

# Scientific Programme of the 6<sup>th</sup> APT conference

Nantes, 3-6 April 2022

## Sunday, 3 April

Sunday, 3 April, 2:00 – 5:00 pm

### **WORKSHOP 1**

*Room BC*

“Simulation of ambient environment actions in APT”

*Luis Loria-Salazar & Angel Mateos*

### **WORKSHOP 2**

*Room D*

“APT benefits: Databases for APT and calibration of design methods”

*Rongzong Wu & Jeremy Lea*

## Monday, 4 April

Monday, 4 April, 9:00 – 10:10 am

### **OPENING SESSION & KEYNOTE LECTURE**

*Room 300*

**9:00 – 9:25 am**

Opening Session

***Pierre Hornyh, Armelle Chabot, John Harvey, Luis Loria-Salazar, Conference Co-Chairs***

***Jean-Bernard Kovarick, Vice-President Public Policy Support of Univ. Eiffel***

**9:30 – 10:10 am**

Keynote Lecture: [APT and Future of Mobility](#)

***Imad Al Qadi, Bliss Professor of Engineering at the University of Illinois at Urbana Champaign (USA)***

Monday, 4 April, 10:45 am – 12:25 pm Parallel Sessions

### **SESSION 1 → ESTABLISHING APT FACILITIES**

*Room 300*

*Chair: Dr. David Jones, Associate Director at University of California Pavement Research Center (USA)*

10:45 – 11:10 am

Guidance for the Next Generation Accelerated Pavement Testing Facilities

*Benjamin Worel, Michael Vrtis, and **R. Buzz Powell***

11:10 – 11:35 am

The Design, Construction and Operation of the APT Facility at the University of Texas at Arlington

***Stefan A. Romanoschi**, Constantin Popescu, Ana-Maria Coca, and Mohsen Talebsafa*

11:35 am – 12:00 pm

Two Years of APT Program on the New Test Site duraBAST

*Bastian Wacker, Dirk Jansen and **Gudrun Golkowski***

12:00 – 12:25 pm

Promoting Implementation of Significant Findings from the NCAT Pavement Test Track

***R. Buzz Powell***

## SESSION 2 → APT OF ASPHALT CONCRETE

*Room 150*

*Chair: **Hugues Odéon**, Leader of the Pavement Group at CEREMA Angers (France)*

10:45 – 11:10 am

Laboratory Investigation of Cracked Asphalt Pavement Structure Using Accelerated Loading System

***Youness Berraha**, Daniel Perraton, Guy Doré, Michel Vaillancourt, and Jean-Pascal Bilodeau*

11:10 – 11:35 am

Performance of Unbound Pavement Materials in Changing Moisture Conditions

***Marit Fladvad** and Sigurdur Erlingsson*

11:35 am – 12:00 pm

Optimization of Truck Platoon Wander Patterns Based on Thermo-Viscoelastic Simulations to Mitigate the Damage Effects on Road Structures

***Paulina Leiva-Padilla**, Paul Marsac, Juliette Blanc, Olivier Chupin, Thomas Gabet, Ferhat Hammoum, Navneet Garg, and Mai Lan Nguyen*

12:00 – 12:25 pm

Impact of Mix Design Optimization on HMA Rutting Performance Under Accelerated Pavement Testing

*Fabrizio Meroni, Wenjing Xue, **Gerardo W. Flintsch**, and Brian K. Diefenderfer*

## Monday, 4 April, 1:45 – 3:25 pm   Parallel Sessions

## SESSION 3 → APT FOR AIRFIELD PAVEMENTS

*Room 300*

*Chair: **Dr. Michaël Broutin**, Head of Safety-Structures and Sustainable Design research group at the Service Technique de l'Aviation Civil - STAC (France)*

1:45 – 2:10 pm

Failure Modes of Rapid-Setting Concrete Repairs Under Accelerated Aircraft Traffic

**Lulu Edwards**, *Haley P. Bell, and Jeb S. Tingle*

2:10 – 2:35 pm

Impact of Heavy Airplanes on Asphalt Surface Behaviour, a Need for a Different Material Design

**Laurent Porot**, *David Bell, Erik Scholten, and Robert Kluttz*

2:35 – 3:00 pm

The Evolution of Accelerated Pavement Testing for U. S. Military Airfield Pavements at the Waterways Experiment Station

**Timothy W. Rushing**

3:00 – 3:25 pm

Evaluation of Warm Mix Asphalt (WMA) Technologies for Use in Airport Pavements

**Navneet Garg**, *Hasan Kazmee, and Lia Ricalde*

#### SESSION 4 → APT OF SUSTAINABLE AND INNOVATIVE MATERIALS

Room 150

*Chair: Dr. John Harvey, Professor at the Department of Civil and Environmental Engineering of the University of California (USA)*

