>Maja Baniček</b>
		<b>OVERVIEW OF MACHINE LEARNING METHODS FOR DETECTION AND PREDICTION OF FAULTS ON RAIL INFRASTRUCTURE</b> <b>Ivo Haladin &amp; Nenad Trifunović</b>
10:30 – 11:00	Coffee Break	

Friday, May 17<sup>th</sup>  
Session A6

**Innovations and Green Technology in Pavement Materials and Engineering**  
Moderators: Josipa Domitrović & Marjan Tušar



Time	ID	Paper Title / Author(s)
11:00 – 12:30	1694	EFFECT OF ZEOLITE ADDITION TO MODIFIED BITUMEN FOR APPLICATION IN WEARING COURSE <b>Roman Pacholak, Władysław Gardziejczyk, Marta Wasilewska, Paweł Gierasimiuk &amp; Agnieszka Woszuć</b>
	1736	THE USE OF RECYCLED PLASTICS IN WARM MIX ASPHALT <b>Šime Bezina, Ana Rudeš, Josipa Domitrović, Ivica Stančerić &amp; Tatjana Rukavina</b>
	1610	ASPHALT MECHANICAL PERFORMANCE OF RUBBER BITUMEN FOR HOT AND WARM ASPHALT MIXTURES <b>Kornél Almássy</b>
	1667	MECHANICAL PROPERTIES OF FOAM CONCRETE AS A CONSTRUCTION MATERIAL IN CYCLE PAVEMENT STRUCTURES <b>Zuzana Papánová &amp; Matej Prišč</b>
	1685	EARLY LIFE FIELD PERFORMANCE OF INNOVATIVE SUSTAINABLE SEMI-FLEXIBLE PAVEMENTS <b>Alessandro Marradi, Chiara Mignini, Alessandro Friani, Arianna Stimilli &amp; Tullio Caraffa</b>
	1581	UTILIZATION OF MINE OVERBURDENED MATERIALS IN LOW VOLUME ROADS SUBBASE/BASE WITH COCONUT COIR GEOTEXTILE REINFORCEMENT <b>Jagdish Gouda, Ayush Dudhabaware, Dakka Sitarami Reddy &amp; Srinivasan Venkatraman</b>
	1614	LOW-CARBON PAVEMENT SOLUTIONS: INTEGRATING INCINERATION ASHES IN PRECAST CONCRETE INNOVATIONS <b>Jelena Šantek Bajto, Nina Štirmer, Ivana Carević &amp; Suzana Hozmec</b>
12:30 – 13:30	Lunch Break	

Friday, May 17<sup>th</sup>  
Special Session B6

**Enhancing Road and Rail Safety Through Novel Structural Health Monitoring Applications on Bridges**  
Moderators: Ana Mandić Ivanković & Andrej Anžlin



Time	ID	Paper Title / Author(s)
11:00 – 12:30	1611	OPTIMISING BRIDGE MAINTENANCE: A CASE STUDY IN ASSESSING BRIDGE CONDITION USING NOVEL TECHNOLOGIES AND METHODS <b>Jurica Pajan, Ivan Duvnjak, Jurica Goričanec &amp; Suzana Ereiz</b>
	1627	FATIGUE ASSESSMENT OF AN 100 YEARS OLD RIVETED TRUSS RAILWAY BRIDGE <b>Mateusz Rajchel &amp; Tomasz Siwowski</b>
	1674	MODELLING AND STATIC ANALYSING FOR A CABLE STAYED BRIDGE CONSIDERING THE CONSTRUCTION STAGES <b>Claudia Chiotan &amp; Ionut Radu Răcănel</b>
	1658	INSTABILITY DETECTION FOR HIGH-SPEED WEIGH-IN-MOTION SYSTEMS TOWARDS DIRECT ENFORCEMENT <b>Loïc Warscotte &amp; Jehan Boreux</b>
	1720	FINITE ELEMENT MODEL UPDATING OF CIVIL ENGINEERING STRUCTURES: SIGNIFICANCE OF MODE SHAPE PARING <b>Suzana Ereiz, Javier Fernando Jiménez-Alonso, Ivan Duvnjak, Marko Bartolac, Janko Koščak &amp; Jurica Pajan</b>
	1721	IMPACT OF STRUCTURE TESTING AND MONITORING IN BRIDGE ASSESSMENT <b>Marija Kušter Marić, Ana Mandić Ivanković, Mladen Srbić, Dominik Skokandić &amp; Anđelko Vlašić</b>
	1722	VIBRATIONS TESTS OF A BAILEY-TYPE SUSPENSION BRIDGE OVER THE JABLANICA LAKE <b>Amira Karavelić-Hadžimejlić &amp; Senad Medić</b>
12:30 – 13:30	Lunch Break	



