
EATA2023 program (no abstracts)

Version 19 May 2023

EATA2023



ORGANIZERS:



Date: Sunday, 11/June/2023

3:00pm - 4:00pm Library Hall (Level 1), Main Building, GdańskTech	Registration Location: Library Hall (Level 1), Main Building, GdańskTech
4:00pm - 6:30pm Fahrenheit Courtyard (Level 0), Main Building, GdańskTech	Welcome reception Location: Fahrenheit Courtyard (Level 0), Main Building, GdańskTech

Date: Monday, 12/June/2023

7:30am - 8:30am Library Hall (Level 1), Main Building, GdańskTech	Registration Location: Library Hall (Level 1), Main Building, GdańskTech
8:30am - 9:00am Aula GdańskTech (Level 3), Main Building, GdańskTech	Opening Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Prof. Gordon Airey , University of Nottingham, United Kingdom Session Chair: Prof. Hervé Di Benedetto , Uni of Lyon / ENTPE, France Session Chair: Prof. Piotr Jaskuła , Gdańsk University of Technology, Poland Session Chair: Prof. Adam Zofka , Foundation for the Development of Transport Infrastructure Services (FRUIT), Poland
9:00am - 9:30am Aula GdańskTech (Level 3), Main Building, GdańskTech	Keynote Lecture Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Rector, Prof. Krzysztof Wilde , corresponding member of the PAS Title: TBC
9:30am - 10:50am Aula GdańskTech (Level 3), Main Building, GdańskTech	Fatigue performance Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Prof. M^a Carmen Rubio Gámez , University of Granada, Spain Session Chair: Dr. Dawid Ryś , Gdansk University of Technology, Poland
10:50am - 11:20am Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech	Coffee break with posters Location: Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech
11:20am - 1:00pm Aula GdańskTech (Level 3), Main Building, GdańskTech	Aging and rejuvenation studies Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Prof. Michael Wistuba , Technische Universität Braunschweig, Germany Session Chair: Dr. Krzysztof Błażejowski , ORLEN Asphalt, Poland
1:00pm - 2:00pm Fahrenheit and Hevelius Courtyards (Level 0), Main Building, GdańskTech	Lunch Location: Fahrenheit and Hevelius Courtyards (Level 0), Main Building, GdańskTech
2:00pm - 3:40pm Aula GdańskTech (Level 3), Main Building, GdańskTech	Field validation studies Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Dr. Ann Vanelstraete , Belgian Road Research Centre, Belgium Session Chair: Dr. Marta Wasilewska , Białystok University of Technology, Poland
3:40pm - 4:10pm Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech	Coffee break with posters Location: Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech
4:10pm - 5:30pm Aula GdańskTech (Level 3), Main Building, GdańskTech	Cracking resilience Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Prof. Cedric Sauzeat , Uni. of Lyon/ENTPE, France Session Chair: Dr. Cezary Szydłowski , Gdańsk University of Technology, Poland
6:30pm - 9:00pm	

Fahrenheit Courtyard (Level 0), Main Building, GdańskTech	Coctail party Location: Fahrenheit Courtyard (Level 0), Main Building, GdańskTech Co-sponsored by IBEF
Date: Tuesday, 13/June/2023	
8:30am - 9:00am Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech	Coffee break with posters Location: Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech
9:00am - 10:40am Aula GdańskTech (Level 3), Main Building, GdańskTech	Advanced evaluation of performance-related properties Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Prof. Gabriele Tebaldi , University of Parma, Italy Session Chair: Oliwia Merska , West Pomeranian University of Technology, Poland
10:40am - 11:10am Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech	Coffee break with posters Location: Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech
11:10am - 11:40am Aula GdańskTech (Level 3), Main Building, GdańskTech	Keynote Lecture Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Prof. Eyad Masad , Ph.D., P.E., F. ASCE Title: Microstructure Characterization for the Development of Low-Energy Asphalt Binders and Mixtures
11:40am - 1:00pm Aula GdańskTech (Level 3), Main Building, GdańskTech	Functional pavements Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Prof. Fernando Moreno-Navarro , University of Granada, Spain Session Chair: Prof. Grzegorz Mazurek , Kielce University of Technology, Poland
1:00pm - 2:00pm Fahrenheit and Hevelius Courtyards (Level 0), Main Building, GdańskTech	Lunch Location: Fahrenheit and Hevelius Courtyards (Level 0), Main Building, GdańskTech
2:00pm - 3:40pm Aula GdańskTech (Level 3), Main Building, GdańskTech	Additives and modifications (binders) Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Prof. Bernhard Hofko , TU Wien, Austria Session Chair: Dr. Aleksander Zborowski , TPA Sp. z o.o., Poland
3:40pm - 4:10pm Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech	Coffee break with posters Location: Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech
4:10pm - 5:10pm Aula GdańskTech (Level 3), Main Building, GdańskTech	Resistance to permanent deformations Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Dr. Manfred Norbert Partl , PaRRC, Switzerland Session Chair: Dr. Marcin Michał Stienss , Gdańsk University of Technology, Faculty of Civil and Environmental Engineering, Poland
6:30pm - 10:00pm Gdańsk Shakespeare Theater (GTS)	Gala Dinner Location: Gdańsk Shakespeare Theater (GTS) Gdańsk Shakespeare Theater Address: ul. Wojciecha Bogusławskiego 1 80-818 Gdańsk
Date: Wednesday, 14/June/2023	
8:30am - 9:00am Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech	Coffee break with posters Location: Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech
9:00am - 10:40am Aula GdańskTech (Level 3), Main Building, GdańskTech	Bio-binders and chemistry-linked performance Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Dr. Aikaterini Varveri , Delft University of Technology, Netherlands, The Session Chair: Dr. Agnieszka Woszuk , Lublin University of Technology, Poland

