

TOPICS

The lectures and workshops are primarily aimed at Master and Ph.D. students interested in topics of a **Cyber Physical System** and **Digital Twin Road** of the future.

- On the **Physical level**:
Real stress conditions in road pavements ♦ Reinforced jointless concrete base layer ♦ Development of high performance asphalts ♦ Physical numerical modeling of the functionalized road under tire load ♦ Sensitive road layer for the detection of wheel loads
- On the **Informational level**:
High resolution geometric-semantic as-is modeling from 3D point clouds ♦ Highly accurate position data using cooperative sensor data fusion ♦ Roadside sensors for generation of complex traffic-related load data ♦ Linked data
- **Sustainability assessment**:
Life cycle sustainability assessment for a digital twin of the road system

ORGANIZERS

ISD, TU Dresden
gia, RWTH Aachen University
BASt, Bergisch Gladbach



COSTS

Participation fee (incl. lectures, workshops, lunch, BBQ, dinner event):
for free

Accommodation (incl. breakfast):
for free

Travel costs:
not included / by participants

APPLICATION DEADLINE

31 March 2023. Please send the [application form](#) by email to sfb-trr-339@tu-dresden.de.

CONFIRMATION

14 April 2023

CONTACT

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SFB/TRR 339 – Digital Twin Road

Physical-Informational
Representation of the System
“Road of the Future”

International Summer School

21 Aug – 25 Aug 2023

Bergisch Gladbach (near Cologne)
Germany



Funded by

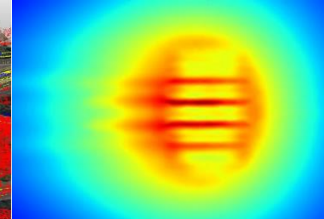


Deutsche
Forschungsgemeinschaft
German Research Foundation





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VENUE

Federal Highway Research Institute (BAST)

Brüderstraße 53
51427 Bergisch Gladbach



ACCOMMODATION

Kardinal Schulte Haus
Overather Straße 51-53
51429 Bergisch Gladbach

SCHEDULE

Monday
21. Aug 2023 am: arrival & check-in
pm: BAST tour #1
BBQ

Tuesday
22. Aug 2023 am: lectures
pm: workshop

Wednesday
23. Aug 2023 am: lectures
pm: **duraBAST** tour
social activity
dinner



Thursday
24. Aug 2023 am: lectures
pm: workshop
BAST tour #2

Friday
25. Aug 2023 am: lectures
workshop result evaluation
closing
pm: departure

LECTURES AND SPEAKERS

Virtual Experiments on Pavements

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

Digital Twin as Digital Basis – Usage for Parametric Road Planning

Dr.-Ing. Veit Appelt
A+S Consult GmbH

Fiber Optic Sensors

Prof. Dr. techn. Werner Lienhart
TU Graz, Institute of Engineering Geodesy and Measurement Systems

Vehicle Dynamics Enhancements Enabled by Digitalization

Dr.-Ing. Paul Zandbergen
Ford Motor Company

Load Capacity Measurement and Data for Digital Twin

Dr.-Ing. Dirk Jansen
BAST, Highway Construction Technology

Novel Antenna Technologies for Realizing Smart Road Pavement Systems

Dr.-Ing. Abdul Quddious
TU Dresden, Institute of Communication Technology

Life Cycle Sustainability Assessment: Advantages and Challenges

Prof. Dr.-Ing. Marzia Traverso
RWTH Aachen, Institute of Sustainability in Civil Engineering

Linked Data

Prof. Dr.-Ing. Jakob Beetz
RWTH Aachen, Design Computation

Requirements and Architecture for Autonomous Driving

Prof. Dr.-Ing. Lutz Eckstein
RWTH Aachen, Institute for Automotive Engineering

Virtual and Augmented Reality

Sonja Nieborowski
BAST, Maintenance of Engineering Structures

Digital Twin Tunnel

Dr. Ingo Kaundinya, Anne Lehan
BAST, Tunnel and Foundation Engineering

WORKSHOPS

1 EXPERIMENTAL

- Experiments on asphalt and concrete specimen in BAST laboratories
- Material models for numerical simulation of structures based on experiment data

Moderation: Dr.-Ing. Marco Liebscher
Dr.-Ing. Gustavo Canon Falla

2 SENSORS

- Point cloud capturing by laser scanning
- Weigh in motion sensor for vehicle positioning and load distribution
- Vehicle positioning using sensor fusion

Moderation: Prof. Dr.-Ing. Jörg Blankenbach