The Collaborative Research Centre ‘Interaction Modeling in Mechanized Tunneling’ (SFB 837) at Ruhr University Bochum, Germany has established cooperation with the ‘Innovation and Knowledge Centre’ (IKC), University of Cambridge, UK and the College of Civil Engineering of Tongji University, China. This cooperation is manifested, among other joint activities, in organizing annual joint Ph.D. workshops aiming to exchange recent research in the field of Subsurface Modeling and Engineering and Smart Infrastructure.

Research topics cover innovative monitoring methods, experimental methods as well as novel computational models and simulation methods. After two successful bi-lateral workshops held at Cambridge in April 2011 and at Tongji University in July 2012, the workshop in 2013 is organized as a joint RUB-Cambridge-Tongji event prior to the EURO:TUN 2013 conference.

**IKC: Innovation and Knowledge Centre, University of Cambridge, UK**
Research at the ‘Innovation and Knowledge Centre’ (IKC) installed at the Department of Engineering at Cambridge University is focusing on exploiting the potential of novel sensor technologies for the monitoring and life-cycle oriented control of smart infrastructure, including underground structures, throughout the whole lifetime.

[http://www.cam.ac.uk](http://www.cam.ac.uk)

**CCE: College of Civil Engineering, Tongji University, China**
Research at the Department of Geotechnical Engineering (College of Civil Engineering, Tongji University) is focussed on planning, design and construction techniques in modern tunnel and underground engineering including life cycle analysis, risk assessment, structural monitoring and control of underground infrastructure and numerical modeling in subsurface engineering.


**SFB 837: Interaction Modeling in Mechanized Tunneling, Ruhr University Bochum, Germany**
Main focus of the SFB 837, installed by the German Science Foundation (DFG) at Ruhr University Bochum, is the research and development of numerical models, computational and experimental methods and design concepts, which, when adequately interlinked, consider the manifold complex interactions of the components (ground, shield machine, support measures, tunnel lining, existing buildings) and processes (excavation, installation of support, logistics) involved in mechanized tunneling.

[www.rub.de/sfb837](http://www.rub.de/sfb837)

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**WORKSHOP PROGRAM**

**Opening** – Prof. Günther Meschke

10:10 - 12:30  **Session 1** – Chairman: Prof. Yun Bai

- Full Scale Test Study on Mechanical Behaviors of Shield Tunnel Segments at Ultimate Loading
  Min Tang – CCE, Tongji University

- The Effects of Tunnelling on Bored Piles
  Michael Williamson – IKC, University of Cambridge

- Development of Effective Concepts for Tunnel Reconnaissance using Acoustic Methods
  Khayal Musayev – SFB 837, Ruhr University Bochum

- Post Office Railway - Tunnel Monitoring and Assessment
  Matthew Wilcock – IKC, University of Cambridge

- Study on Inner Force and Displacement Caused by Pit Excavation
  Pan Li – CCE, Tongji University

13:45 - 15:45  **Session 2** – Chairman: Prof. Kenichi Soga

- Experimental Investigation on Static Behavior of Tunnel Lining Strengthened by Textile-Reinforced
  Dejun Liu – CCE, Tongji University

- Simulation of Productional and Logistical Processes in Mechanized Tunneling
  Tobias Rahm – SFB 837, Ruhr University Bochum

- Behaviour of Cast-Iron Segmental Tunnel Linings and their Modelling
  Zili Li – IKC, University of Cambridge

- A 3D FEM for Shield Tunnel Undercrossing the Historical Building in Soft Ground
  Yafei Qiao – CCE, Tongji University

16:15 - 18:15  **Session 3** – Chairman: Prof. Markus Thewes

- Adaptive Constitutive Modeling in Mechanized Tunnel Excavation Analysis
  Kamran Vakili, Nina Müthing, Thomas Barciaga – SFB 837, Ruhr University Bochum

- Numerical Analysis and Field Measurement of Cross-passage Junction
  Masanari Nakashima – IKC, University of Cambridge

- A 3D Probability Healing Model for Microcapsule Self-Healing Method
  Shuai Zhou – CCE, Tongji University

- Scenario-Based System Identification and Model Selection in Mechanized Tunneling Considering Uncertainties
  Shorash Miro – SFB 837, Ruhr University Bochum

**Closing**
18:30  Diner