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**EATA2023 program (no abstracts)**

*Version 31 May 2023*

# EATA2023



**ORGANIZERS:**



**Date: Sunday, 11/June/2023**

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

**Date: Monday, 12/June/2023**

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

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

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

<sup>1</sup>Univ Lyon, ENTPE, Ecole Centrale de Lyon, CNRS, LTDS, UMR5513, Vaulx en Velin, France; <sup>2</sup>Construction 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, Sara<sup>1</sup>; Ingrassia, Lorenzo Paolo<sup>1</sup>; Jaskuła, Piotr<sup>2</sup>; Canestrari, Francesco<sup>1</sup>**

<sup>1</sup>Department of Civil and Building Engineering, and Architecture (DICEA), Università Politecnica delle Marche, Ancona, Italy;  
<sup>2</sup>Department 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, Athira<sup>1</sup>; Falla, Gustavo Canon<sup>1</sup>; Kamratowsky, Erik<sup>1</sup>; Wellner, Frohmut<sup>1</sup>; Caro, Silvia<sup>2</sup>; Zeißler, Alexander<sup>1</sup>; Leischner, Sabine<sup>1</sup>**

<sup>1</sup>Institute of Urban and Pavement Engineering, Technische Universität Dresden, Dresden, Germany; <sup>2</sup>Department 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, Christina<sup>1</sup>; Fakhari - Tehrani, Fateh<sup>1</sup>; Absi, Joseph<sup>2</sup>; Petit, Christophe<sup>1</sup>; Reynaud, Philippe<sup>1</sup>**

<sup>1</sup>GC2D Laboratory- Génie Civil Diagnostic et Durabilité, Université de Limoges, Egletons, France; <sup>b</sup> Conservatoire national des arts et métiers, Paris, France; <sup>2</sup>Centre 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

Chair of poster competition committee: **Prof. Hassan Baaj**, University of Waterloo, Canada

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

**Mirwald, Johannes**<sup>1</sup>; **Nlszl, Christina**<sup>1</sup>; **Eberhardsteiner, Lukas**<sup>2</sup>; **Hofko, Bernahrd**<sup>1</sup>

<sup>1</sup>CD Laboratory Bitumen, TU Wien, Austria; <sup>2</sup>Institute 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.**<sup>1</sup>; **Acharjee, Prashanta**<sup>1</sup>; **Souliman, Mena I.**<sup>1</sup>; **Dessouky, Samer**<sup>2</sup>

<sup>1</sup>University of Texas at Tyler, USA; <sup>2</sup>University 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 ( $\delta$ ) 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 Gonzalez**<sup>1</sup>; **Victoria, Maria del Mar Colas**<sup>1</sup>; **Mena, Vicente Perez**<sup>1</sup>; **Rubio Gamez, Maria del Carmen**<sup>2</sup>; **Navarro, Fernando Moreno**<sup>2</sup>

<sup>1</sup>CEPSA Commercial & Clean Energies, Spain; <sup>2</sup>Universidad 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**; **Kokoč, Darko**; **Ržek, Lidija**

ZAG Ljubljana, SLOVENIA

### Characterization of cold recycled asphalt mixtures including reinforcing fibres

**Carlo, Carpani**<sup>1</sup>; **Edoardo, Bocci**<sup>2</sup>; **Maurizio, Bocci**<sup>1</sup>

<sup>1</sup>Department of Construction, Civil Engineering and Architecture, Università Politecnica delle Marche, Ancona, Italy; <sup>2</sup>Faculty 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, Lu<sup>1</sup>; Airey, Gordon<sup>1</sup>; Huang, Weidong<sup>2</sup>; Lv, Quan<sup>2</sup>; Wang, Haopeng<sup>1</sup>**

<sup>1</sup>Nottingham Transportation Engineering Centre, Department of Civil Engineering, University of Nottingham, UK; <sup>2</sup>Key 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, Rita<sup>1</sup>; Vaitkus, Audrius<sup>1</sup>; Zofka, Adam<sup>1</sup>; Simanavičienė, Rūta<sup>2</sup>**

<sup>1</sup>Road Research Institute, Vilnius Gediminas Technical University, Vilnius, Lithuania; <sup>2</sup>Department 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, Shashibhushan<sup>1</sup>; Singh, Dharamveer<sup>1</sup>; Rajan, Bharat<sup>2</sup>**

