

# Final programme

V2: 2022-05-03

Dear CETRA 2022 authors, presenters, and participants, we are happy to announce that the Final programme for CETRA 2022 is completed. Three parallel sessions will take place during the conference. Official languages of the conference are Croatian and English. Simultaneous translation from English to Croatian and from Croatian to English will be provided in Conference Hall A. During the sessions, authors will be awarded 10 minutes for oral presentation and 2-5 minutes for discussion. When creating your presentation, please use PowerPoint Presentation Template found on our website. To ensure the smooth running of the programme, please e-mail the final version of their PPT presentation to [cetra@grad.hr](mailto:cetra@grad.hr).



## DAY 1 – Wednesday, May 11<sup>th</sup>

17:00 – 20:00	Registration of the participants
19:00 – 21:00	A welcome cocktail for participants and guests

## DAY 2 - Thursday, May 12<sup>th</sup>

08:00 -10:00	Registration of the participants		
Conference hall	Hall A	Hall B	Hall C
10:00 - 10:45	Opening ceremony		
10:45 - 11:45	Keynote lectures		
11:45 - 12:30	Coffee break		
12:30 - 14:00	A1: Road infrastructure design and safety	B1: Geotechnical modelling, management and optimization	C1: Facilities and vehicles design
14:00 - 15:00	Lunch break		
15:00 - 16:30	A2: Pavement innovations and new technology	B2: Rail infrastructure optimization and condition assessment	C2: Structures design, re(construction), monitoring and management
20:30 - 23:00	Gala dinner		

## DAY 3 - Friday, May 13<sup>th</sup>

Conference hall	Hall A	Hall B	Hall C
10:00 - 11:30	A3: Sustainable mobility	B3: Pavement laboratory testing	C3: Rail infrastructure design and safety
11:30 - 12:00	Coffee break		
12:00 - 13:30	A4: Rail infrastructure monitoring and maintenance	B4: Pavement design, management and re(construction)	C4: Road infrastructure and traffic planning and modelling
13:30 - 14:30	Lunch break		
14:30 - 16:00	A5: Rail infrastructure and traffic planning and modelling	B5: Pavement planning, modelling and monitoring	C5: Geotechnical design and monitoring
16:00 - 16:30	Coffee break		
16:30 - 17:00	Conference closure		

10:00 - 10:45	Hall A: Opening ceremony	
10:45 - 11:45	Hall A: Keynote lectures	From research to practice: investigations of the transportation network assets throughout the Europe <i>by Meho Saša Kovačević</i> Innovative use of waste materials including recycled rubber in rail infrastructure <i>by Buddhima Indraratna</i>