10:40am - 11:10am	Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech	Coffee break with posters Location: Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech
11:10am - 11:40am	Aula GdańskTech (Level 3), Main Building, GdańskTech	Keynote Lecture Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Prof. Jerzy Ejsmont Title: Tire Rolling Resistance
11:40am - 12:40pm	Aula GdańskTech (Level 3), Main Building, GdańskTech	Additives and modifications (asphalts) Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Prof. Christiane Raab , Empa, Switzerland Session Chair: Prof. Marek Pszczola , Gdansk University of Technology, Poland
12:40pm - 1:00pm	Aula GdańskTech (Level 3), Main Building, GdańskTech	Closing Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Session Chair: Prof. Gordon Airey , University of Nottingham, United Kingdom Session Chair: Prof. Hervé Di Benedetto , Uni of Lyon / ENTPE, France Session Chair: Prof. Piotr Jaskuła , Gdańsk University of Technology, Poland Session Chair: Prof. Adam Zofka , Foundation for the Development of Transport Infrastructure Services (FRUIT), Poland
1:00pm - 2:00pm	Fahrenheit and Hevelius Courtyards (Level 0), Main Building, GdańskTech	Lunch Location: Fahrenheit and Hevelius Courtyards (Level 0), Main Building, GdańskTech
2:00pm - 6:00pm	Aula GdańskTech (Level 3), Main Building, GdańskTech	RILEM workshop TC 308-PAR: Performance-based Asphalt Recycling Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Chair: Dr. Gabriele TEBALDI Deputy Chair: Dr. Eshan V. DAVE
Date: Thursday, 15/June/2023		
9:30am - 1:00pm	Aula GdańskTech (Level 3), Main Building, GdańskTech	RILEM workshop TC 279-WMR: Valorisation of Waste and Secondary Materials for Roads Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Chair: Dr. Lily POULIKAKOS Deputy Chair: Dr. Emiliano PASQUINI
1:00pm - 2:00pm	Fahrenheit Courtyard (Level 0), Main Building, GdańskTech	Lunch Location: Fahrenheit Courtyard (Level 0), Main Building, GdańskTech
2:00pm - 5:30pm	Aula GdańskTech (Level 3), Main Building, GdańskTech	RILEM workshop TC 280-CBE: Multiphase characterisation of cold bitumen emulsion materials Location: Aula GdańskTech (Level 3), Main Building, GdańskTech Chair: Dr. Andrea GRAZIANI Deputy Chair: Prof. Alan CARTER

Presentations

S01: Fatigue performance

Time: Monday, 12/June/2023: 9:30am - 10:50am · *Location:* Aula GdańskTech (Level 3), Main Building, GdańskTech

Session Chair: M^a Carmen Rubio Gámez, University of Granada, Spain

Session Chair: Dawid Ryś, Gdansk University of Technology, Poland

Rational relationship between the fatigue curves of asphalt mixes obtained from tension/compression and 4-point bending tests

Di Benedetto, Hervé¹; Perraton, Daniel²; Lamothe, Sébastien²; Boussabnia, Mohamed Mounir²

¹Univ Lyon, ENTPE, Ecole Centrale de Lyon, CNRS, LTDS, UMR5513, Vaulx en Velin, France; ²Construction Engineering Department, École de technologie supérieure (ÉTS), Montréal, Canada

Advanced fatigue and rutting characterization of Polish asphalt mixtures based on the VECD model and viscoplastic shift model

Spadoni, Sara¹; Ingrassia, Lorenzo Paolo¹; Jaskuła, Piotr²; Canestrari, Francesco¹

¹Department of Civil and Building Engineering, and Architecture (DICEA), Università Politecnica delle Marche, Ancona, Italy;

²Department of Transportation Engineering, Faculty of Civil and Environmental Engineering, Gdańsk University of Technology, Gdańsk, Poland

Fatigue testing on bitumen binder using different column specimen shapes

Mangalath Shine, Athira¹; Falla, Gustavo Canon¹; Kamratowsky, Erik¹; Wellner, Frohmut¹; Caro, Silvia²; Zeißler, Alexander¹; Leischner, Sabine¹

¹Institute of Urban and Pavement Engineering, Technische Universität Dresden, Dresden, Germany; ²Department of Civil and Environmental Engineering, Universidad de los Andes, Bogotá, Colombia

Heterogeneous numerical simulation of fatigue behavior of porous HMA via a multi-scale approach

El Sawda, Christina¹; Fakhari - Tehrani, Fateh¹; Absi, Joseph²; Petit, Christophe¹; Reynaud, Philippe¹

¹GC2D Laboratory- Génie Civil Diagnostic et Durabilité, Université de Limoges, Egletons, France; ²Conservatoire national des arts et métiers, Paris, France; ²Centre National de la Recherche Scientifique, Institut de Recherche sur les Céramiques, Limoges Cedex, France

COF-01: Coffee break with posters (all poster will be on display throughout the entire conference)

Time: Monday, 12/June/2023: 10:50am - 11:20am · *Location:* Hall in front of Aula GdańskTech (Level 3), Main Building, GdańskTech