1:45 – 2:10 pm

From Laboratory Mixes Evaluation to Full Scale Test: Fatigue Behavior of Bio-Materials Recycled Asphalt Mixtures

*Juliette Blanc, Emmanuel Chailleux, Pierre Hornych, Chris Williams, Zahra Sotoodeh-Nia, Laurent Porot, Simon Pouget, François Olard, Jean-Pascal Planche, Davide Lo Presti, and Ana Jimenez del Barco*

2:10 – 2:35 pm

Evaluation of Cold Central-Plant Recycling (CCPR) Technique Using Full-Scale Accelerated Pavement Testing

**Gerardo Flintsch**, *Wenjing Xue, Brian Diefenderfer, and Fabrizio Meroni*

2:35 – 3:00 pm

Structural Performance Evaluation of Block Pavements Using Heavy Vehicle Simulator

*Shafiqur Rahman, Erik Simonsen, Fredrik Hellman, Abubeker Ahmed, and Sigurdur Erlingsson, José Everton*

3:00 – 3:25 pm

Accelerated Pavement Testing for the Evaluations of Structural Design and Safety Performance of an Innovative Road Coating

*Mai Lan Nguyen, Pierre Hornych, Minh Tan Do, Thierry Sedran, and Duc Tung Dao*

**Monday, 4 April, 4:00 – 5:40 pm** Parallel Sessions

#### SESSION 5 → TESTING OF MAINTENANCE AND REHABILITATION SOLUTIONS (1)

## Room 300

Chair: **Dr. Luis Guillermo Loria-Salazar**, Vice President of Research Universidad Isaac Newton (Costa Rica)

### 4:00 – 4:25 pm

Lessons Learnt from Accelerated Pavement Testing of Full-Depth Recycled Material Stabilized with Portland Cement

*Stefan Louw, **David Jones**, and Rongzong Wu*

### 4:25 – 4:50 pm

Evaluating the Feasibility of Using an Engineered Cementitious Composite in the Rehabilitation of Pavements by Means of APT and Laboratory Tests

*Camilo Andrés Muñoz Rodríguez, **Washington Peres Núñez**, Jorge Augusto Pereira Ceratti, Lélío Antônio Brito, Ângela Gaio Graeff, and Luiz Carlos Pinto da Silva Filho*

### 4:50 – 5:15 pm

Design of Reinforced Pavements with Glass Fiber Grids: From Laboratory Evaluation of the Fatigue Life to Accelerated Full-Scale Test

***Mai Lan Nguyen**, Cyrille Chazallon, Mehdi Sahli, Georg Koval, Pierre Hornych, Daniel Doligez, Armelle Chabot, Yves Le Gal, Laurent Brissaud, and Eric Godard*

### 5:15 – 5:40 pm

Large-Scale Test to Determine the Crack Retarding Ability of Asphalt Reinforcements

***Jens Wetekam**, Konrad Mollenhauer, Michael Wistuba, Stephan Büchler, Michael Schmalz, and Thomas Ziegler*

## SESSION 6 → INSTRUMENTATION AND DATA PROCESSING – SMARTI PROJECT

### Room 150

Chair: **Dr. Sigurdur Erlingsson**, Professor at VTI (Sweden) and at the University of Iceland

### 4:00 – 4:25 pm

SMARTI ETN – a training through research programme to conceive and implement smart transport infrastructure

***Davide Lo Presti***

### 4:25 – 4:50 pm

Procedure for Temperature Correction of Strains Measured in a Road Pavement

*Maria Barriera, Juliette Blanc, Emmanuel Chailleux, **Simon Pouget**, Julien Van Rompu, and Bérengère Lebental*

### 4:50 – 5:15 pm

Monitoring Road Pavement Performance Through a Novel Data Processing Approach, Accelerated Pavement Test Results

*Mario Manosalvas-Paredes, **Nizar Lajnef**, Karim Chatti, Juliette Blanc, Nick Thom, Gordon Airey, and Davide Lo Presti*

### 5:15 – 5:40 pm

Inverse Analysis of Pavement Layer Moduli Based on Data Collected by Buried Accelerometers and Geophones

***Natasha Bahrani**, Eyal Levenberg, Juliette Blanc, and Pierre Hornych*

## Tuesday, 5 April

Tuesday, 5 April, 9:00 – 10:25 am

### INDUSTRIAL SPONSORS SESSION & KEYNOTE LECTURE

*Room 300*

9:00 – 9:45 am

Industrial Sponsors Session

The TSD measurements at high resolution: strains, cracks and joints at short intervals

