



# 7<sup>th</sup> Symposium on Pavement Surface Characteristics **SURF 2012**

Smooth, Safe, Quiet and  
Sustainable Travel through  
Innovative Technologies

Symposium  
Program  
Ahead

September 18-21, 2012  
Norfolk Waterside Marriott





# 7<sup>th</sup> Symposium on Pavement Surface Characteristics SURF 2012

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Brian Ferne, representing PIARC TC D2a, TRL, UK (Chair)  
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Bojan Leben, representing SURF2008, ZAG, Slovenia  
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## Reviewers

Brian Ferne  
Andras Gulyas  
Mark Swanlund  
Gerardo Flintsch  
Kevin McGhee  
Frank Holt  
Aubrey Copeland  
Larry Scofield  
Armann Norheim

Bojan Leben  
Maureen Jensen  
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Manfred Haider

This event is organized by the  
World Road Association  
in partnership with the  
American Association of State Highway and Transportation Officials (AASHTO)  
Transportation Research Board (TRB)  
Federal Highway Administration (FHWA)  
Virginia Center for Transportation Innovation and Research (VCTIR)  
Center for Sustainable Transportation Infrastructure (CSTI)  
of the Virginia Tech Transportation Institute (VTTI)  
and  
Virginia Tech's Continuing and Professional Education (VT CPE)



# Schedule

## Tuesday, September 18, 2012

- 3:30 – 7:00 pm Registration – Norfolk Ballroom Prefunction Area
- 5:00 – 7:00 pm Welcome Reception (Sponsored by Dynatest) – Norfolk Ballroom IV  
Exhibit Hall open – Norfolk Ballroom V, VI

## Wednesday, September 19, 2012

- 7:00 am – 12:00 pm Registration – Norfolk Ballroom Prefunction Area
- 7:30 – 8:30 am Continental Breakfast – Norfolk Ballroom IV
- 8:00 am – 5:00 pm Exhibit Hall open – Norfolk Ballroom V, VI
- 8:30 – 10:30 am **GENERAL SESSION** – Norfolk Ballroom I, II, III  
**■ A1: Panel on Highway, Vehicle and Tire Requirements for Pavement Surface Characteristics**  
Moderator: *Gerardo Flintsch*  
  
*Welcome on Behalf of the World Road Association, Jeffrey F Paniati, U.S. First Delegate*  
*Highway Manager Requirements for Pavement Surface Characteristics, Mark Swanlund*  
*Tire Requirements for Pavement Surface Characteristics, Ernst-Ullrich Saemann*  
*Vehicle Requirements for Pavement Surface Characteristics, Mike Rizzo*
- 10:30 – 11:00 am Break – Norfolk Ballroom IV
- 11:00 am – 12:30 pm **GENERAL SESSION** – Norfolk Ballroom I, II, III  
**■ A2: The Sustainability (Rolling Resistance) of Pavement Surfaces**  
Moderator: *Kevin McGhee*  
  
*MIRIAM: An International Round Robin Test to Compare Rolling Resistance Measurement Methods, Aneleen Bergiers and Luc Goubert*  
*About the Rolling Resistance Trailer and Parameters Influencing Rolling Resistance, Aneleen Bergiers, Luc Goubert and Cedric Vuye*  
*FHWA Infrastructure Health Assessment, Nastaran Saadatmand and Thomas Van*  
*A Mechanistic Approach for Pavement Vehicle Interaction in LCA, Mehdi Akbarian*
- 12:30 – 1:30 pm Lunch – Norfolk Ballroom IV
- 1:30 – 3:00 pm **CONCURRENT SESSIONS**  
  
**■ B1: Measurement of Pavement Friction**  
Moderator: *Frank Holt* – Norfolk Ballroom I, II  
  
*Why Fixed Slip Devices Can Not Measure the Speed Gradient Due to the Pavement, James Wambold and Zoltan Rado*  
*The 2008 Ohio Friction Study, Kelly Smith and Roger Larson*  
*Assessment of the Skid Resistance of Natural Sands Used in Portland Cement Concrete Pavements in Ontario, Madhura Rajapakshe, John Metz and Manjriker Gunaratne*  
*The Effect of Binder Coatings on the Development of Early Life Asphalt Surfacing Properties, David Woodward, Shaun Friel and Phillip Miller*  
*Using Limits of Agreement Method for Comparing Pavement Friction Measurement Devices, Edgar de Leon, Gerardo Flintsch and Kevin McGhee*