Quantifying the Influence of Heating and Resting on The Formation of the Bitumen Microstructure

Mirwald, Johannes¹; Niszl, Christina¹; Eberhardsteiner, Lukas²; Hofko, Bernahrd¹

¹CD Laboratory Bitumen, TU Wien, Austria; ²Institute of Transportation, TU Wien, Austria

Impact of the mastic phase and compaction temperature on the sigmoidal gyratory compaction curve

Margaritis, Alexandros; Tanghe, Tine; Vansteenkiste, Stefan; De Visscher, Joëlle; Vanelstraete, Ann

Belgian Road Research Centre (BRRC), Belgium

Implementing Temperature-Based Artificial Neural Network (ANN) Modeling in Assessing Pavement Structural Conditions

Bastola, Nitish R.¹; Acharjee, Prashanta¹; Souliman, Mena I.¹; Dessouky, Samer²

¹University of Texas at Tyler, USA; ²University of Texas at San Antonio, USA

Development of a Non-contact Measurement Technique for Asphalt Mixture Uniaxial Fatigue Testing

Vaddy, Poornachandra; Kutay, M. Emin; Abdollahi, Seyed Farhad; Hasnat, Mumtahn

Michigan State University, USA

Investigations on the Production Temperature of WMA Mixes with CRMB Using Workability Approach

Kumar, Saurabh; Wagh, Vivek Pratap; Gupta, Ankit

IIT (BHU) Varanasi, India

Dynamic Shear Modulus ($|G^*|$) and Phase Angle (δ) Prediction Model for Modified Binder Using Artificial Neural Network (ANN)

Acharjee, Prashanta Kumar; Souliman, Mena I.

University of Texas at Tyler, USA

Novel low temperature binders for warm asphalt mixes. Comparison with standard hot mixes

Gonzalez, Maria Gonzalez¹; Victoria, Maria del Mar Colas¹; Mena, Vicente Perez¹; Rubio Gamez, Maria del Carmen²; Navarro, Fernando Moreno²

¹CEPSA Commercial & Clean Energies, Spain; ²Universidad de Granada, Spain

Stiffness modulus prediction against basic physical and mechanical characteristics of recycled base course with foamed bitumen and emulsified bitumen

Mazurek, Grzegorz; Buczyński, Przemysław; Iwański, Marek

Kielce University of Technology, Poland

Effect of crack sealing treatment on skid resistance of pavement

Tušar, Marjan; Kokot, Darko; Ržek, Lidija

ZAG Ljubljana, SLOVENIA

Characterization of cold recycled asphalt mixtures including reinforcing fibres

Carlo, Carpani¹; Edoardo, Bocci²; Maurizio, Bocci¹

¹Department of Construction, Civil Engineering and Architecture, Università Politecnica delle Marche, Ancona, Italy; ²Faculty of Engineering, eCampus University, Novedrate (CO), Italy

Quality Control of Asphalt Binders in the Full In-Service Temperature Range using Dynamic Shear Rheometer Plate-Plate Geometry

Sigwarth, Tess; Büchner, Johannes; Wistuba, Michael P.

TU Braunschweig, Braunschweig Pavement Engineering Centre (ISBS), Germany

Comparative Laboratory Performance Analysis of Different Cementitious Admixtures Used for Stabilized Aggregate Base

Sharma, Rohit Kumar; Singh, Dharamveer; Dasaka, Satyanarayana Murty
Indian Institute of Technology Bombay, India

Investigation of the Bonding Properties of Bitumen Using a Novel Modified BBS Test

Zhou, Lu¹; Airey, Gordon¹; Huang, Weidong²; Lv, Quan²; Wang, Haopeng¹

¹Nottingham Transportation Engineering Centre, Department of Civil Engineering, University of Nottingham, UK; ²Key Laboratory of Road and Traffic Engineering of Ministry of Education, Tongji University, China

Chemo-rheological equivalence of bitumen between different lab ageing procedures: from binder to mixture

Jacobs, Geert; Pipintakos, Georgios; Van den Buijs, Xander; Van den bergh, Wim
SuPAR, University of Antwerp, Belgium

The use of the semi-circular bending method to assess the fracture toughness of asphalt concrete mixes with reclaimed asphalt shingles

Zieliński, Piotr

Department of Roads, Railways and Traffic Engineering, Cracow University of Technology, Cracow, Poland

An alternative method for determination of compaction level for the granular layers

Kleizienė, Rita¹; Vaitkus, Audrius¹; Zofka, Adam¹; Simanavičienė, Rūta²

¹Road Research Institute, Vilnius Gediminas Technical University, Vilnius, Lithuania; ²Department of Mathematical Statistics, Vilnius Gediminas Technical University, Vilnius, Lithuania

Analysis of the compactibility of bituminous mixtures for reflective crack relief interlayers (RCRI)

Merska, Oliwia; Mieczkowski, Pawel; Majer, Stanisław

Faculty of Civil and Environmental Engineering, West Pomeranian University of Technology, Poland

Evaluation of complex modulus and fatigue properties of cold recycled material mixtures using small-scale specimens

Grilli, Vittoria; Virgili, Amedeo; Graziani, Andrea

Università Politecnica delle Marche, Italy

Performance Evaluation of Recycled Asphalt Mixes Composed of Waste Wood Bio-Oil

Girimath, Shashibhushan¹; Singh, Dharamveer¹; Rajan, Bharat²

¹Civil Engineering Department, Indian Institute of Technology Bombay, Mumbai, India; ²Acotech Consultant Pvt. Ltd., Thane, Mumbai, India