Friday, May 17<sup>th</sup>  
Session C6

**Safe Road Infrastructure Monitoring and Analysis**  
Moderators: Aleksandra Deluka Tibljaš & Ivica Stančerić



Time	ID	Paper Title / Author(s)
11:00 – 12:30	1516	DETECTION OF ROAD MARKINGS AND ROAD SIGNS ADVANCED DRIVER ASSISTANCE SYSTEMS – A LITERATURE REVIEW <b>Lucija Franković, Ivana Kučina, Mario Fiolić, Darko Babić &amp; Dario Babić</b>
	1550	RESEARCH OF ROAD MARKINGS VISIBILITY DEGRADATION BASED ON APPLIED MATERIALS ON CROATIAN STATE ROADS <b>Vanna Boroša, Darko Babić, Marija Ferko &amp; Mario Fiolić</b>
	1574	ROAD SAFETY AUDIT FROM CONCEPT TO RESULTS <b>Orestis–Theodoros Arampatzis &amp; Fotini Kehagia</b>
	1702	DEVELOPMENT OF A SPEED–MEASURING DEVICE FOR VEHICLES USING LASER DISTANCE SENSOR <b>Shuhei Kaneko, Aoi Tachibana, Kenta Yanagimachi &amp; Kazuyuki Takada</b>
	1739	CATHODIC PROTECTION OF PELJEŠAC BRIDGE REINFORCEMENT – IN–DEPTH ANALYSIS OF THE SYSTEM <b>Krešimir Kekez, Tea Antolović, Dražen Pažameta &amp; Goran Pavliša</b>
	1642	AI & SMART TUNNEL: IMPROVING ROAD TUNNEL RESILIENCE DYNAMIC AND PREDICTIVE RISK ANALYSIS <b>Alessandro Focaracci, Luigi Martirano &amp; Francesca Zacchei</b>
	1644	SMART TUNNEL IN INDUSTRY 5.0: IMPROVING ROAD TUNNEL RESILIENCE DYNAMIC RISK ANALYSIS <b>Alessandro Focaracci, Luigi Martirano &amp; Francesca Zacchei</b>
12:30 – 13:30		Lunch Break

Friday, May 17<sup>th</sup>  
Project Workshop

**URITMIS – Urban Railway Infrastructure Predictive Maintenance System Based on Monitoring of Vibro–Acoustic Track Properties:**  
Part 1 – Experts Contributions  
Moderator: Ivo Haladin



Time	ID	Paper Title / Author(s)
11:00 – 12:30		VEHICLE–TRACK INTERACTION MEASUREMENT AND ANALYSIS USING DATA FROM IN–SERVICE VEHICLES <b>Stasha Jovanovic</b>
		MONITORING OF RAILWAY INFRASTRUCTURE AND MAINTENANCE FROM IN–SERVICE VEHICLE <b>Ron Mass</b>
		POWER OF MACHINE LEARNING AND INDUSTRIAL APPLICATIONS <b>Kristijan Lenac</b>
12:30 – 13:30		Lunch Break