11:45 - 12:30	Coffee break	
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Time slot	Session 1	Submission ID	Submission by Authors
12:30 - 14:00	<b>A1: Road infrastructure design and safety</b> <i>Chairing: Danijela Barić &amp; Ivica Stančerić</i>	1426	Road safety assessment in curves based on a road embedded tire to road friction sensor <i>by Alex Coiret &amp; Pierre-Olivier Vandanjon</i>
		1444	Roundabout approaching speed analyses <i>by Mirna Klobučar, Aleksandra Deluka-Tibljaš, Sanja Šurdonja, Tiziana Campisi &amp; Robert Maršanić</i>
		1348	Investigation of the clear sight areas on suburban roundabouts <i>by Saša Ahac &amp; Petra Kipa</i>
		1368	Effect of geometric road characteristics on deceleration rate in transition from tangent to horizontal curve for two-lane rural roads <i>by Biljana Maljković, Dražen Cvitanjić &amp; Tomislav Radić</i>
		1389	Rehabilitation of an accident spot with Human Factors <i>by Sibylle Birth, Žiga Boh, Samo Krajnc &amp; Jure Kukovič</i>
		1403	Relationship between ages of children riding bicycles involved in traffic accidents and violations of traffic laws and ordinances in Ishikawa Prefecture <i>by Hiroki Onishi, Makoto Fujju &amp; Junichi Takayama</i>
		1418	Analysis on long-term changes of driving behavior by elderly driver <i>by Yuta Arakawa, Kota Miyauchi &amp; Kazuyuki Takada</i>
		1477	A basic study on automatic detection of the voids on shotcrete using deep learning <i>by Taiki Suwa &amp; Makoto Fujju</i>
		1474	Flood risks to critical infrastructure – case study of city of Karlovac <i>by Irina Stipanović, Sandra Škarić Palić, Mario Bačić, Meho Saša Kovačević, Kenneth Gavin &amp; Emir Ganić</i>
	1471	Classification of a flood protection infrastructure based on its vulnerability to various loads <i>by Mario Bačić, Meho Saša Kovačević, Danijela Jurić Kačunić, Lovorka Librić, Marijan Car, Kenneth Gavin, Irina Stipanović &amp; Cormac Reale</i>	
	1483	Innovative geotextile contaminant barriers in infrastructure applications – Environmental protection without surface sealing <i>by Thomas Hasslacher, Victor Poberezhnyi &amp; Stefan Niewerth</i>	
	1433	Statistical analysis of fluvial trajectories based on AIS database for the construction of a bridge <i>by Pierre-Olivier Vandanjon, Alex Coiret &amp; Trisan Lorino</i>	
	1484	Methodology of flood risk assessment on the main road network in the Federation of Bosnia and Herzegovina <i>by Suada Sulejmanović, Žanesa Ljevo, Mirza Pozder, Ammar Šarić &amp; Sanjin Albinović</i>	
	1409	Dual locomotives for regional freight trains <i>by Martin Chýle &amp; Michal Drábek</i>	
	1437	Project of a platform-container for intermodal transport <i>by Wiesław Krason &amp; Grzegorz Slawinski</i>	
	1440	Selected functional and utility applications of a platform-container in intermodal transport <i>by Grzegorz Stawiński &amp; Wiesław Krasoń</i>	
	1462	Road infrastructure requirements to accommodate autonomous vehicles <i>by Ana Čudina Ivančev, Vesna Dragčević &amp; Tamara Džambas</i>	
	1376	Front, mid and rear drive comparison of an electric bicycle using e-bike conversion kits on a circular route <i>by Hrvoje Kristek, Antonio Peršić, Antun Premec &amp; Mario Vražić</i>	
1449	Innovative solutions for shared E-taxi services in a green and efficient urban transport system <i>by Tibor Princz-Jakovics &amp; István Kovács</i>		
1480	Basic analysis of the number of self-driving cars in use and the timing of the start of evacuation assistance <i>by Yuta Moriwaki &amp; Makoto Fujju</i>		
14:00 - 15:00	Lunch break		

Time slot	Session 2	Submission ID	Submission by Authors	
15:00 - 16:30	<b>A2: Pavement innovations and new technology</b> <i>Chairing: Tatjana Rukavina &amp; Audrius Vaitkus</i>	1359	Performance of roller-compacted concrete pavement structure with stabilized soil base layers during spring thaw <i>by Rafal Mickevič &amp; Audrius Vaitkus</i>	
		1378	Measurements of asphalt layer densities concrete in place by nuclear methods - interlaboratory comparison <i>by Marjan Tušar, Mojca Ravnikar Turk &amp; Lidija Ržek</i>	
		1380	Testing of recycled building elements for road construction use <i>by Zsolt Bencze &amp; László Gáspár</i>	
		1383	Characterization of mechanical properties and shrinkage behavior of cold recycled material (CRM) stabilized with different active fillers <i>by Ahmed Al-Mohammedawi &amp; Konrad Mollenhauer</i>	
		1441	Orthographic photogrammetry method for pavement texture characterization <i>by Ivana Ban, Aleksandra Deluka-Tibljaš &amp; Marijana Cuculić</i>	
		1488	Eco-sustainable solutions for the maintenance of the road pavements in the Republic of San Marino <i>by Andrea Grilli, Alex Balzi, Arianna Ciotti, Matteo Casali &amp; Raoul Chiaruzzi</i>	
		<b>B2: Rail infrastructure optimization and condition assessment</b> <i>Chairing: Stefano Ricci &amp; Andrea Mariscotti</i>	1377	Investigations on the influence of mechanical and thermal load on the clamping force of heating rod clamps <i>by Markus Schladitz, Max Huter, Robert Adam &amp; Stephan Schlegel</i>
	1503		Determination of electrical resistance of rail fastening system according to the standard EN 13146_5-2012 <i>by Katarina Vranešić, Ivo Haladin &amp; Stjepan Lakušić</i>	
	1411		FE modelling and geometric parametrisation of SKL-type elastic clips by <i>Maja Baniček, Mario Uroš &amp; Stjepan Lakušić</i>	
	1381		The effectiveness of distributed acoustic sensing (DAS) for broken rail detection <i>by Adrian Wagner, Andrew Nash, Frank Michelberger, Hirut Grossberger &amp; Gavin Lancaster</i>	
	1415		Review of the Artificial Intelligence methods used for permanent way diagnostics <i>by Janusz Madejski</i>	
	1416		Modernization of the tramway infrastructure with the use of vibroisolation mats <i>by Andrey Zaytsev, Andrey Kendyuk, Mihail Papaev, Andrey Sidrakov, Dmitry Basovsky &amp; Oleg Vostrikov</i>	
	15:00 - 17:00		<b>C2: Structures design, re(construction), monitoring and management</b> <i>Chairing: Andelko Vlašić &amp; Ivan Duvnjak</i>	SPONS
		1350		Integrated Fiber Bragg Grating sensor for Bridge load measurement and traffic load estimation <i>by Jan Včelák, Jakub Vaněk, Emil Doupal &amp; Miroslav Juhas</i>
1393		Evaluation of training data quality for deep learning-based damage detection <i>by Tomotaka Fukuoka, Mai Yoshikura &amp; Makoto Fujiu</i>		
1461		Seismic retrofitting of existing road bridges – current state of practice <i>by Dominik Skokandić, Andelko Vlašić, Marija Kušter Marić, Mladen Sibić &amp; Ana Mandić Ivanković</i>		
1371		Steel box girder manufacturing of Pelješac bridge <i>by Xuefeng Wang, Bicheng Tang, Hanzhong Lu &amp; Jun Yuan</i>		
1402		Assessment of bridge engineers on output display size in automatic detection of free lime using deep learning <i>by Mai Yoshikura, Takahiro Minami, Tomotaka Fukuoka, Makoto Fujiu &amp; Junichi Takayama</i>		
1431		Impact of Eurocode Load Model 3 on the design of highway and expressway bridges <i>by Andelko Vlašić, Mladen Sibić, Zlatko Šavor &amp; Ana Mandić Ivanković</i>		
1396		Sustainable precast concrete products with wood biomass ash – kerbs and drainage channels <i>by Sonja Cerковиć &amp; Nina Štímer</i>		
1507		Influence of granite aggregate on longitudinal splitting in prestressed concrete members <i>by Adrijana Savić &amp; Robert Peterman</i>		
1361		Replacement of an old steel railway overpass without traffic interruption <i>by Peter Nikolov</i>		
20:30 - 23:00	Gala dinner			

