



Veranstaltungszentrum Ruhr University Bochum
Room 3 – Universitätsstraße 150 – 44801 Bochum



The Ruhr University Bochum is connected by metro line U35 with the city centre and the main station of Bochum. Bochum is easily reachable from the airport Düsseldorf, Cologne-Bonn and Dortmund by public transport.

To reach the Veranstaltungszentrum from the metro station "Ruhr-Universität" turn right towards the University Campus. Then pass the library and the Audi-max on the right hand side. You are now directly facing the Mensa/Cafeteria building. Enter the building and take the elevator to floor number 04.

If you arrive by car take the exit "Uni-Mitte" and choose the parking site P9 and take the elevator to floor number 04.



SFB COORDINATOR

Prof. Dr. Günther Meschke



PROJECT LEADERS

Faculty of Civil and Environmental Engineering

Prof. Dr. R. Breitenbücher* (*Building Materials*)

Prof. Dr. K. Hackl (*Mechanics of Materials*)

Prof. Dr. M. König (*Computing in Engineering*)

Prof. Dr. P. Mark (*Concrete Structures*)

Prof. Dr. G. Meschke* (*Structural Mechanics*)

Prof. Dr. T. Nestorović (*Mechanics of Adaptive Systems*)

Prof. Dr. T. Schanz (*Foundation Engineering, Soil & Rock Mechanics*)

Prof. Dr. H. Steeb* (*Continuum Mechanics*)

Prof. Dr. M. Thewes* (*Tunneling and Construction Management*)

Faculty of Geosciences

Prof. Dr. M. Alber (*Engineering Geology & Rock Engineering*)

Prof. Dr. W. Friederich (*Geophysics*)

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RUHR UNIVERSITY BOCHUM

SFB 837 - Interaction Modeling in Mechanized Tunneling

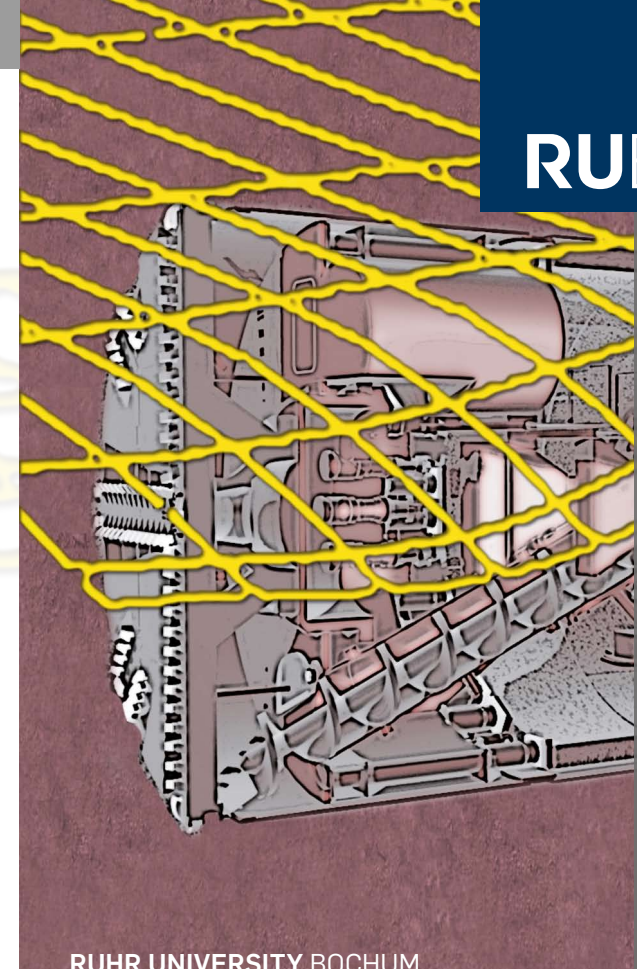
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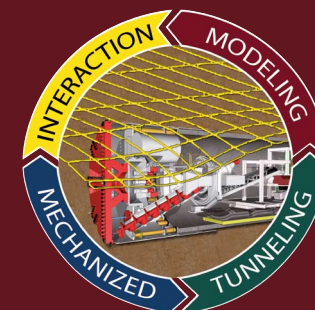