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

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

**Komačka, Jozef<sup>1</sup>; Boros, Zsolt<sup>1</sup>; Dancs, Norbert<sup>1</sup>; Tokoš, Marek<sup>1</sup>; Buček, Filip<sup>1</sup>; Remišová, Eva<sup>2</sup>**

<sup>1</sup>TPA Society for Quality Assurance and Innovation Ltd., Bratislava, Slovakia; <sup>2</sup>University 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; Pszczoła, 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, Gerald<sup>1</sup>; Hanz, Andrew<sup>1</sup>; Sias, Jo E.<sup>2</sup>; Dave, Eshan V.<sup>2</sup>; Zhang, Runhua<sup>2</sup>**

<sup>1</sup>MTE Services, Inc, USA; <sup>2</sup>University 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

**Colloidal Stability of Bituminous Binders: Insights from Investigating the Effects of Aging Process and Bitumen Production Technology through Various Turbidimetric Methods**

**Baranowska, Wiktoria<sup>1,2</sup>; Paczuski, Maciej<sup>3</sup>; Błażejowski, Krzysztof<sup>2</sup>; Wójcik-Wiśniewska, Marta<sup>2,4</sup>; Ostrowski, Przemysław<sup>2,5</sup>**

<sup>1</sup>Institute of Nuclear Chemistry and Technology, Warsaw, Poland; <sup>2</sup>ORLEN Asphalt sp. z o.o., Plock, Poland; <sup>3</sup>Faculty of Civil Engineering, Mechanics and Petrochemistry, Warsaw University of Technology, Plock, Poland; <sup>4</sup>Technical University of Lodz, Institute of Polymer and Dye Technology, Lodz, Poland; <sup>5</sup>Department of Transportation Engineering, Faculty of Civil and Environmental Engineering, Gdansk University of Technology, Gdansk, Poland

**Influence of Aging Method on Mechanical Properties of SBS Polymers**

**Wójcik-Wiśniewska, Marta<sup>1,2</sup>; Błażejowski, Krzysztof<sup>2</sup>; Baranowska, Wiktoria<sup>2,3</sup>; Ostrowski, Przemysław<sup>2,4</sup>**

<sup>1</sup>Technical University of Lodz, Institute of Polymer and Dye Technology, Lodz, Poland; <sup>2</sup>ORLEN Asphalt sp. z o.o., Plock, Poland; <sup>3</sup>Institute of Nuclear Chemistry and Technology, Warsaw, Poland; <sup>4</sup>Department of Transportation Engineering, Faculty of Civil and Environmental Engineering, Gdansk University of Technology, Gdansk, Poland

**Effects of binder temperature and foaming water content on foamability of asphalt binders**

**Janus, Karolina; Chomicz-Kowalska, Anna; Maciejewski, Krzysztof**

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, Johannes**<sup>1</sup>; **Michael P., Wistuba**<sup>1</sup>; **Miesem, Sebastian**<sup>2</sup>; **Neliapp, Michael**<sup>2</sup>; **Dietzsch, Michael**<sup>2</sup>; **Šandor, Mario**<sup>2</sup>

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

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

**Roja, K. Lakshmi**<sup>1</sup>; **Masad, Eyad**<sup>1</sup>; **Krishnamoorthy, Senthil Kumar**<sup>2</sup>; **Ouederni, Mabrouk**<sup>2</sup>

<sup>1</sup>Mechanical Engineering Program, Texas A&M University at Qatar, Doha, Qatar; <sup>2</sup>Qatar 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, Raquel**<sup>1</sup>; **Yin, Fan**<sup>1</sup>; **Chen, Chen**<sup>1</sup>; **Andriescu, Adrian**<sup>2</sup>; **Mensching, David J.**<sup>3</sup>; **Tran, Nam**<sup>1</sup>

<sup>1</sup>National Center for Asphalt Technology, Auburn, AL, USA; <sup>2</sup>Binder and Mix Laboratory, Turner-Fairbank Highway Research Center, SES Group & Associates, LLC, McLean, VA, USA; <sup>3</sup>Asphalt 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, Kim**<sup>1</sup>; **Nytus, Nina**<sup>2</sup>; **Radenberg, Martin**<sup>2</sup>; **Stephan, Dietmar**<sup>1</sup>