Time slot	Session 3	Submission ID	Submission by Authors
10:00 - 11:30	<b>A3: Sustainable mobility</b> <i>Chairing: Maja Ahac &amp; Marko Šoštarić</i>	1367	Evaluation of urban transport projects with respect to sustainable mobility <i>by Davor Krasić</i>
		1465	Vision 2050+ (longterm concept for Slovenian rail network) <i>by Gregor Pretnar, Mihael Blaž, Gregor Kralj &amp; Jernej Vozelj</i>
		1436	Sustainable urban mobility plans for smaller communities <i>by Katja Miklič, Gregor Pretnar, Matija Nose &amp; David Trošt</i>
		1438	Sustainable mobility in small and medium-sized cities - the example of the Frankfurt Rhine-Main metropolitan region <i>by Maximilian Birk, Volker Bleeß &amp; Anna Jäger</i>
		1405	How to effectively promote sustainable mobility in social housing areas – results of an evaluation study in the Frankfurt Rhine-Main region <i>by Leon Yessad, André Bruns &amp; Matthias Kowald</i>
		1372	Sharjah bus rapid transit study (BRT) <i>by Mohsin Balwan, Anurag Thakur, Thomas Varghese &amp; Smitha Nadeera</i>
		1397	Comparative cost and benefit analysis of parking systems regarding the type of parking offer <i>by Marko Svajda, Marko Šoštarić, Marko Ševrović &amp; Marijan Jakovljević</i>
		1424	Challenges of developing Transport Master Plan <i>by Ana Rigo, Igor Majstorović &amp; Željko Stepan</i>
	<b>B3: Pavement laboratory testing</b> <i>Chairing: Tatjana Rukavina &amp; Marjan Tušar</i>	1384	Fast detection of PAH in reclaimed asphalt using FTIR-ATR spectroscopy <i>by Jens Wetekam &amp; Konrad Mollenhauer</i>
		1349	Effects of moisture on the mechanical and viscoelastic behavior of asphalt mixture under repetitive cyclic loading <i>by Asres Alamrew &amp; Konrad Mollenhauer</i>
		1388	Cold recycled mixtures of binder courses - laboratory evaluation of mechanical properties <i>by Dołżycki Bohdan, Mariusz Jaczewski &amp; Cezary Szydłowski</i>
		1439	The effect of crumb rubber on the asphalt mixture properties <i>by Ovidijus Sernas, Audrius Vaitkus &amp; Deimantė Kilaitė</i>
		1450	Influence of specimen geometry on the complex modulus of cold recycled material mixtures <i>by Vittoria Grilli, Sara Spadoni, Francesco Canestrari &amp; Andrea Graziani</i>
		1451	Numerical response analysis of structural strength capacity of fly-ash-inverted pavement <i>by Jacob Adedeji, Samuel Abejide &amp; Mohamed Mostafa Hassan</i>
		<b>C3: Rail infrastructure design and safety</b> <i>Chairing: Saša Ahac &amp; Andreas Schoebel</i>	1492
	1390		Using Autodesk Civil 3D in railroad infrastructure design <i>by Barbara Belinić</i>
	1382		Fire simulation in railway tunnels: towards the design requirements for emergency exits <i>by Francesco Martini, Andrea Quattrini &amp; Stefano Ricci</i>
	1455		Barriers and half-barriers - violation at level crossings: A case study of drivers behaviour in Croatia <i>by Danijela Barić, Silvestar Grabušić &amp; Dražen Kaužljjar</i>
	1420		The impact of wildlife on railway track <i>by Slavko Živković, Ivan Barac, Patricia Živković, Ivan Pečina &amp; Bruno Brckan</i>
	1406		Noise protection for designing, construction and operation of subways <i>by Ilya Tsukernikov, Igor Shubin &amp; Tatiana Nevenchannaya</i>
	11:30 - 12:00	Coffee break	