Innovative testing of whole asphalt layers package for rutting resistance in triaxial apparatus

Komačka, Jozef¹; Boros, Zsolt¹; Dancs, Norbert¹; Tokoš, Marek¹; Buček, Filip¹; Remišová, Eva²

¹TPA Society for Quality Assurance and Innovation Ltd., Bratislava, Slovakia; ²University of Žilina, Faculty of Civil Engineering, Slovakia

A Finite Element-Deep Neural Network Approach for the Prediction of the Rheological Properties of Bitumen

Khadijeh, Mahmoud; Varveri, Aikaterini; Kasbergen, Cor; Erkens, Sandra

Department of Engineering Structures, Delft University of Technology, Delft, The Netherlands

Evaluation of thermal cracking probability for asphalt concretes with high percentage of RAP

Jaczewski, Mariusz; Pszczola, Marek; Alenowicz, Jacek; Ryś, Dawid; Dołycki, Bohdan; Jaskuła, Piotr

Gdańsk University of Technology, Poland

Design and exploitation of the Perpetual Pavements in Poland

Pełczyńska, Karolina; Grajewska, Agata; Ruttmar, Igor

TPA Sp. z o. o., Poland

Laboratory Evaluation of Rheological, Chemical and Compositional Properties of Bitumen Recovered from RAP Mixtures Treated with Seven Different Recycling Additives (RA) with Aging

Reinke, Gerald¹; Hanz, Andrew¹; Sias, Jo E.²; Dave, Eshan V.²; Zhang, Runhua²

¹MTE Services, Inc, USA; ²University of New Hampshire, USA

Effect of Hot-Mix Asphalt Volumetric Properties and RAP Content on CT-Index

Bin Muslim, Hamad; Ahmed, Zachary Mohamed; Haider, Syed Waqar; Kutay, Muhammed Emin

Michigan State University, USA

Influence of curing regime and compaction type on performance characteristics of BSM-emulsion

Chhabra, Rishi Singh; R.N., G.D. Ransinchung

Indian Institute of Technology Roorkee, Roorkee, India

Effects of water-foaming on the ageing of asphalt binders

Chomicz-Kowalska, Anna; Maciejewski, Krzysztof

Department of Transportation Engineering, Faculty of Civil Engineering and Architecture, Kielce University of Technology, Poland

Influence of the type of reclaimed asphalt on the properties of the stone mastic mixture SMA JENA 16

Ramiączek, Piotr; Janus, Karolina

Department of Transportation Engineering, Faculty of Civil Engineering and Architecture, Kielce University of Technology, Poland

S02: Aging and rejuvenation studies

Time: Monday, 12/June/2023: 11:20am - 1:00pm · *Location:* Aula GdańskTech (Level 3), Main Building, GdańskTech

Session Chair: Michael Wistuba, Technische Universität Braunschweig, Germany

Session Chair: Krzysztof Błażejowski, ORLEN Asphalt, Poland

Rheological Characterisation of Rejuvenator Blending Lines

Büchner, Johannes¹; **Michael P., Wistuba**¹; **Miesem, Sebastian**²; **Neliapp, Michael**²; **Dietzsch, Michael**²; **Šandor, Mario**²

¹Braunschweig Pavement Engineering Centre (ISBS), Technische Universität Braunschweig, Braunschweig, Germany; ²BASF SE, Asphalt Performance EMEA, Ludwigshafen am Rhein, Germany

Aging Characteristics of Polyethylene-Modified Asphalt Binders Blended with Different Compatibilizers

Roja, K. Lakshmi¹; **Masad, Eyad**¹; **Krishnamoorthy, Senthil Kumar**²; **Ouederni, Mabrouk**²

¹Mechanical Engineering Program, Texas A&M University at Qatar, Doha, Qatar; ²Qatar Petrochemical Company (QAPCO), Doha, Qatar

Evaluation of long-term oven aging protocols on field cracking performance of asphalt binders containing reclaimed asphaltic materials (RAP/RAS)

Moraes, Raquel¹; **Yin, Fan**¹; **Chen, Chen**¹; **Andriescu, Adrian**²; **Mensching, David J.**³; **Tran, Nam**¹

¹National Center for Asphalt Technology, Auburn, AL, USA; ²Binder and Mix Laboratory, Turner-Fairbank Highway Research Center, SES Group & Associates, LLC, McLean, VA, USA; ³Asphalt Materials Research Program Manager, Federal Highway Administration, Turner-Fairbank Highway Research Center, McLean, VA, USA

Ageing behaviour of naturally and artificially aged bitumen samples after the addition of rejuvenators

Schwettmann, Kim¹; **Nytus, Nina**²; **Radenberg, Martin**²; **Stephan, Dietmar**¹

¹Department of Building Materials and Construction Chemistry, Technische Universität Berlin, Berlin, Germany; ²Field of Road Construction, Ruhr-Universität Bochum, Bochum, Germany

Evaluating the Ageing Degrees of Bitumen by Rheological and Chemical Indices

Hu, Yongping¹; **Xia, Wei**²; **Xue, Yu**^{1,2}; **Zhao, Pinxue**²; **Wen, Xuanye**²; **Si, Wei**²; **Wang, Haopeng**¹; **Zhou, Lu**¹; **Airey, Gordon D.**¹