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

### Evaluating the Ageing Degrees of Bitumen by Rheological and Chemical Indices

**Hu, Yongping**<sup>1</sup>; **Xia, Wei**<sup>2</sup>; **Xue, Yu**<sup>1,2</sup>; **Zhao, Pinxue**<sup>2</sup>; **Wen, Xuanye**<sup>2</sup>; **Si, Wei**<sup>2</sup>; **Wang, Haopeng**<sup>1</sup>; **Zhou, Lu**<sup>1</sup>; **Airey, Gordon D.**<sup>1</sup>

<sup>1</sup>Department of Civil Engineering, Nottingham Transportation Engineering Centre (NTEC), University of Nottingham, Nottingham, UK; <sup>2</sup>Highway 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:* Mieczysław Słowik, Poznań University of Technology, Poland

#### **Chemical and mechanical analysis of field and laboratory aged bitumen**

**Hofer, Kristina<sup>1</sup>; Werkovits, Stefan<sup>1</sup>; Schönauer, Paul<sup>2</sup>; Mirwald, Johannes<sup>1</sup>; Grothe, Hinrich<sup>1</sup>; Hofko, Bernhard<sup>1</sup>**

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

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

**Ge, Haitao<sup>1</sup>; Quezada, Juan Carlos<sup>1</sup>; Houerou, Vincent Le<sup>1</sup>; Chazallon, Cyrille<sup>1</sup>; Hornych, Pierre<sup>2</sup>**

<sup>1</sup>INSA de Strasbourg, CNRS, ICube, UMR, 7357, Université de Strasbourg, Strasbourg, France; <sup>2</sup>MAST-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, David<sup>1</sup>; Couscheir, Karolien<sup>1</sup>; Jacobs, Geert<sup>1</sup>; Almalehy, Hosam<sup>1</sup>; Omrnian, Seyed Reza<sup>1</sup>; Vuye, Cedric<sup>1</sup>; Braspenninckx, Johan<sup>2</sup>; Van den bergh, Wim<sup>1</sup>**

<sup>1</sup>Department of Construction, University of Antwerp, Antwerp, Belgium; <sup>2</sup>Port of Antwerp-Bruges, Antwerp, Belgium

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

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

<sup>1</sup>Construction Engineering Laboratory of the University of Granada (LabC.UGR), Granada, Spain; <sup>2</sup>Consejería 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, Kalena<sup>1</sup>; Nivitha, M. R.<sup>2</sup>; Ma, Jianmin<sup>1,3</sup>; Hesp, Simon A. M.<sup>1</sup>; Krishnan, J. Murali<sup>4</sup>**

<sup>1</sup>Department of Chemistry, Queen's University, Kingston, Canada; <sup>2</sup>Department of Civil Engineering, PSG College of Technology, Coimbatore, India; <sup>3</sup>Key Laboratory of Road and Traffic Engineering of Ministry of Education, Tongji University, Shanghai, People's Republic of China; <sup>4</sup>Department 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, Tianhao<sup>1</sup>; Mariette, Enzo<sup>2</sup>; Turos, Mugurel<sup>1</sup>; Marasteanu, Mihai<sup>1</sup>**

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

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

**Budziński, Bartosz<sup>1</sup>; Mieczkowski, Paweł<sup>1</sup>; Słowik, Mieczysław<sup>2</sup>; Mielczarek, Marta<sup>2</sup>; Bilski, Marcin<sup>2</sup>; Fornalczyk, Sylwia<sup>2</sup>**

<sup>1</sup>Faculty of Civil and Environmental Engineering, West Pomeranian University of Technology, Szczecin, Poland; <sup>2</sup>Faculty 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<sup>1,2</sup>; Liu, Pengfei<sup>1</sup>; Leischner, Sabine<sup>3</sup>; Oeser, Markus<sup>1</sup>**

<sup>1</sup>Institute of Highway Engineering, RWTH Aachen University, Aachen, Germany; <sup>2</sup>School of Highway, Chang'an University, Xi'an, People's Republic of China; <sup>3</sup>Institute 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 Nhan<sup>1</sup>; Mangiafico, Salvatore<sup>1</sup>; Attia, Thomas<sup>2</sup>; Sauzéat, Cédric<sup>1</sup>; Di Benedetto, Hervé<sup>1</sup>**