Friday, May 17<sup>th</sup>  
Session A7

**Pavement Structures Monitoring and Condition Assessment**  
Moderators: Tatjana Rukavina & Ivica Stančerić



Time	ID	Paper Title / Author(s)
13:30 – 15:00	1613	FALLING–WEIGHT–DEFLECTOMETER–BASED STRUCTURAL CONDITION ASSESSMENT OF LOW–VOLUME ROAD PAVEMENTS: PRACTICES AND CHALLENGES <b>Martynas Karbočius &amp; Audrius Vaitkus</b>
	1537	TIRE/PAVEMENT FRICTION: PRESENTATION OF A COMPREHENSIVE PHYSICAL TOOL THROUGH ADVANCED CONTACT MODELLING <b>Malal Kane</b>
	1536	APPLICABILITY OF FRONT–WHEEL BRAKING PROCEDURE TO EVALUATE ROAD AVAILABLE GRIP <b>Alex Coiret &amp; Vincent Le Cam</b>
	1530	THE SHOULDER OF THE NEIGHBOURING COUNTY IS ALWAYS “GREENER” <b>László Gáspár, Zsolt Bencze, Csaba Tóth &amp; Csaba Tóth</b>
	1652	RELIABILITY OF GPR DATA INTERPRETATION METHODS FOR DETERMINING THE THICKNESS OF ASPHALT LAYER <b>Josipa Domitrović, Marija Dukić, Šime Bezina, Ivica Stančerić &amp; Tatjana Rukavina</b>
	1620	EFFECT OF CRACK SEALING TREATMENT ON SKID RESISTANCE OF PAVEMENT <b>Marjan Tušar, Jure Zekić, Darko Kokot &amp; Lidija Ržek</b>
	1546	INFRACOMS TOOLBOX FOR NRAS TO LEVERAGE TECHNOLOGICAL EVOLUTIONS FOR BRIDGE AND PAVEMENT MONITORING AND MAINTENANCE <b>Robin Workman, Kevin McPherson, Mogens Saberi, Fengqiao Zhang, Yuguang Yang, Anna Arvidsson, Simon Fjendbo, Darko Kokot, Andrej Anžlin, Mette Sloth, Ali Yeganeh &amp; Carl Van Geem</b>
15:00 – 15:30	Coffee Break	

Friday, May 17<sup>th</sup>  
Session B7

**Transportation Structures Monitoring and Optimization**  
Moderators: Andrej Anžlin & Ivan Duvnjak



Time	ID	Paper Title / Author(s)
13:30 – 15:00	1579	CRACK CLASSIFICATION IN CONCRETE USING PARAMETER–AND SIGNAL–BASED ACOUSTIC EMISSION ANALYSIS <b>Sena Tayfur &amp; Ninel Alver</b>
	1580	A DEEP LEARNING BASED DAMAGE ESTIMATION MODEL INCORPORATING HYBRID AE DATA FOR MONITORING REINFORCED CONCRETE STRUCTURES <b>Omair Inderyas, Ninel Alver &amp; Aydin Kaya</b>
	1601	RAPID FLOOD VULNERABILITY ASSESSMENT OF BRIDGE NETWORKS: THE CROSSCADE PROJECT CASE <b>Mirko Kosič, Mario Bačić, Dominik Skokandić, Gordana Hrelja Kovačević, Ana Mandić Ivanković &amp; Andrej Anžlin</b>
	1669	USE OF DIGITAL IMAGING TO EVALUATE THE EFFECTIVENESS OF EPS GEOFOAM INCLUSIONS IN ALLEVIATING INTEGRAL BRIDGE APPROACH SETTLEMENTS <b>Dunja Perić &amp; Justin Yenne</b>
	1698	WIND TUNNEL TESTING OF A CABLE STAYED BRIDGE PYLON <b>Roberto Gomez, Marco Antonio Mendoza, Raul Sanchez &amp; Oscar Rosales</b>
15:00 – 15:30	Coffee Break	

Friday, May 17<sup>th</sup>  
Session C7

Road Transport Operation Management and Service Quality  
Moderators: Maja Ahac & Aleksandar Stevanović