¹Department of Civil Engineering, Nottingham Transportation Engineering Centre (NTEC), University of Nottingham, Nottingham, UK; ²Highway School, Chang'an University, Xi'an, People's Republic of China

S03: Field validation studies

Time: Monday, 12/June/2023: 2:00pm - 3:40pm · *Location:* Aula GdańskTech (Level 3), Main Building, GdańskTech

Session Chair: Ann Vanelstraete, Belgian Road Research Centre, Belgium

Session Chair: Marta Wasilewska, Bialystok University of Technology, Poland

Chemical and mechanical analysis of field and laboratory aged bitumen

Hofer, Kristina¹; Werkovits, Stefan¹; Schönauer, Paul²; Mirwald, Johannes¹; Grothe, Hinrich¹; Hofko, Bernhard¹

¹Christian Doppler Laboratory for Chemo-Mechanical Analysis of Bituminous Materials, Institute of Transportation, TU Wien, Vienna, Austria; ²Institute of Transportation, TU Wien, Vienna, Austria

A new tire-sensor-pavement coupling chain for investigating asphalt mixture responses under rolling tire loads

Ge, Haitao¹; Quezada, Juan Carlos¹; Houerou, Vincent Le¹; Chazallon, Cyrille¹; Hornych, Pierre²

¹INSA de Strasbourg, CNRS, ICube, UMR, 7357, Université de Strasbourg, Strasbourg, France; ²MAST-LAMES, Université Gustave Eiffel, Bouguenais, France

A comparative study on the performance of field-sampled asphalt mixtures for heavy-duty pavements using laboratory testing and mechanistic-empirical simulations

Hernando, David¹; Couscheir, Karolien¹; Jacobs, Geert¹; Almalehy, Hosam¹; Omrnian, Seyed Reza¹; Vuye, Cedric¹; Braspenninckx, Johan²; Van den bergh, Wim¹

¹Department of Construction, University of Antwerp, Antwerp, Belgium; ²Port of Antwerp-Bruges, Antwerp, Belgium

MASAI: Sustainable, Automated and Intelligent Asphalt Materials. The way to the next generation of asphalt pavements

Moreno-Navarro, F.¹; Sierra-Carrillo de Albornoz, F. J.²; Sol-Sánchez, M.¹; Rubio-Gámez, M.C.¹

¹Construction Engineering Laboratory of the University of Granada (LabIC.UGR), Granada, Spain; ²Consejería de Fomento, Infraestructuras y Ordenación del Territorio de la Junta de Andalucía, Granada, Spain

Experience with overlays containing highly SBS modified binders (HiMA)

Błażejowski, Krzysztof; Baranowska, Wiktoria; Wójcik-Wiśniewska, Marta; Ostrowski, Przemysław

ORLEN Asphalt, Research, Development and Innovation Department, Poland

S04: Cracking resilience

Time: Monday, 12/June/2023: 4:10pm - 5:30pm · Location: Aula GdańskTech (Level 3), Main Building, GdańskTech

Session Chair: Cedric Sauzeat, Uni. of Lyon/ENTPE, France

Session Chair: Cezary Szydłowski, Gdańsk University of Technology, Poland

Effects of temperature and age on stress relaxation in straight and modified asphalt binders from a northern Ontario pavement trial

McCloskey, Kalena¹; Nivitha, M. R.²; Ma, Jianmin^{1,3}; Hesp, Simon A. M.¹; Krishnan, J. Murali⁴

¹Department of Chemistry, Queen's University, Kingston, Canada; ²Department of Civil Engineering, PSG College of Technology, Coimbatore, India; ³Key Laboratory of Road and Traffic Engineering of Ministry of Education, Tongji University, Shanghai, People's Republic of China; ⁴Department of Civil Engineering, Indian Institute of Technology Madras, Chennai, India

Evaluation of Physical Hardening and Oxidative Aging Effects on Delta Tc of Asphalt Binders

Yan, Tianhao¹; Mariette, Enzo²; Turos, Mugurel¹; Marasteanu, Mihai¹

¹Department of Civil, Environmental, and Geo-Engineering, University of Minnesota, Minneapolis, USA; ²École Nationale des Travaux Publics de l'État (ENTPE), Lyon, France

Assessment of the low-temperature performance of asphalt mixtures for bridge pavement

Budziński, Bartosz¹; Mieczkowski, Paweł¹; Słowik, Mieczysław²; Mielczarek, Marta²; Bilski, Marcin²; Fornalczyk, Sylwia²

¹Faculty of Civil and Environmental Engineering, West Pomeranian University of Technology, Szczecin, Poland; ²Faculty of Civil and Transport Engineering, Poznan University of Technology, Poznan, Poland

Atomic insight into the nano-cracking behavior of bitumen: considering oxidative aging effects

Luo, Lei^{1,2}; Liu, Pengfei¹; Leischner, Sabine³; Oeser, Markus¹

¹Institute of Highway Engineering, RWTH Aachen University, Aachen, Germany; ²School of Highway, Chang'an University, Xi'an, People's Republic of China; ³Institute of Urban and Pavement Engineering, TU Dresden, Dresden, Germany

S05: Advanced evaluation of performance-related properties

Time: Tuesday, 13/June/2023: 9:00am - 10:40am · *Location:* Aula GdańskTech (Level 3), Main Building, GdańskTech