<sup>1</sup>Univ Lyon, ENTPE, Ecole Centrale de Lyon, CNRS, LTDS, UMR5513, Vaulx en Velin, France; <sup>2</sup>Research & 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, Runhua<sup>1</sup>; Dave, Eshan<sup>2</sup>; Sias, Jo E.<sup>2</sup>; Tabatabaee, Hassan A.<sup>3</sup>; Sylvester, Tony<sup>3</sup>; Wang, Zheng<sup>2</sup>**

<sup>1</sup>University of Wisconsin–Madison, Madison, WI, USA; <sup>2</sup>University of New Hampshire, Durham, NH, USA; <sup>3</sup>Cargill 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, Denis<sup>1</sup>; Olsson, Erik<sup>2</sup>; Raab, Christiane<sup>3</sup>; Partl, Manfred N.<sup>4</sup>**

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

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

**Fabrizio, Miglietta<sup>1</sup>; Underwood, B. Shane<sup>2</sup>; Tsantilis, Lucia<sup>1</sup>; Orazio, Baglieri<sup>1</sup>; Ezio, Santagata<sup>1,3</sup>**

<sup>1</sup>Department of Land, Environment and Infrastructure Engineering, Politecnico di Torino, Torino, Italy; <sup>2</sup>Department of Civil, Construction, and Environmental Engineering, North Carolina State University, Raleigh, NC, USA; <sup>3</sup>Department 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 Minh<sup>1</sup>; Jang, Min-Seok<sup>1</sup>; Seo, Jung-Woo<sup>1</sup>; Yoon, Jae-Hyeong<sup>1</sup>; Park, Dae-Wook<sup>1</sup>; Minh Le, Tri Ho<sup>2</sup>**

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

### **Optimized Durable Pavement Rolling Resistance**

**Pettinari, Matteo<sup>1</sup>; Al-Qadi, Imad L.<sup>2</sup>; Ozer, Hasan<sup>3</sup>; Nielsen, Erik<sup>1</sup>**

<sup>1</sup>Danish Road Directorate, Copenhagen, Denmark; <sup>2</sup>Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign, Urbana, IL, USA; <sup>3</sup>School 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, Lily<sup>1</sup>; Kakar, Muhammad Rafiq<sup>2</sup>; Piao, Zhengyin<sup>1,3</sup>**

<sup>1</sup>Department of Functional Materials, Concrete and Asphalt Laboratory, Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland; <sup>2</sup>Department of Architecture, Wood and Civil Engineering, Bern University of Applied Sciences (BFH), Bienne, Switzerland; <sup>3</sup>Department 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, Pawel<sup>1</sup>; Weaver, Sam C.<sup>2</sup>; Ma, Yuetan<sup>1</sup>; Zhang, Miaomiao<sup>1</sup>; Jiang, Xi<sup>1</sup>; Huang, Baoshan<sup>1</sup>**

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

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

**Pandey, Akanksha<sup>1</sup>; Islam, Sk. Sohel<sup>2</sup>; Ransingchung R. N., G. D.<sup>2</sup>; Ravindranath, Sham<sup>1</sup>**

<sup>1</sup>Department of Polymer and Process Engineering, Indian Institute of Technology Roorkee, Roorkee, India; <sup>2</sup>Department 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; Škulteckė, 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, Szymon<sup>1</sup>; Wozuk, Agnieszka<sup>1</sup>; Wróbel, Michal<sup>1</sup>; Makowska, Michalina<sup>2</sup>; Franus, Wojciech<sup>1</sup>; Zofka, Adam<sup>3</sup>**

<sup>1</sup>Department of Construction Materials Engineering and Geoengineering, Faculty of Civil Engineering and Architecture, Lublin University of Technology, Lublin, Poland; <sup>2</sup>Road Survey Technology, Ramboll Finland Oy, Espoo, Finland; <sup>3</sup>Foundation 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-Tu<sup>1</sup>; Phan, Thanh-Nhan<sup>1</sup>; Tran, Van-Tieng<sup>1</sup>; Do, Tien-Tho<sup>1</sup>; Nguyen, H.T. Tai<sup>1</sup>; Nguyen, Mai Lan<sup>2</sup>**

