

## Workshop Venue

The workshop takes place in the conference halls of "Divani Caravel" hotel in the city center of Athens.

## Directions

Vasileos Alexandrou 2,  
161 21, Athens,  
Greece

## How to reach the venue

**By Metro:** We strongly advise you to use the Athens Metro, which is the fastest and more convenient means of transportation in Athens. Divani Caravel hotel is 5 minutes walk from the "Evangelismos" Metro station (Blue Line). For more information please visit: [www.ametro.gr](http://www.ametro.gr)

## **By other means of public**

**transportation:** Since Divani Caravel is right in the heart of Athens is easily accessible by all means of public transportation (buses, trolley buses). For further information visit: [www.oasa.gr](http://www.oasa.gr)

## Organizers

Univ.-Prof. Dr.-Ing. habil. Markus Oeser  
RWTH Aachen University  
Chair and Institute of Highway Engineering

Univ.-Prof. Dr.-Ing. habil. Frohmut Wellner  
TU Dresden  
Institute of Urban and Pavement Engineering

Univ.-Prof. Dr.-Ing. habil. Michael Kaliske  
TU Dresden  
Institute for Structural Analysis

## Schedule

9:00 – 11:00: Presentations & Discussion  
11:00 – 11:30: Coffee Break  
11:30 – 13:00: Presentations & Discussion

## Registration

The participation at the workshop is free of charge. The registration is organized via the conference webpage:

[www.bcrra2017.com](http://www.bcrra2017.com)

## Contact

[for2089@mailbox.tu-dresden.de](mailto:for2089@mailbox.tu-dresden.de)

# Modelling and Testing of the Vehicle-Tire- Pavement System

BCRRA 2017

Pre-Conference Workshop

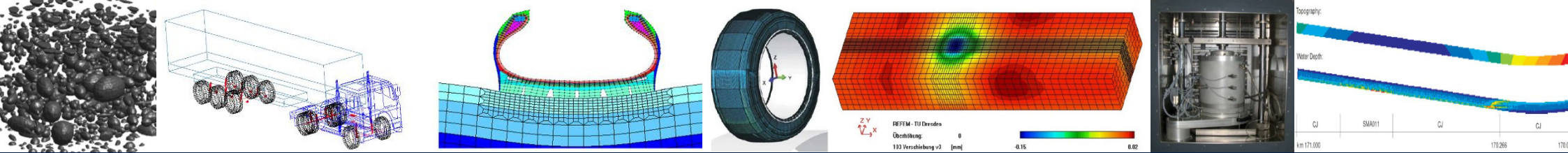
27<sup>th</sup> of June 2017

9:00 am – 1:00 pm

Athens,  
Greece

sponsored by  
**DFG** Deutsche  
Forschungsgemeinschaft

**FOR 2089**  
DRESDEN AACHEN STUTT GART



## Scientific programm

### **Numerical modelling of tire-pavement interaction by the finite element method**

Prof. M. Kaliske, F. Hartung, I. Wollny  
TU Dresden  
*Institute for Structural Analysis*

- steady state tire and pavement description
- numerical friction determination via multiscale investigations
- modelling of pavement material
- thermomechanical investigations
- structural analysis

### **Investigation on internal characteristics of asphalt mixtures using microstructural analysis**

Prof. M. Oeser  
RWTH Aachen University  
*Chair and Institute of Highway Engineering*

- fatigue damage in the asphalt mixtures
- influence of aggregates' spatial characteristics on air voids
- influence of aggregate morphology on mechanical response of the asphalt mixture

### **Experimental characterization of asphaltic materials on different length scales: bitumen, mortar and asphalt**

G. Canon Falla, Prof. F. Wellner  
TU Dresden  
*Institute of Urban and Pavement Engineering*

- performance related tests on bitumen, mortar and asphalt: DSR tests, ITT, repeated load triaxial tests, Dresden shear test

### **Modelling the impact of material heterogeneity in the response of asphalt mixtures: macro and micro approaches**

Assoc. Prof. S. Caro  
Universidad de Los Andes (Bogota Colombia)  
*Civil and Environmental Engineering*

- modeling the natural heterogeneity of asphalt mixtures through the use of finite elements
- stochastic techniques
- algorithms for the random generation of the internal structure of the mixtures

### **Understanding the role of composition and microstructure on the performance of asphalt binders**

Assoc. Prof. A. Bhasin  
University of Texas at Austin  
*Civil, Architectural and Environmental Engineering*

- properties of binder and how these properties change depending on binder chemistry, additives etc.
- microstructure of the binder itself
- binder as a composite within a composite

### **A numerical drainage model coupling surface flow and infiltration into porous pavement layers**

I. Rucker, Prof. W. Ressel  
University of Stuttgart  
*Institute for Road and Transport Science*

- simulation of free flow on the pavement surface and drainage into porous layer geometries
- coupling concept at the interface
- saturation and Darcy velocities through porous layers
- computation of occurring water film thicknesses with relevance to hydroplaning

### **Determination of vehicle induced road load collectives - simulation methods and challenges**

T. Winkler, D. Wegener, Prof. L. Eckstein  
RWTH Aachen University  
*Institute for Automotive Engineering*

- general trends in commercial vehicles chassis technology
- modular and scalable approach for multi body simulations of commercial vehicles
- evaluation of required modeling depth for vehicle components and tires
- use of flexible structures in MBS
- discretization of tire contact patch forces