### ■ C1: Measurement of Pavement Evenness

Moderator: *Robert Orthmeyer* – Norfolk Ballroom III

*A Mobile Profilometer for Road Surface Monitoring by Use of Accelerometers*, Kazuya Tomiyama, Akira Kawamura, Nakajima Shigenori, Ishida Tateki, and Jomoto Masakazu

*An Innovative Routine Methodology For Road Surface Control*, Keizo Kamiya, Akira Kawamura, Winfried Glatki, and Andreas Ueckermann

*Further investigations on the Weighed Longitudinal Profile*, Roland Spielhofer and Andreas Ueckermann

*Evaluation of Longitudinal Evenness of a Newly Constructed Road Section: a Detailed Study of Different Evenness Measurements*, Carl Van Geem and Bart Beaumesnil

*Information Relating to the Measurement of the Longitudinal Evenness in France*, Fabien Menant and Jean-Marc Martin

3:00 – 3:30 pm

Break – Norfolk Ballroom IV

3:30 – 5:00 pm

### CONCURRENT SESSIONS

### ■ B2: Use of Friction Measurements

Moderator: *Helen Viner* – Norfolk Ballroom I, II

*Certification Process for Self-Wetting Continuous Friction-Measuring Equipment Used for Construction and Maintenance Purposes on French Airports*, Jonathan Gerthoffert

*Early Life and In Service Friction Characteristics of Runway Surface Courses*, Iswandaru Widyatmoko and Carl Fergusson

*Selection of the Most Cost Effective Pavement Maintenance Treatment for Selected Airport Pavements in New Mexico*, Md Rahman and Rafiqui Tarefder

*Experimental Validation of a Physically Meaningful Method for Pavement Friction Measurement Device Harmonization*, Madhura Rajapakshe, John Metz and Manjriker Gunaratne

*The Influence of Tire Temperature on Skid Resistance Measurements*, Santosh Kumar Srirangam, Tom Scarpas and Cor Kasbergen

### ■ C2: Evaluating Materials and Surface Characteristics

Moderator: *Larry Scofield* – Norfolk Ballroom III

*The Colas Group's Experience of the ISO Test Track*, Xavier Carbonneau, Jean-Luc Gautier and Vincent Lapeyronie

*HMA Friction Course: Volumetric Properties vs. Surface Texture*, Teresa Luele, Filippo Practico, Rosolino Vaiana and Vincenzo Gallelli

*Performance of High Friction Surfacing Demonstrations in the U.S.*, David Merritt, Robert Rasmussen and Michael Moravec

*Pavement Experts' Knowledge Converted into an Automatic Assessment Tool*, Jean-Luc Gautier, Petr Dokladal and Eric Coquelle

*Friction Testing Program in Virginia*, Affan Habib

## Thursday, September 20, 2012

7:30 – 8:30 am

Continental Breakfast – Norfolk Ballroom IV

8:00 am – 9:00 pm

Exhibit Hall open – Norfolk Ballroom V, VI

8:30 – 10:00 am

### CONCURRENT SESSIONS

### ■ B3: The Effect of Polishing on Friction

Moderator: *Margo Briessinck* – Norfolk Ballroom I & II

*Comparing Simulative Polishing in the Laboratory with Polishing Caused by Traffic*, Alan Dunford, Helen Viner, Peter Roe and Louise Caudwell

*Characterizing Pavement Surface Macrotecture Using Fractals*, Amin El Gendy and Ahmed Shalaby  
*Assessment of the Skid Resistance of Natural Sands Used in Portland Cement Concrete Pavements in Ontario*, Stephen Senior and Bob Gorman

*Modification of the Polished Mortar Value Test Method to Evaluate the Frictional Properties of Natural Sands Used in Portland Cement Concrete Pavements in Ontario*, Carolina Cautillo, Carole Anne MacDonald and Stephen Senior