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

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

**Singh, Aakash<sup>1</sup>; Gupta, Ankit<sup>1</sup>; Miljković, Miomir<sup>2</sup>**

<sup>1</sup>Department of Civil Engineering, Indian Institute of Technology (BHU), Varanasi, India; <sup>2</sup>Faculty 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, Di<sup>1</sup>; Zhu, Jigang<sup>2</sup>; Porot, Laurent<sup>3</sup>; Falchetto, Augusto Cannone<sup>1</sup>; Damen, Sjaak<sup>3</sup>**

<sup>1</sup>Department of Civil Engineering, Aalto University, Espoo, Finland; <sup>2</sup>Swedish National Road and Transport Research Institute (VTI), Linköping, Sweden; <sup>3</sup>Kraton 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 Jose<sup>1</sup>; Espinosa, Leidy<sup>2</sup>; Marcelino, Paulo Ricardo Franco<sup>1</sup>; Vasconcelos Savasini, Kamilla<sup>2</sup>; Dos Santos, Julio Cesar<sup>1</sup>; Moraes, Raquel<sup>3</sup>; da Silva, Silvio Silvério<sup>1</sup>; Bernucci, Liedi L.B.<sup>2</sup>**

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

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

**Pais, Jorge<sup>1</sup>; Santos, Caio Rubens<sup>2</sup>; Cabette, Marina<sup>1</sup>; Hilliou, Loic<sup>1</sup>; Ribeiro, Jorge<sup>3</sup>; Wang, Hainian<sup>4</sup>; Hasan, Mohd Rosli Mohd<sup>5</sup>**

<sup>1</sup>University of Minho, Guimarães, Portugal; <sup>2</sup>Mauá Institute of Technology, São Caetano do Sul, Brasil; <sup>3</sup>Petrogal, Matosinhos, Portugal; <sup>4</sup>Chang'an University, Xi'an, People's Republic of China; <sup>5</sup>School 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, Ana<sup>1</sup>; Presti, Davide Lo<sup>2</sup>; Chailleux, Emmanuel<sup>3</sup>; Airey, Gordon D.<sup>4</sup>**

<sup>1</sup>LabI.C. ugr, Department of Construction Engineering and Engineering Projects, University of Granada, Granada, Spain; <sup>2</sup>Department of Engineering, University of Palermo, Italy; <sup>3</sup>University Gustave Eiffel, Nantes, France; <sup>4</sup>NTEC, 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, Piotr<sup>1</sup>; Rys, Dawid<sup>1</sup>; Stienss, Marcin<sup>1</sup>; Szydłowski, Cezary<sup>1</sup>; Golos, Michał<sup>2</sup>; Kornacka, Kamila<sup>3</sup>; Zoltko, Joanna<sup>3</sup>; Kawalec, Jacek<sup>4,5</sup>**

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

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

**Qiu, Jian<sup>1</sup>; Huurman, Rien<sup>1</sup>; Frunt, Mark<sup>1</sup>; Vreugdenhil, Bram<sup>2</sup>; Lucas, Jos<sup>2</sup>; Lastra-González, Pedro<sup>3</sup>; Indacochea-Vega, Irune<sup>3</sup>; Castro-Fresno, Daniel<sup>3</sup>**

<sup>1</sup>AsfaltNu C.V., Culemborg, The Netherlands; <sup>2</sup>Rijkswaterstaat, Utrecht, The Netherlands; <sup>3</sup>GITECO 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-01: RILEM workshop TC 308-PAR: Performance-based Asphalt Recycling

Time: Wednesday, 14/June/2023: 2:00pm - 6:00pm · Location: Aula GdańskTech (Level 3), Main Building, GdańskTech

## Welcome and Introductions

**Tebaldi, Gabriele**

University of Parma, Italy

## TG-1 Performance based Evaluation of Cold Recycled Asphalt Mixtures

**Carter, Alan<sup>1</sup>; Diekmann, Martin<sup>2</sup>; Jenkins, Kim<sup>3</sup>; Carbonneau, Xavier<sup>4</sup>**

<sup>1</sup>ETS Montreal; <sup>2</sup>WIRTGEN; <sup>3</sup>Stellenbosch University; <sup>4</sup>Colas