RUHR UNIVERSITY BOCHUM

COLLABORATIVE RESEARCH CENTER 837
– INTERNATIONAL WORKSHOP –

CUTTING TOOL - SOIL INTERACTION

5TH JULY 2013



INTERACTION MODELING
MECHANIZED TUNNELING

DFG Deutsche
Forschungsgemeinschaft

www.rub.de/sfb837

WWW.RUB.DE/SFB837



SFB 837 – PROJECT OBJECTIVES

Mechanized tunneling is an established flexible and efficient technology for the construction of underground infrastructure, characterized by a dynamic advancement of tunnel boring technologies, increasing diameters and a broadening range of applicability. This rapid development in association with the inherent heterogeneity of the ground poses new challenges to prognosis models.

Considering this background, the subject of the new Collaborative Research Center SFB 837 "Interaction models for mechanized tunneling" is the research and development of models, methods and design concepts, which, when adequately interlinked, can deal with the manifold complex interactions of the components and processes involved in mechanized tunneling.

Research within the four project areas of the SFB includes the ground exploration and modeling of the ground, the tunnel boring machine, the lining and annular gap grouting, and the interactions between tunneling and existing structures. Furthermore, the cutting, advancement and logistics processes will be represented using adequate models integrated by means of a consistent SFB-wide information management system.



SFB 837 – GUEST LECTURES

The present workshop is part of a series of guest lectures and seminars. This SFB series shall offer the opportunity for an active dialog between members of the SFB 837 and internationally recognized scientists as well as experts from industry and design offices. All topics involved in the SFB 837, ranging from computational multiscale methods to TBM technologies, are covered.

Guests are sincerely welcome!



CUTTING TOOL - SOIL INTERACTION

INTERNATIONAL WORKSHOP – 5TH JULY

at Veranstaltungszentrum Ruhr University Bochum - Room 3 -
Opening 12:30 h - End 18:00 h

The SFB 837 workshop "Cutting Tool - Soil Interaction" focuses on modeling approaches for the excavation processes at the cutting wheel of tunnel boring machines in particular in soft soils.

Invited Guest Lecturers:

- **Ir. Rudy Helmons**
(Delft University of Technology, The Netherlands)
- **Dr. Heiko Käsling**
(Technische Universität München, Germany)
- **Prof. Heinz Konietzky**
(Technische Universität Bergakademie Freiberg, Germany)
- **Dipl.-Geol. Florian Köppl**
(Herrenknecht AG, Germany)
- **Prof. Jerzy Rojek**
(Polish Academy of Sciences, Poland)
- **Dr. Falk Wittel**
(Swiss Federal Institute of Technology Zurich, Switzerland)



REGISTRATION

Registration fee: € 50,-
(Members of Ruhr University Bochum: € 25,-)

For registration please visit the workshop webpage:
www.rub.de/sfb837.



CUTTING TOOL - SOIL INTERACTION

WORKSHOP PROGRAM – 5TH JULY

Veranstaltungszentrum Ruhr University Bochum - Room 3 -
Opening 12:30 h - End 18:00 h

Discrete Element Simulation of Rock Cutting Processes

Prof. Jerzy Rojek
(Polish Academy of Sciences, Poland)

From Fracture to Fragmentation

Dr. Falk Wittel
(Swiss Federal Institute of Technology Zurich, Switzerland)

Implications of Cutting Tool Wear in Soil on TBM Advance & Development

Dipl.-Geol. Florian Köppl
(Herrenknecht AG, Germany)

Cutting and Material Transport in EPB Shield Machines: A Coupled Simulation Approach

Prof. Klaus Hackl
(Ruhr University Bochum, Germany)

- Break -

DEM-Based Simulations of Rock Destruction

Prof. Heinz Konietzky
(Technische Universität Bergakademie Freiberg, Germany)

Abrasivity Assessment and Wear Prediction for TBM Tunneling

Dr. Heiko Käsling
(Technische Universität München, Germany)

The Cutting of Soils and Rocks in Dredging

Ir. Rudy Helmons
(Delft University of Technology, The Netherlands)

18:00 – Workshop Dinner