Session Chair: Gabriele Tebaldi, University of Parma, Italy

Session Chair: Oliwia Merska, West Pomeranian University of Technology, Poland

Linear and nonlinear thermomechanical behaviour of interface between bituminous mixtures layers: results from 2T3C apparatus and modelling

Tran, Thien Nhan¹; Mangiafico, Salvatore¹; Attia, Thomas²; Sauzéat, Cédric¹; Di Benedetto, Hervé¹

¹Univ Lyon, ENTPE, Ecole Centrale de Lyon, CNRS, LTDS, UMR5513, Vaulx en Velin, France; ²Research & Innovation Department, Eiffage Infrastructures, Corbas, France

Evaluation of the State of Practice Asphalt Binder and Mixture Tests for Assessing the Compatibility of Complex Asphalt Materials

Zhang, Runhua¹; Dave, Eshan²; Sias, Jo E.²; Tabatabaee, Hassan A.³; Sylvester, Tony³; Wang, Zheng²

¹University of Wisconsin–Madison, Madison, WI, USA; ²University of New Hampshire, Durham, NH, USA; ³Cargill Bioindustrial, Minneapolis, MN, USA

Wetting kinetics of a bitumen droplet on a glass substrate

Thiriet, Amelie; Tigier, Léa; Gaudefroy, Vincent; Terrier, Jean-Philippe; Cantot, Justine; Piau, Jean-Michel; Chailleux, Emmanuel

Université Gustave Eiffel, Campus de Nantes, Bouguenais, France

Experimental and Numerical Modelling of Shear Bonding between Asphalt Layers

Jelagin, Denis¹; Olsson, Erik²; Raab, Christiane³; Partl, Manfred N.⁴

¹Department of Civil and Architectural Engineering, KTH – Royal Institute of Technology, Stockholm, Sweden; ²Department Engineering Sciences and Mathematics, Luleå University of Technology, Luleå, Sweden; ³Concrete and Asphalt, Empa, Swiss Federal Laboratories for Material Science and Technology, Dübendorf, Switzerland; ⁴PaRRC Partl Road Research Consulting, Oeschgen, Switzerland

Self-healing master curves of bituminous binders: a non-linear viscoelastic continuum damage framework

Fabrizio, Miglietta¹; Underwood, B. Shane²; Tsantilis, Lucia¹; Orazio, Baglieri¹; Ezio, Santagata^{1,3}

¹Department of Land, Environment and Infrastructure Engineering, Politecnico di Torino, Torino, Italy; ²Department of Civil, Construction, and Environmental Engineering, North Carolina State University, Raleigh, NC, USA; ³Department of Civil and Architectural Engineering, Qatar University, Doha, Qatar

S06: Functional pavements

Time: Tuesday, 13/June/2023: 11:40am - 1:00pm · *Location:* Aula GdańskTech (Level 3), Main Building, GdańskTech

Session Chair: Fernando Moreno-Navarro, University of Granada, Spain

Session Chair: Grzegorz Mazurek, Kielce University of Technology, Poland

Impact of air voids and environmental temperature of asphalt concrete on black ice

Phan, Tam Minh¹; Jang, Min-Seok¹; Seo, Jung-Woo¹; Yoon, Jae-Hyeong¹; Park, Dae-Wook¹; Minh Le, Tri Ho²

¹Department of Civil and Environmental Engineering, Kunsan National University, Gunsan, Republic of Korea; ²Faculty of Civil Engineering, Nguyen Tat Thanh University, Ho Chi Minh City, Vietnam

Optimized Durable Pavement Rolling Resistance

Pettinari, Matteo¹; Al-Qadi, Imad L.²; Ozer, Hasan³; Nielsen, Erik¹

¹Danish Road Directorate, Copenhagen, Denmark; ²Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign, Urbana, IL, USA; ³School of Sustainable Engineering and the Built Environment, Arizona State University, Tempe, AZ, USA

Urban Mining for Low noise Urban Roads-Towards More Sustainability in the Urban Environment

Poulikakos, Lily¹; Kakar, Muhammad Rafiq²; Piao, Zhengyin^{1,3}

¹Department of Functional Materials, Concrete and Asphalt Laboratory, Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland; ²Department of Architecture, Wood and Civil Engineering, Bern University of Applied Sciences (BFH), Bienne, Switzerland; ³Department of Civil, Environment and Geomatic Engineering, ETH Zurich, Zurich, Switzerland

Asphalt mixtures degradation induced by water, frost, and road salt in the 4-PB bending test evaluated by stiffness variability

Maczka, Eryk; Mackiewicz, Piotr

Faculty of Civil Engineering, Wrocław University of Science and Technology, Wrocław, Poland

S07: Additives and modifications (binders)

Time: Tuesday, 13/June/2023: 2:00pm - 3:40pm · *Location:* Aula GdańskTech (Level 3), Main Building, GdańskTech

Session Chair: Bernhard Hofko, TU Wien, Austria

Session Chair: Aleksander Zborowski, TPA Sp. z o.o., Poland

Laboratory Investigation of Graphene Modified Asphalt Efficacy to Pavement Performance

Polaczyk, Pawel¹; Weaver, Sam C.²; Ma, Yuetan¹; Zhang, Miaomiao¹; Jiang, Xi¹; Huang, Baoshan¹

¹Department of Civil and Environmental Engineering, University of Tennessee, Knoxville, TN, USA; ²Proton Power, Inc., Lenoir City, TN, USA