**Nikolaj Ravn, Greenwood**

The Dynatest FastFWD for in-situ APT applications

**Marco Francesconi, Dynatest**

Accelerated Transportation Loading System (ATLaS) - Overview and Latest Developments

**Alvaro Ulloa, ARA**

9:45 – 10:25 am

Keynote Lecture: [80 years of Accelerated Pavement Testing in Sweden – Historical Overview and new prospect](#)

**Sigurdur Erlingsson**, Professor at the University of Iceland and the Swedish National Road and Transport Research Institute (VTI)

## Tuesday, 5 April, 11:00 am – 12:40 pm Parallel Sessions

### SESSION 7 → TESTING OF MAINTENANCE AND REHABILITATION SOLUTIONS (2)

*Room 300*

*Chair: Dr. Dirk Jansen, Head of Section 'Design and Structure of Pavements' of the Federal Highway Research Institute BAST (Germany)*

11:00 – 11:25 am

Full-Scale Evaluation of Balanced Cold in-Place Recycling (CIR) Asphalt Mixtures Using a Heavy Vehicle Simulator

**Ahmed Saidi**, Ayman Ali, Yusuf Mehta, Ben C. Cox, and Wade Lein

11:25 – 11:50 am

Micro Surfacing Performance Under Accelerated Pavement Testing

**Adriana Vargas-Nordbeck**, Jason Nelson, and Buzz Powell

11:50 am – 12:15 pm

The Challenges of the Accelerated Testing of Jointed Concrete Pavements

Angel Mateos, Rongzong Wu, **John Harvey**, Julio Paniagua, Fabian Paniagua, and Robel Ayalew

12:15 – 12:40 pm

Downscaled Accelerated Trafficking of Novel Asphalt Joints Based on the Induction Heating Technology

**Martin Arraigada**, *M. Bueno, and M. N. Partl*

## SESSION 8 → INSTRUMENTATION AND DATA PROCESSING (1)

Room 150

Chair: **Dr. Stephan Romanoschi**, *Professor at the University of Texas at Arlington (USA)*

11:00 – 11:25 am

APT Instrumentation – Where Do I Begin?

**Harold T. Carr** and *W. Jeremy Robinson*

11:25 – 11:50 am

Instrumentation Response of Full-Scale Multi-axial Geogrid Stabilized Flexible Pavements

**W. Jeremy Robinson**, *Jeb S. Tingle, Mark H. Wayne, Jayhyun Kwon, and Gregory Norwood*

11:50 am – 12:15 pm

Towards an Adapted Ovalization System for Flexible Airfield Pavement Interface Characterization Using Rolling-Wheel or HWD Loads

**Maissa Gharbi**, *Michael Broutin, Thomas Schneider, Maindroult Stephane, and Armelle Chabot*

12:15 – 12:40 pm

Pavement Instrumentation and WIM Data from a Test Track on the BR-101 Highway in South of Brazil

**Gustavo Garcia Otto**, *Amir Mattar Valente, Bruno de Melo Gevaerd, Rafael Aleixo de Souza, Adosindro Joaquim de Almeida, and Keyla Junko Chaves Shinohara*

## Tuesday, 5 April, 2:00 – 3:40 pm Parallel Sessions

## SESSION 9 → DATA ANALYSIS AND MODELLING (2)

Room 300

Chair: **Dr. Olivier Chupin**, *Senior Researcher at the Université Gustave Eiffel (France)*

2:00 – 2:25 pm

Development of a Distress Prediction Model Based on Deflection Parameters

*Piero Laurent-Matamoros, Tania Avila-Esquivel, Edgar Camacho-Garita, Jose Aguiar-Moya, and Luis Loria-Salazar*

2:25 – 2:50 pm

Evaluation of Permanent Deformation Models for Flexible Pavements Using Accelerated Pavement Testing

**Yared Dinegdae** and *Sigurdur Erlingsson*

2:50 – 3:15 pm

Use of Heavy Vehicle Simulator-Aircraft in the Development of the CBR-Beta Procedure  
*Jeremiah M. Stache, Carlos R. Gonzalez, **Jeremy Robinson***

3:15 – 3:40 pm

Full Scale Testing with the Mobile Load Simulator: Advanced Measurements Related to Pavement Behavior and Surface Layer Damage

*Yamina Oubahdou, Philippe Reynaud, **Christophe Petit**, Anne Millien, Jérôme Dopeux, Mickael Metrope, Benoît Picoux, Charlotte Gerbaud, and Rémi Tautou*