## TG-2 Long Term Performance Evaluation of Warm Mixes with Recycling

**Rubio, Mayca<sup>1</sup>; Moreno, Fernando<sup>1</sup>; Van Rompu, Julien<sup>2</sup>; Bargenda, Łukasz<sup>3</sup>; Haghshenas, Hamzeh<sup>4</sup>**

<sup>1</sup>University of Grenada; <sup>2</sup>Eiffage; <sup>3</sup>Budimex; <sup>4</sup>U.S. Federal Highway Administration

## TG-3 Degree of Binder Availability

**Presti, Davide<sup>1</sup>; Vasconcelos, Kamilla<sup>2</sup>; Król, Jan<sup>3</sup>**

<sup>1</sup>University of Palermo; <sup>2</sup>University of Sao Paulo; <sup>3</sup>Warsaw University of Technology

## TG-4 Mixture Performance-based Dosage Optimization of Asphalt Recycling Agents

**Hugener, Martin<sup>1</sup>; Cannone-Falchetto, Augusto<sup>2</sup>; Machura, Magdalena<sup>3</sup>; Tabatabaee, Hassan<sup>3</sup>; Staudinger, Angela<sup>4</sup>; Madan, Deepak<sup>4</sup>; Srinivasan, Krishna<sup>4</sup>**

<sup>1</sup>EMPA; <sup>2</sup>Aalto University; <sup>3</sup>Cargill Bioindustrial; <sup>4</sup>Sripath Technologies

## TG-5 EPD and PCR for Asphalt Mixtures with RA and Recycling Agents

**Mukherjee, Amlan<sup>1</sup>; Keijzer, Elisabeth<sup>1</sup>; Gómez Mejjide, Breixo<sup>2</sup>**

<sup>1</sup>TNO; <sup>2</sup>European Asphalt Pavement Association

## Summary and Next steps

**Tebaldi, Gabriele<sup>1</sup>; Dave, Eshan<sup>2</sup>**

<sup>1</sup>University of Parma; <sup>2</sup>University of New Hampshire

## **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**

**Poulikakos, Lily<sup>1</sup>; Pasquini, Emiliano<sup>2</sup>**

<sup>1</sup>EMPA, Switzerland; <sup>2</sup>University of Padova, Italy

### **TG1 Waste plastic modified asphalt binders**

**Tusar, Marian**

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<sup>1</sup>; Falchetto, Augusto Cannone<sup>2</sup>; Moreno-Navarro, Fernando<sup>3</sup>**

<sup>1</sup>University of Padova, Italy; <sup>2</sup>Aalto University, Finland; <sup>3</sup>University of Granada, Spain

### **TG5 Life Cycle Assessment**

**Presti, Davide Lo<sup>1</sup>; del Barco Carrion, Ana Jimenez<sup>2</sup>**

<sup>1</sup>University of Palermo, Italy; <sup>2</sup>University of Granada, Spain

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

**Eskandarsefat, Shahin**

Iterchimica, Italy

### **Discussion and final thoughts**

**Poulikakos, Lily<sup>1</sup>; Pasquini, Emiliano<sup>2</sup>**

<sup>1</sup>EMPA, Switzerland; <sup>2</sup>University 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, Andrea<sup>1</sup>; Carter, Alan<sup>2</sup>**

<sup>1</sup>University of Ancona, Italy; <sup>2</sup>ETS, Canada

## **Results of TG1 - EMULSIONS AND EMULSION-BASED COMPOSITES**

**Miljkovic, Miodir**

University of Nis, Serbia

## **Industry presentation: Bituminous emulsion industry**

**Sturm, Dawid**

Bitunova, Germany

## **Results of TG2 - COLD BITUMEN EMULSION MIXTURES**

**Sangiorgi, Cesare**

University of Bologna, Italy

## **Polish experience in cold recycling with emulsion**

**Dołycki, Bohdan**

Gdansk University of Technology, Poland

## **Rheological characterization of cement-bitumen treated mixtures**

**Graziani, Andrea**

University of Ancona, Italy

## **Discussion and final thoughts**

**Carter, Alan<sup>1</sup>; Graziani, Andrea<sup>2</sup>**

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