

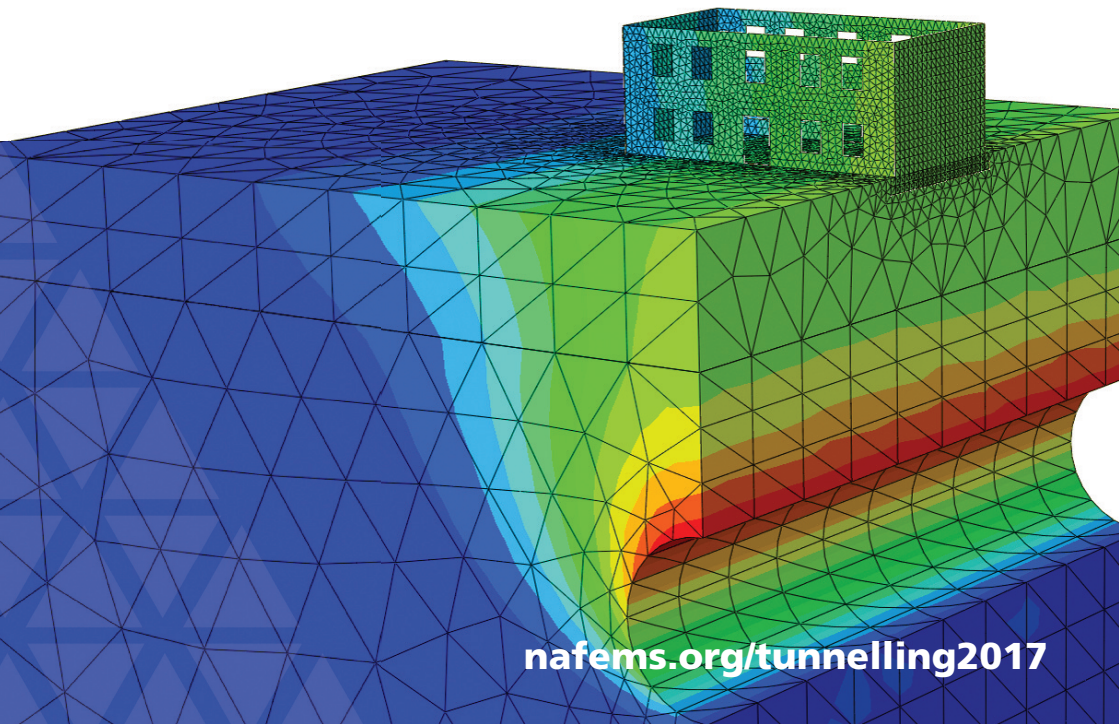


Modelling Soil Structure Interaction during Tunnel Excavation

23rd February 2017

Coventry

Co-organised by



nafems.org/tunnelling2017

This seminar will focus on numerical modelling of the complex interaction between soil and structure during tunnel excavation. This is a major talking point currently, with over 26 miles of tunnels being built under the UK's capital city as part of Crossrail and numerous London Underground Station Upgrade projects. Ensuring that the tunnels are correctly designed is essential to ensure the safety of those involved in the tunnelling operation as well as ensuring that life above ground carries on without interruption.

The event will focus on modelling of the soil-structure interaction behaviour in tunnel construction, with an emphasis on sprayed concrete lining. This seminar will provide guidance on the following topics.

1. *Time dependent nature of sprayed concrete material properties*
2. *Variability in material properties*
3. *How to reduce unnecessary conservatism when designing a sprayed concrete tunnel lining*
4. *How to ensure your design is code compliant.*

Other modelling issues associated with tunnel construction such as compensation grouting and building damage will also be discussed and there will be presentations from leading experts from Mott MacDonald, UnPS, Keller Holding GmbH, Oxford University, etc.

We are also pleased to have Professor Helmut F. Schweiger from, Graz University of Technology giving a keynote presentation.