Comparing the performance of SBS and thermoplastics modified asphalt binders and asphalt mixes

Pandey, Akanksha¹; Islam, Sk. Sohel²; Ransingchung R. N., G. D.²; Ravindranath, Sham¹

¹Department of Polymer and Process Engineering, Indian Institute of Technology Roorkee, Roorkee, India; ²Department of Civil Engineering, Indian Institute of Technology Roorkee, Roorkee, India

Performance of crumb rubber bitumen and asphalt modified in wet process alone and in combination with SBS polymer

Šernas, Ovidijus; Vaitkus, Audrius; Škulveckė, Judita

Road Research Institute, Vilnius Gediminas Technical University, Vilnius, Lithuania

Performance of modified bituminous binders for mastic asphalt applications: risk assessment by thermal and rheological indices

Vansteenkiste, Stefan; Gail, Annette; Glorie, Lieve; Peaureaux, Philippe; Vanelstraete, Ann

Belgian Road Research Centre (BRRC), Woluwedal, Brussels

Asphalt binders modified with chemically-crosslinked chitosan

Malinowski, Szymon¹; Wozuk, Agnieszka¹; Wróbel, Michal¹; Makowska, Michalina²; Franus, Wojciech¹; Zofka, Adam³

¹Department of Construction Materials Engineering and Geoengineering, Faculty of Civil Engineering and Architecture, Lublin University of Technology, Lublin, Poland; ²Road Survey Technology, Ramboll Finland Oy, Espoo, Finland; ³Foundation for the Development of Transport Infrastructure Services (FRUIT)

S08: Resistance to permanent deformations

Time: Tuesday, 13/June/2023: 4:10pm - 5:10pm · *Location:* Aula GdańskTech (Level 3), Main Building, GdańskTech

Session Chair: Manfred Norbert Partl, PaRRC, Switzerland

Session Chair: Marcin Michał Stienss, Gdańsk University of Technology, Faculty of Civil and Environmental Engineering, Poland

Development of a generalised creep-recovery test and a back-calculation method for determining the permanent deformation of asphalt mixtures in the time domain

Tran, Vu-Tu¹; Phan, Thanh-Nhan¹; Tran, Van-Tieng¹; Do, Tien-Tho¹; Nguyen, H.T. Tai¹; Nguyen, Mai Lan²

¹Faculty of Civil Engineering, Ho Chi Minh City University of Technology and Education, Ho Chi Minh City, Vietnam; ²Department of Materials and Structures, Gustave Eiffel University, Bouguenais, France

Intermediate- and high-temperature damage of bitumen modified by HDPE from various sources

Singh, Aakash¹; Gupta, Ankit¹; Miljković, Miomir²

¹Department of Civil Engineering, Indian Institute of Technology (BHU), Varanasi, India; ²Faculty of Civil Engineering and Architecture, University of Niš, Niš, Serbia

Multiple Stress Creep and Recovery test for bituminous binders – influence of several key experimental parameters

Wang, Di¹; Zhu, Jigang²; Porot, Laurent³; Falchetto, Augusto Cannone¹; Damen, Sjaak³

¹Department of Civil Engineering, Aalto University, Espoo, Finland; ²Swedish National Road and Transport Research Institute (VTI), Linköping, Sweden; ³Kraton Polymers B.V., Almere, Netherlands

S09: Bio-binders and chemistry-linked performance

Time: Wednesday, 14/June/2023: 9:00am - 10:40am · Location: Aula GdańskTech (Level 3), Main Building, GdańskTech

Session Chair: Aikaterini Varveri, Delft University of Technology, Netherlands, The

Session Chair: Agnieszka Wozzuk, Lublin University of Technology, Poland

Physicochemical and aging characterization of bio-binders from pine wood resin for paving applications

Castro-Alonso, Maria Jose¹; Espinosa, Leidy²; Marcelino, Paulo Ricardo Franco¹; Vasconcelos Savasini, Kamilla²; Dos Santos, Julio Cesar¹; Moraes, Raquel³; da Silva, Silvio Silvério¹; Bernucci, Liedi L.B.²

¹Department of Biotechnology, Engineering School of Lorena of the University of São Paulo, Lorena, Brazil; ²Department of Transportation Engineering, Polytechnic School of the University of São Paulo, São Paulo, Brazil; ³National Center for Asphalt Technology (NCAT) at Auburn University, Auburn, Alabama, USA

Feasibility of using bio-oil from biodiesel production for bio-bitumen creation

Pais, Jorge¹; Santos, Caio Rubens²; Cabette, Marina¹; Hilliou, Loic¹; Ribeiro, Jorge³; Wang, Hainian⁴; Hasan, Mohd Rosli Mohd⁵

¹University of Minho, Guimarães, Portugal; ²Mauá Institute of Technology, São Caetano do Sul, Brasil; ³Petrogal, Matosinhos, Portugal; ⁴Chang'an University, Xi'an, People's Republic of China; ⁵School of Civil Engineering, Universiti Sains Malaysia, Penang, Malaysia

Investigating the link between the chemical composition of bitumen and the kinetics of the styrene-butadiene-styrene swelling process

Naderi, Koorosh; Jonas, Celine; Carbonneau, Xavier

CORE Center, COLAS, Magny-les-Hameaux, France

Rheological investigation on the ageing performance of bio-recycled asphalt binders and mixtures

