

Track. Operation. Strategy.

Technische Universität Berlin
Department of Land and
Sea Transport Systems

Chair of Track and Railway Operations

Prof. Dr.-Ing. habil. Jürgen Siegmann



Expertise



Track

The chair has a long-standing experience in the research of track components with a comprehensively equipped track laboratory. Its tasks focus on track life cycle costs, superstructure dynamics including noise abatement and maintenance optimization.

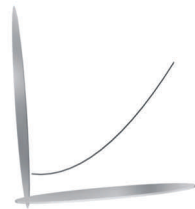
Operation

The railway system with its manifold processes places high demands on operation, especially in a liberalized market. The chair's key areas of research are staff support within these processes, resource conservation and the application of new technologies.



Strategy

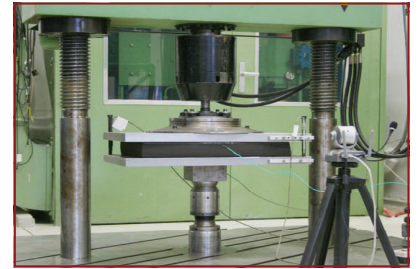
Railway transportation is confronted with ever new challenges. It has to face changing demand behaviour and new basic conditions in order to stay in business. Thus, the chair's research also focuses on sustainable forms of offer and production in passenger and freight transport.



Equipment

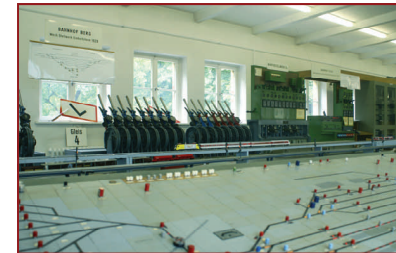
Track Laboratory

The track laboratory of the chair of track and railway operations allows



for several analyses of track components.

- Vibration testing system with dynamic forces of +/- 400 kN for testing sleepers and rail fastenings
- Test bench for evaluating new wheel constructions
- Climatic chamber for temperatures between -80°C and +120°C
- Shaker for frequencies from 1 Hz to 10 kHz
- FFT-Analyzers



Railway Operation and Experimental Laboratory

The chair possesses a railway operation and experimental laboratory with different types of authentic signal boxes and outdoor installations of real railway components. This facility is used for educational purposes, external training courses and operational analyses.

Contact

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► Helmholtzstraße



Pictures:
C. Canis, S. Koch, H. Stuhr,
E. Weiß, TU Berlin

State: 2010-11

Project Samples

Trassenbörse

This project evaluates new mathematical and auction-theoretic approaches for an optimized railway slot. We develop software that transforms microscopic simulation data into discrete macroscopic models for mathematical optimization.

Forschungs-Informations-System

Within the “Research Information System for Mobility, Transport and Urban Development” promoted by the Federal Ministry of Transport, the chair’s responsibilities lie in the content-related assistance of the analysis area “rail borne transport”.

VEL Wagon

Aim of the project is the development of a multi-purpose wagon platform for combined and conventional transport with a loading length of at least 80 feet. The chair is the project leader of the project co-funded by the European Commission’s 7th Framework Programme.

Noise Charges

This study on behalf of the European Commission aims at the implementation of a noise-based system of track access charges. Beside the theoretical framework the main goal is to evaluate the practical and technological implementation of that system.

Education

Bachelor Modules

- Basics of rail transport
- Railway operations
- Design of railway infrastructure
- Construction of railway tracks



Master Modules

- Supply and operation planning in local transport systems
- Operation of urban railways systems
- Information systems in public transport
- Signalling and control systems
- Planning of railway systems
- Production planning for mainline traffic
- Rail freight transport
- System approach of the railway track

Railway Seminar

Supervision of Student Research Projects and Final Thesis

Internship and Thesis Position Placement