## SESSION 10 → MONITORING AND NON-DESTRUCTIVE TESTING + APT OF INNOVATIVE SOLUTIONS

Room 150

Chair: **Dr. Imad Al-Qadi**, Bliss Professor of Engineering at the University of Illinois at Urbana-Champaign (USA)

2:00 – 2:25 pm

Radar Database Collected over Artificial Debonding Pavement Structures During APT at the IFSTTAR's Fatigue Carrousel

**X. Dérobert**, V. Baltazart, J.-M. Simonin, C. Norgeot, S. Doué, O. Durand, and S. S. Todkar

2:25 – 2:50 pm

SMS Structure Measurement System to Optimize Accelerated Pavement Testing APT

*Bastian Wacker and **Dirk Jansen***

2:50 – 3:15 pm (Last minute Change)

~~Relationship Between Pavement Damage and the Combined Action of Frost Penetration and Axle Load~~

~~**Jean-Pascal Bilodeau** and Erdrick Perez Gonzalez~~

Evaluation of a Solution for Electric Supply of Vehicles by the Road, at Laboratory and Full Scale

**Pierre Hornych**, Thomas Gabet, Mai Lan Nguyen, Fabienne Anfosso Lédée, and Patrick Duprat

3:15 – 3:40 pm

Full Scale Testing of an Energy Harvesting Test Road Integrating Tubes

**Bertrand Pouteau**, Kamal Berrada, Sandrine Vergne, Mai Lan Nguyen, Stéphane Trichet, Thierry Gouy, and Pierre Hornych

## Tuesday, 5 April, 4:15 – 5:55 pm Parallel Sessions

## SESSION 11 → DATA ANALYSIS AND MODELLING (1)

Room 300

Chair : **Dr. Christophe Petit**, Professeur at the Université de Limoges (France)

4:15 – 4:40 pm

Bayesian Calibration of ILLI-THERM for Temperature Prediction Within Airfield Concrete Pavement

*Osman Erman Gungor, **Imad L. Al-Qadi**, and Navneet Garg*

4:40 – 5:05 pm

Modelling Asphalt Pavement Responses Based on Field and Laboratory Data

*Andreas Loizos, **Konstantinos Gkyrtis**, and Christina Plati*

5:05 – 5:30 pm

Development and Calibration of Performance Models Based on APT Data

*Tania Ávila-Esquivel, José P. Aguiar-Moya, Edgar Camacho-Garita, and **Luis Guillermo Loria-Salazar***

5:30 – 5:55 pm

Simulation of Damage Scenarios in a Bituminous Pavement Tested Under FABAC ALT Using M4-5n

***Olivier Chupin**, Jean-Michel Piau, Armelle Chabot, Hanan Nasser, Mai Lan Nguyen, and Yann Lefeuvre*

## SESSION 12 → MONITORING AND NON-DESTRUCTIVE TESTING (2)

Room 150

*Chair: **Pierre Horny**, Responsible for Technical Actions and Innovation - Road referent at MAST  
Department of Université Gustave Eiffel (France)*

4:15 – 4:40 pm

Improvements to Back calculation Procedure by Means of Structural Analysis Based on Deflection Parameters

*Piero Laurent-Matamoros, Edgar Camacho-Garita, Tania Avila-Esquivel, Jose Aguiar-Moya, and **Luis Loria-Salazar***

4:40 – 5:05 pm

Spectral Element Simulation of Heavy Weight Deflectometer Test Including Layer Interface Conditions and Linear Viscoelastic Behaviour of Bituminous Materials

***Jean-Marie Roussel**, Hervé Di Benedetto, Cédric Sauzéat, and Michaël Broutin*

5:05 – 5:30 pm

Thin-Bed Data Model for the Processing of GPR Data over Debonded Pavement Structures

***Vincent Baltazart**, S. Todkar, Xavier Dérobert, and Jean-Michel Simonin*

5:30 – 5:55 pm (Last minute Change)

~~Effect of the Incremental Loading Conditions in the Permanent Deformation in Heavy Vehicle Simulator Tests, **Erdrick Pérez-González**, **Jean-Pascal Bilodeau**, and Guy Doré~~

Evaluation of the Use of Geophones and Accelerometers for Monitoring Pavement Deflections, Using Accelerated Pavement Tests.

***Natasha Bahrani**, Juliette Blanc, Pierre Horny, and Fabien Menant*

**Tuesday, 5 April, 6:00 – 6:30 pm**

Room 300

Summary of the APT workshops & organizing April 6<sup>th</sup> information, **Pierre Horny**, Fabien Menant & Juliette Blanc