Time	ID	Paper Title / Author(s)
13:30 – 15:00	1618	THE ROLE OF INTELLIGENT TRANSPORTATION SYSTEMS IN MITIGATING ADVERSE WEATHER EFFECTS ON TRAFFIC SAFETY AND EFFICIENCY <b>Nikola Čelar, Stamenka Stanković &amp; Jelena Kajalić</b>
	1551	URBAN TRAFFIC CONTROL – DEFINITION, CLASSIFICATION, AND OUTLOOK <b>Aleksandar Stevanovic</b>
	1569	CHALLENGES AND SOLUTIONS OF LOGISTICS OPERATORS IN THE LAST MILE OF SUPPLY CHAINS <b>Ermin Muharemović, Amel Kosovac, Muhamed Begović &amp; Edvin Šimić</b>
	1602	COMPARISON OF THE MILITARY CONVOYS' CROSS-COUNTRY MOBILITY ESTIMATION RESULTS FOR CROATIAN CONDITIONS <b>Ivana Gredelj, Maja Ahac &amp; Saša Ahac</b>
	1686	EVALUATION OF TRAFFIC CONTROL MEASURES DURING TSUNAMI EVACUATION USING TRAFFIC SIMULATION <b>Chika Matsuura, Runa Saito &amp; Kazuyuki Takada</b>
1691	DEVELOPMENT OF A METHOD FOR IDENTIFYING THE NUMBER OF TIMES TO TURN AROUND DURING A DRIVING FOR PARKING <b>Ryo Harada, Rika Arasawa, Kazuyuki Takada &amp; Makoto Fujii</b>	
15:00 – 15:30	Coffee Break	



Cavtat

Friday, May 17<sup>th</sup>  
Session A8

**Railway Infrastructure Strategic Planning and Modernization**  
Moderators: Maja Ahac & Ivo Haladin



Time	ID	Paper Title / Author(s)
15:30 – 16:45	1588	RESTRUCTURING MODEL OF RAILWAYS OF THE REPUBLIC OF SRPSKA <b>Siniša Urumović, Gordana Ilinčić, Biljana Urumović &amp; Danijela Kuravica</b>
	1528	RAILWAY MODERNIZATION PROJECTS IN THE REPUBLIC OF SERBIA AND CONNECTION WITH THE SURROUNDING COUNTRIES <b>Tatjana Simić, Ivan Ristić &amp; Tatjana Mikić</b>
	1711	ENHANCEMENT OF RAILWAYS IN DALMATIA <b>Andreas Schöbel</b>
	1577	RAILWAY CORRIDORS IN CITIES AS A FACTOR OF URBAN DEVELOPMENT <b>Željka Jurković, Danijela Lovoković &amp; Ivan Cingel</b>
	1728	RAILWAY CROSSINGS – SOME EXPERIENCES FROM THE PRACTICE OF RECONSTRUCTED CROSSINGS <b>Stjepan Kralj, Frane Burazer Iličić &amp; Mario Kralj</b>
	1679	CASE STUDY: TOP–DOWN CONSTRUCTION OF ROAD OVER BRIDGE ACROSS A RAILWAY TRACK CROSSING LOCATED IN A DEEP–CUT GROUND PROFILE <b>Shahrukh Ahmed, Dileepan Ulaganathan &amp; Vasanth Kumar Samyayya</b>
16:45 – 17:00	Closure Ceremony	

Friday, May 17<sup>th</sup>  
Session C8

**PhD Session – Miscellaneous**  
Moderators: Saša Ahac, Andrea Mariscotti & Stefano Ricci



Time	ID	Paper Title / Author(s)
15:30 – 16:45	1732	LIFE CYCLE SUSTAINABILITY ASSESSMENT OF REINFORCED CONCRETE BRIDGES <b>Ivana Milić &amp; Jelena Bleiziffer</b>
	1743	REFINING FINITE ELEMENT MODEL OF CONCRETE VIADUCT WITH ERROR–DOMAIN MODEL FALSIFICATION TECHNIQUE USING VIBRATION AND STRAIN DATA <b>Doron Hekić</b>
	1734	QUIET RAILS: NOISE MITIGATION ON POLISH RAILWAYS <b>Marcin Wrótny &amp; Janusz Bohatkiewicz</b>
	1735	OPTIMISING SIGNALISED INTERSECTION–ROUNDBOUT DISTANCE: INSIGHTS FROM MICROSIMULATION ANALYSIS <b>Mirna Klobučar, Aleksandra Deluka–Tibljaš &amp; Sanja Šurdonja</b>
	1742	EVALUATION OF RAIL IRREGULARITIES PROCESSING TRAMWAY VEHICLE BOGIE ACCELERATION DATA <b>Krešimir Burnać &amp; Ivo Haladin</b>
16:45 – 17:00	Closure Ceremony	



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