*Laboratory Exploration of the Effect on Skid Resistance of Blending Aggregates and Aggregate Size*, Alan Dunford, Helen Viner, Peter Roe, Ian Carswell and Louise Caudwell

### ■ C3: Measurement of Pavement Texture and Shape

Moderator: *Leif Sjogren* – Norfolk Ballroom III

*3D Pavement Surface Macrotecture: Measurements and Friction Relationships*, Amin El Gendy and Ahmed Shalaby

*About the Reproducibility of Road Texture Profiles in the Macro-Mega Range and the Problem of Spikes*, Luc Goubert

*Fusion of High-Resolution Laser Profile and Lidar Measurements for Enhanced Condition Assessment*, Dean Wright, Nathan Dhillon, Kamal Nesnas, Alex Wright and Colin Christie

*3D Pavement Surface Wear Analysis Device*, Nick Trevorrow

*Improved Methods for Characterizing Pavement Surface Texture*, Timothy Miller

10:00 – 10:30 am

Break – Norfolk Ballroom IV

10:30 am – 12:00 pm

### CONCURRENT SESSIONS

### ■ B4: The Effect of Water on Surface Properties

Moderator: *Larry Wisler* – Norfolk Ballroom I, II

*On-Board Estimation of Water Depth Using Low-Cost Sensors*, Delphine Prevost

*Development of a Prediction Model for Splash and Spray*, Helen Viner, David Hargreaves, Alan Dunford, Kamal Nesnas, Tony Parry and Gerardo Flintsch

*Influence of Thin Water Film on Skid Resistance*, Yannick Beautru, Veronique Cerezo, Minh-Tan Do and Malal Kane

*Exposure Model For Predicting Splash and Spray*, Lijie Tang, Gerardo Flintsch and Helen Viner

### ■ C4: Measurement of Pavement Texture and Shape (continued)

Moderator: *Phillipe Lepert* – Norfolk Ballroom III

*New Methods for Network Level Automated Assessment of Surface Condition in the UK*, Alex Wright, Emma Benbow and Colin Christie

*Determination of Pavement Surface Cracks from Video-Images Using an Image Scale-Space Approach*, Costas Armenakis and Li Ningyuan

*Automated Pavement Distress Collection Systems: State-of-the-Art and Atate-of-the-Practice Technologies*, Amin El Gendy, Yan Qi and Feng Wang

*30 KHz 3D Imaging Sensor for Pavement Surface Survey*, Kelvin Wang

*RoadCrack — Measuring More Than Cracks*, Richard Wix, David Pratt and Roland Leschiski

12:00 – 1:30 pm

Lunch – Norfolk Ballroom IV

1:30 – 3:00 pm

### CONCURRENT SESSIONS

### ■ B5: Modeling the Tire/Surface Interaction

Moderator: *Katherine Petros* – Norfolk Ballroom I, II

*Lateral and Longitudinal Grip Variation*, David Woodward and Phillip Millar

*Variation of the Observed Surface Strains Caused by Uniform and Non-Uniform Contact Pressures Using a Finite Element Method*, Dermot Casey

*Adherence Prediction Models Developed in Argentina*, Marta Pagola and Oscar Giovanon

*Development of Asset Management in Safety Road Analysis based in Vulnerability Profiling Combining GRIP Measurements, Retroreflective of Pavement Marking and Roadway Factors*, Jairo Sanabria, Luis Guillermo Loria, Roy Barrantes, and Jose Francisco Garro

*Effects of Tire Axle Load and Inflation Pressure on Near-Surface Pavement Response*, Guangming Wang, Reynaldo Roque and Dennis Morian

### ■ C5: Measurement of Noise

Moderator: *Luc Goubert* – Norfolk Ballroom III

*Measurement of Sound Absorption Coefficient of Road Surfaces in Situ*, Robert Alvarez de Sotomayor, Sixto Yanguas, Jaun Gonzalez and Laura Parra

*Observations on Using Microtomography to Study Noise-Reducing Asphalt Mixes*, Xavier Carbonneau, Jerome Adrien, Vincent Lapeyronie