Time slot	Session 4	Submission ID	Submission by Authors	
12:00 - 13:30	<b>A4: Rail infrastructure monitoring and maintenance</b> <i>Chairing: Maja Ahac &amp; Janusz Madejski</i>	1385	Simplified analysis of railway track degradation by mobile applications <i>by Rohit Raj Goswami, Roberto Sañudo Ortega &amp; Stefano Ricci</i>	
		1459	Study of the railway curves geometry under the effect of rail traffic over time <i>by Zsolt Orban, Marius Gocica &amp; Laurentiu Marculescu</i>	
		1404	Use of LiDAR and autonomous mobile robots in safety and inspection applications on railways <i>by Marjan Dimec, Mislav Kraljević, Borut Žalik, Mihael Krejan, Sašo Pečnik &amp; David Podgorelec</i>	
		1476	In-situ sound reflection determination of RUCONBAR noise barriers on a railway line <i>by Ivo Haladin, Mate Ivančev &amp; Stjepan Lakušić</i>	
		1487	Vibroacoustic and noise measurements on the R201 Zaprešić - Zabok railway line <i>by Ivo Haladin, Krešimir Burnač, Mate Ivančev &amp; Janko Koščak</i>	
	<b>B4: Pavement design, management and re(construction)</b> <i>Chairing: Laszlo Gaspar &amp; Marjan Tušar</i>	1373	Development of a design catalog for bonded concrete overlays in the regional road network <i>by Martin Peyer, Lukas Eberhardsteiner, Kristina Bayraktarova &amp; Ronald Blab</i>	
		1379	Steel deck pavement design and construction of Pelješac bridge <i>by Bicheng Tang, Xuefeng Wang, Shengwei Lu, Yong Chen &amp; Chongming Li</i>	
		1452	Development of an automatic method for the recognition of top-down cracking on asphalt pavements <i>by Davide Chiola, Lorenzo Paolo Ingrassia, Samuel Salini &amp; Francesco Canestrari</i>	
		1486	Pavement management system for local governments: case study in the Republic of San Marino <i>by Andrea Grilli, Alex Balzi, Arianna Ciotti, Paolo Tura &amp; Matteo Casali</i>	
		1364	Data analysis applied to airport pavement design <i>by Tiago Tamagusko &amp; Adelino Ferreira</i>	
	<b>C4: Road infrastructure and traffic planning and modelling</b> <i>Chairing: Aleksandra Deluka Tibljaš &amp; Vesna Dragčević</i>	1401	Integrating roughness data to assess greenhouse gas emissions within pavement management decision-making <i>by Christina Plati, Maria Pomoni, Andreas Drainakis &amp; Andreas Loizos</i>	
		1469	Assessment of the effects of traffic infrastructure reconstruction and introduction of a pedestrian island as a traffic calming measure using traffic microsimulations <i>by Irena Ištoka Otković, Aleksandra Deluka-Tibljaš, Sanja Šurdonja &amp; Tiziana Campisi</i>	
		1353	Calibration of the IDM car-following model using trajectory data <i>by Luís Vasconcelos, Francisco Martins &amp; Luísa Cruz-Lopes</i>	
		1489	Guidelines for BIM approach in infrastructure projects <i>by Zlata Dolaček-Alduk, Denis Šimenič, Dražen Galić, Martina Pavlović Cerinski, Filip Andabaka, Hrvoje Šolman, Anton Ecimović, Mirko Grošič, Igor Džajić, Dina Stober &amp; Nina Dražin Lovrec</i>	
		1490	Access roads to the Pelješac bridge <i>by Miroslav Šimun, Ante Goran Bajić, Sandra Mihalinač &amp; Đivo Šapro</i>	
		1505	Determination of emissions from road motor vehicles <i>by Zoran Lulić</i>	
		1355	Turboroundabouts in urban areas – a case study from Croatia <i>by Tamara Džambas, Vesna Dragčević &amp; Ivan Pavlaković</i>	
		1435	Analysis of the capacity and level of service for urban intersection <i>by Ivona Nedevska, Riste Ristov, Zlatko Zafirovski, Slobodan Ognjenovic &amp; Vasko Gacevski</i>	
	13:30 - 14:30	Lunch break		