Jiménez del Barco Carrión, Ana¹; Presti, Davide Lo²; Chailleux, Emmanuel³; Airey, Gordon D.⁴

¹LabI.C.ugr, Department of Construction Engineering and Engineering Projects, University of Granada, Granada, Spain; ²Department of Engineering, University of Palermo, Italy; ³University Gustave Eiffel, Nantes, France; ⁴NTEC, Department of Civil Engineering, University of Nottingham, UK

Chemical characterization of bitumen type and ageing state based on FTIR spectroscopy and discriminant analysis integrated with variable selection methods

Ma, Lili; Varveri, Aikaterini; Jing, Ruxin; Erkens, Sandra

Faculty of Civil Engineering and Geosciences, Delft University of Technology, Delft, Netherlands

S10: Additives and modifications (asphalts)

Time: Wednesday, 14/June/2023: 11:40am - 12:40pm · *Location:* Aula GdańskTech (Level 3), Main Building, GdańskTech

Session Chair: Christiane Raab, Empa, Switzerland

Session Chair: Marek Pszczola, Gdansk University of Technology, Poland

The effect of multiaxial geocomposite reinforcement on fatigue performance and crack propagation delay in double-layered asphalt beams

Jaskula, Piotr¹; Rys, Dawid¹; Stienns, Marcin¹; Szydłowski, Cezary¹; Golos, Michał²; Kornacka, Kamila³; Zoltko, Joanna³; Kawalec, Jacek^{4,5}

¹Faculty of Civil and Environmental Engineering, Gdansk University of Technology, Gdansk, Poland; ²Tensar International Limited, Blackburn, UK; ³Tensar Polska Sp. z o.o., Gdansk, Poland; ⁴Faculty of Civil Engineering, Silesian University of Technology, Gliwice, Poland; ⁵Tensar International s.r.o., Cesky Tesin, Czech Republic

Laboratory and field characterizations of fibre reinforced porous asphalt: a Dutch case study

Qiu, Jian¹; Huurman, Rien¹; Frunt, Mark¹; Vreugdenhil, Bram²; Lucas, Jos²; Lastra-González, Pedro³; Indacoechea-Vega, Irune³; Castro-Fresno, Daniel³

¹AsfaltNu C.V., Culemborg, The Netherlands; ²Rijkswaterstaat, Utrecht, The Netherlands; ³GITECO Research Group, University of Cantabria, Santander, Spain

The role of fine aggregate matrix in the linear viscoelastic behaviour of cement-bitumen treated materials

Mignini, Chiara; Cardone, Fabrizio; Graziani, Andrea

Dipartimento di Ingegneria Civile Edile e Architettura, Università Politecnica delle Marche, Ancona, Italy

RIL-02: RILEM workshop TC 279-WMR: Valorisation of Waste and Secondary Materials for Roads

Time: Thursday, 15/June/2023: 9:30am - 1:00pm · *Location:* Aula GdańskTech (Level 3), Main Building, GdańskTech

Overview of RILEM TC-279 WMR

[Poulidakos, Lily](#)¹; [Pasquini, Emiliano](#)²

¹EMPA, Switzerland; ²University of Padova, Italy

TG1 Waste plastic modified asphalt binders

[Tusar, Marjan](#)

Slovenian National Building and Civil Engineering Institute, Slovenia

TG2 Crumb rubber modified asphalt binders

[Pais, Jorge](#)

University of Minho, Portugal

Upscaling Wastes for the Asphalt Market through Chemical Reengineering

[Planche, Jean-Pascal](#)

Western Research Institute, USA

TG3 Waste Aggregates in Asphalt Mixtures

[Pasquini, Emiliano](#)¹; [Falchetto, Augusto Cannone](#)²; [Moreno-Navarro, Fernando](#)³

¹University of Padova, Italy; ²Aalto University, Finland; ³University of Granada, Spain

TG5 Life Cycle Assessment

[Presti, Davide Lo](#)¹; [del Barco Carrion, Ana Jimenez](#)²

¹University of Palermo, Italy; ²University of Granada, Spain

Evolution and Real-Scale Applications of a Recycled Plastic Based Asphalt Modifier

[Eskandarsefat, Shahin](#)

Iterchimica, Italy

Discussion and final thoughts

[Poulidakos, Lily](#)¹; [Pasquini, Emiliano](#)²

¹EMPA, Switzerland; ²University of Padova, Italy

RIL-03: RILEM workshop TC 280-CBE: Multiphase characterisation of cold bitumen emulsion materials

Time: Thursday, 15/June/2023: 2:00pm - 5:30pm · *Location:* Aula GdańskTech (Level 3), Main Building, GdańskTech

Overview of TC CBE, significance, goals and organization

Graziani, Andrea¹; Carter, Alan²

¹University of Ancona, Italy; ²ETS, Canada

Results of TG1 - EMULSIONS AND EMULSION-BASED COMPOSITES

Miljkovic, Miomir

University of Nis, Serbia

Industry presentation: Bituminous emulsion industry

TBC, TBC

TBC

Results of TG2 - COLD BITUMEN EMULSION MIXTURES

Sangiorgi, Cesare

University of Bologna, Italy

Bituminous emulsion science

TBC, TBC

TBC

Rheological characterization of cement-bitumen treated mixtures

Graziani, Andrea

University of Ancona, Italy

Discussion and final thoughts

Carter, Alan¹; Graziani, Andrea²

¹ETS, Canada; ²University of Ancona, Italy