*CPX Noise Measurements in Different Road Surfaces*, Laura Parra, Tomas Casas, Roberto Alvarez de Sotomayor, Rubio Baltasar, and Francisco Sinis  
*Virginia Quiet Pavement Study*, Kevin McGhee

3:00 – 3:30 pm	Break – Norfolk Ballroom IV
3:30 – 5:00 pm	<p><b>CONCURRENT SESSIONS</b></p> <p>■ <b>B6: Assessing Pavement Surface Performance</b>  Moderator: <i>Benoit Petitclerc</i> – Norfolk Ballroom I, II</p> <p><i>Development of Pavement Condition and Health Scores for the Interstate Highway System, Jonathan Groeger, Amy Simpson, Gonzalo Rada, and Josephn Guerre</i>  <i>Road Maintenance Policy Based on an Expert Asset Management System — Concept and Case Study, Philippe Lepert</i>  <i>Determination of Correlation Between Road Pavement Skid Resistance and Braking Deceleration, Darko Kokot, Robert Rijavec and Miha Ambroz</i>  <i>Current State of the Pavement Warranty in North America, Amin El Gendy, Yan Qi and Feng Wang</i>  <i>IRI and GRIP of the National Road Network of Costa Rica, and Relationships with Road Surface Deterioration, Jose Francisco Garro, Jairo Sanabria, Roy Barrantes and Guillermo Loria</i></p> <p>■ <b>C6: Using Surface Characteristics for Assessing Performance</b>  Moderator: <i>Carl van Geem</i> – Norfolk Ballroom III</p> <p><i>A Methodology to Evaluate Pavement Noise Performances for Characterization, Checking and Monitoring Purposes, Fabienne Anfosso, Cedric Leroux</i>  <i>Using Tire/Pavement Interface Noise Results to Define Statistically Similar Bituminous Pavements in Massachusetts, John Hencken, Edwin Haas and Thomas Bennert</i>  <i>Performance of Next Generation Concrete Surface Field Installations, Larry Scofield</i>  <i>Microsurfacing as a Maintenance Technique: Recent Implications on Motorways, Jean-Etienne Urbain and Eric Layerle</i>  <i>Road Smoothness Measurements Using Prove Vehicle Acceleration Data, Samer Katicha, Gerardo Flintsch and Steve Valeri</i></p>
6:00 – 8:30 pm	Conference Dinner – Norfolk Ballroom IV

## Friday, September 21, 2012

7:30 – 8:30 am	Continental Breakfast – Norfolk Ballroom IV
8:00 – 11:00 am	Exhibit Hall open – Norfolk Ballroom V, VI
8:30 – 10:00 am	<p><b>GENERAL SESSION</b> – Norfolk Ballroom I, II, III</p> <p>■ <b>A3: Using Friction Measures to Reduce Accidents</b>  Moderator: <i>Mats Wendel</i></p> <p><i>Use and Limitations of Crash Data in Determining the Priority for Treating Sites with Low Skid Resistance, Helen Viner, Stuart Brittain, Fiona Coyle and Louise Caudwell</i>  <i>Management of Network Level Skid Resistance in Australia — A National, State or Local Task?, Paul Hillier</i>  <i>Improving Highway Safety through Pavement Friction Management Programs, Kelly Smith, Gerardo Flintsch and Roger Larson</i>  <i>Relation Between Crash Rate and Pavement Type on Curves, Roya Amjadi, James Sherwood and Yusuf Mohamedshah</i>  <i>Traffic Safety Gains with Attention to Subjective Aspects of Surface Characteristics, Jacob Groenedijk, Arco Blanken, Erik Vos and Frank Bouman</i></p>
10:00 – 10:30 am	Break – Norfolk Ballroom IV
10:30 am – 12:00 pm	<p><b>GENERAL SESSION</b> – Norfolk Ballroom I, II, III</p> <p>■ <b>A4: Closing Panel: How Do We Meet the User Requirements?</b>  Moderator: <i>Brian Ferne</i></p> <p><i>Closing Words</i> – <i>Gerardo Flintsch</i></p>
12:00 pm	Boxed Lunches Available – Norfolk Ballroom IV

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