Time slot	Session 5	Submission ID	Submission by Authors
14:30 - 16:00	<b>A5: Rail infrastructure and traffic planning and modelling</b> <i>Chairing: Danijela Barić &amp; Ivo Haladin</i>	1413	Implementation technology of augmented reality in railway freight transport in Slovakia <i>by Zdenka Bulkova, Milan Dedík, Jozef Gašparík, Lumír Pečený &amp; Vladislav Zitrický</i>
		1400	Challenges for organisation of container trains between China and European Union <i>by Borna Abramović &amp; Kristijan Šugić</i>
		1430	Proposal of methodology for stability evaluation of train timetables from the operational-infrastructure point of view <i>by Milan Dedík, Zdenka Bulková, Jozef Gašparík, Lukáš Čechovič &amp; Peter Kurenkov</i>
		1347	Design of railway infrastructure with OpenTrack in Austria <i>by Andreas Schöbel, Helmut Schreiner &amp; Stefan Baltram</i>
		1427	Passenger data complexity in tram stop dwell time modelling <i>by Maja Ahac, Leonard Cvitič, Igor Majstorović, Saša Ahac &amp; Silvio Bašić</i>
		1429	Modal shift modelling on the TEN-T corridor in Bosnia and Herzegovina <i>by Nedžad Branković, Aida Kalem, Azra Ferizović &amp; Smajo Salketić</i>
	<b>B5: Pavement planning, modelling, and monitoring</b> <i>Chairing: Sanja Dimter &amp; Saša Ahac</i>	1468	The response of flexible pavement roads to loading frequency <i>by Huseyin Karadağ &amp; Seyhan Firat</i>
		1473	Impact of different wood ash fractions on the load-bearing capacity of sand mixtures <i>by Sanja Dimter, Martina Zagvozda, Tea Tonc &amp; Matija Zvonarić</i>
		1423	Influence of data acquisition speed on pavement layer thickness determined by GPR <i>by Šime Bezina, Ivica Stančerić, Tatjana Rukavina &amp; Josipa Domitrović</i>
		1428	Flexible pavement with SMA as an anti-fatigue layer <i>by Josipa Domitrović, Luka Krišto &amp; Tatjana Rukavina</i>
		1502	Measuring pavement deflections with sensors: A review <i>by Tatjana Rukavina, Josipa Domitrović, Šime Bezina &amp; Ivica Stančerić</i>
		1493	GUARD - smart flexible protection systems against natural hazards <i>by Vjekoslav Budimir, Helene Lanter &amp; Sascha Schultes</i>
	<b>C5: Geotechnical design and monitoring</b> <i>Chairing: Meho Saša Kovačević &amp; Mario Bačić</i>	1432	Facing options for geosynthetic reinforced retaining structures in infrastructure projects <i>by Thomas Hasslacher, Victor Poberezhnyi &amp; Stefan Niewerth</i>
		1386	Foundation engineering structure <i>by Zvonimir Šepac</i>
		1357	Structural and geotechnical review of piers on foundations with pile integrity uncertainties <i>by Roberto Gomez, Alberto Escobar, Victor Cecilio, Marco Mendoza &amp; Hector Guerrero</i>
		1394	Bi-Directional load test: To remove uncertainty in pile load test results interpretation <i>by Akshay Sakhuja, Vignesh Rajamanickam, Visakan R &amp; B.Dhana Sekaran</i>
		1407	3-dimensional bearing capacity envelopes of bridge shallow foundations on cohesionless soils and scour effects <i>by Konstantina Papadopoulou</i>
	16:00 - 16:30	Coffee break	
16:30 - 17:00	Hall A: Conference closure		