Dr Andrew Mar from UnPS, author of the upcoming NAFEMS publication entitled 'Modelling Sprayed Concrete Lined Tunnelling' will also be presenting on his book, with a discount available on purchase of the publication exclusively to those who attend.

In addition to addressing the issues relating to modelling tunnel excavation, a number of case studies will be presented during the seminar. The day will be concluded with a discussion chaired by Professor David Potts on the different methods of representing sprayed concrete that are currently used in industry.

Who Should Attend?

We hope to see the seminar attract interest from tunnelling and geotechnical engineers, designers, FE/FD modellers, project managers and constructors who want to learn more about the latest developments in modelling the tunnel excavation process.

Co-organised by The BTS is an Associated Society of the Institution of Civil Engineers (ICE)



Formed in 1971 to provide a forum for meetings and discussion on tunnel-related matters, the BTS also publishes industry guidelines and codes of practice; conducts training courses to advance the education of tunnelling professionals; actively supports the recruitment of young people to the industry; acknowledges excellence in tunnelling; sponsors and supports

industry conferences; and advises Government and the general public on the tunnelling industry.

The British Tunnelling Society maintains a leading role in the development of the tunnelling industry to promote the safe, efficient, sustainable, and technically advanced design, construction and use of underground space.

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agenda

09:00 Coffee & Registration

10:00 Chairman's Welcome and Introduction
Yu Sheng Hsu, Mott MacDonald

Consequences of Nonlinear Modelling of Shotcrete for the Design of Linings
Helmut Schweiger, Graz University of Technology

10:55 Refreshment Break

Early Strength of Sprayed Concrete Lining - Title TBC
Chris Pound, Mott MacDonald

SCL Tunnel Design in the Real World
Colin Eddie, UnPS Limited

Practical Assessment of Sprayed Concrete Lining Works using FEA
Andrew Mar, UnPS Limited

12:30 Lunch Break

13:20 Soilfrac Compensation Grouting for Tunnels with SCL - Practical Experience from Two Case Studies
Clemens Kummerer, Keller Holding GmbH

Finite Element Modelling of Building/Soil Interaction for the Assessment of Settlement Damage due to Tunnelling
Harvey Burd, Oxford University

Soil Structure Implications of Modelling Tunnels in Weak and Soft Rocks
Ian Turner, Atkins

14:35 Refreshment Break

PRESENTATION TITLE TO BE CONFIRMED
Mark Round, Aecom

PRESENTATION TITLE TO BE CONFIRMED
Kurt Zeidler, Gall Zeidler

15:45 General Discussion & Closing Remarks

Chaired by David Potts, Imperial College

Engineers rely on computer modelling and simulation methods and tools as vital components of the product development process. As these methods develop at an ever-increasing pace, the need for an independent, international authority on the use of this technology has never been more apparent.

NAFEMS is the only worldwide independent association dedicated to this technology.

Companies from numerous industries and every part of the globe have invested heavily in engineering technologies such as Finite Element Analysis and Computational Fluid Dynamics. But how do they ensure they get the best return from their investment? How do they develop and enhance their capabilities? How do they know they are using the technology in the most effective way?

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Non Members Price £150** | NAFEMS / BTS Members & Students £50*

**Free places are subject to your available seminar credits. **UK VAT will be added for all delegates at the current rate*

Please register online at nafems.org/tunnelling2017

There is an opportunity available for your company to exhibit at the seminar, giving you maximum exposure to a highly targeted audience of delegates, who are all directly involved in simulation, analysis, and design.

Please contact [Jo Davenport](mailto:jo.davenport@nafems.org) at NAFEMS

tel: +44 (0)1355 225688 email: jo.davenport@nafems.org

if you would like more information.

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Please contact:- **Jo Davenport | NAFEMS**

Springwood, Booths Park, Chelford Road, Knutsford, Cheshire WA16 8QZ United Kingdom

T +44 (0) 1355 225 688 **E** jo.davenport@nafems.org