



Universität für Bodenkultur Wien
University of Natural Resources
and Life Sciences, Vienna

China – Europe Conference on Geotechnical Engineering

August 13–16, 2018
Vienna, Austria

programme book



Main Conference Location Türkenschanze

August 12, 14-16, 2018

Registration Address: Feistmantelstrasse 4 1180 Vienna

 15 minutes walk from hotels nearby

 Bus **40A, 10A** to Dänenstraße or Linneplatz bus station

1. Gregor Mendel Haus(MENH)

(Gregor Mendelstrasse 33, 1180 Vienna)

Parallel sessions (August 14-16)

2. Guttenberg Haus (GUTH)

(Feistmantelstrasse 4, 1180 Vienna)

Plenary Lecture (August 15, 08:30-09:30)

Registration (August 12, 14-16)

Lunch (August 14-16)

3. Oskar Simony-Haus (SIMH)

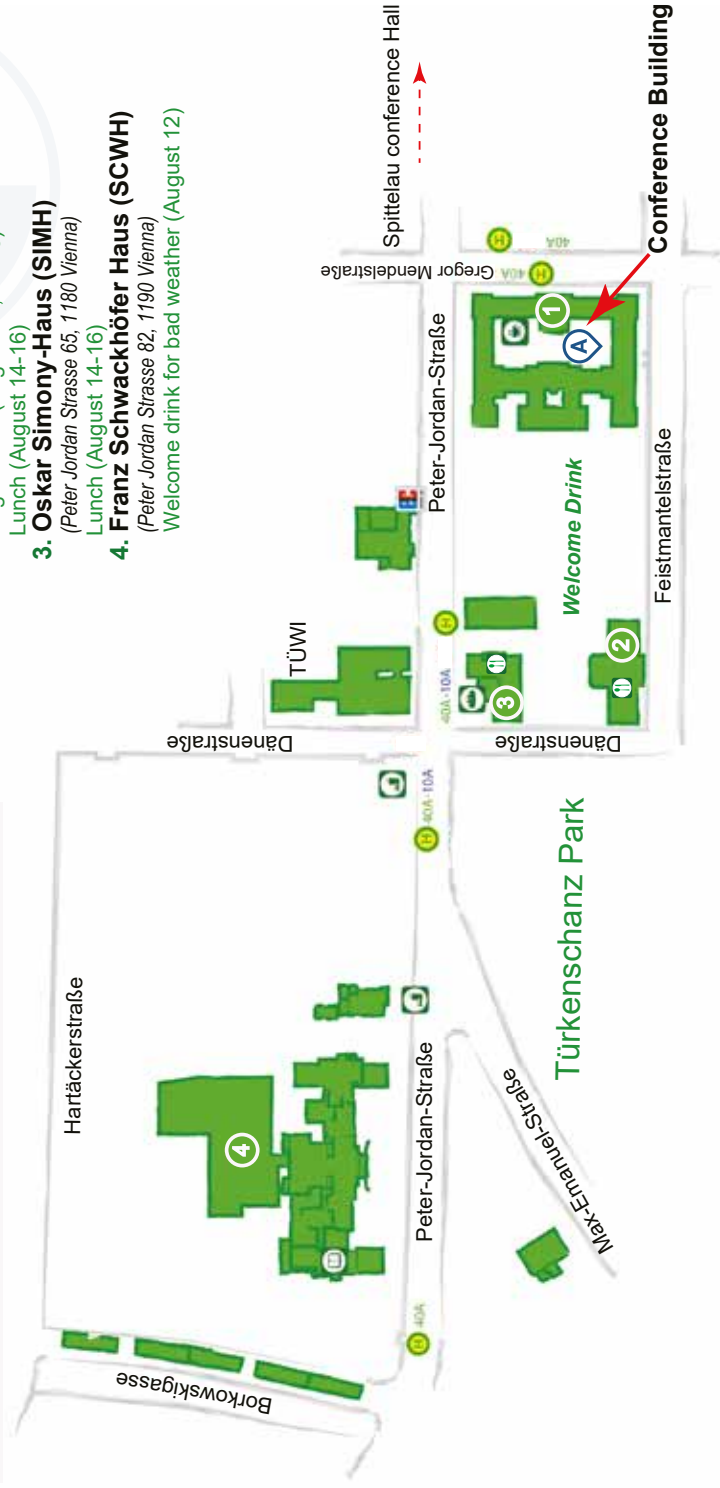
(Peter Jordan Strasse 65, 1180 Vienna)

Lunch (August 14-16)

4. Franz Schwachhöfer Haus (SCWH)

(Peter Jordan Strasse 82, 1190 Vienna)

Welcome drink for bad weather (August 12)




Opening Ceremony and Plenary Lecture

Monday, August 13, 2018

Address: Augasse 2-6, 1090 Vienna

Public transportation

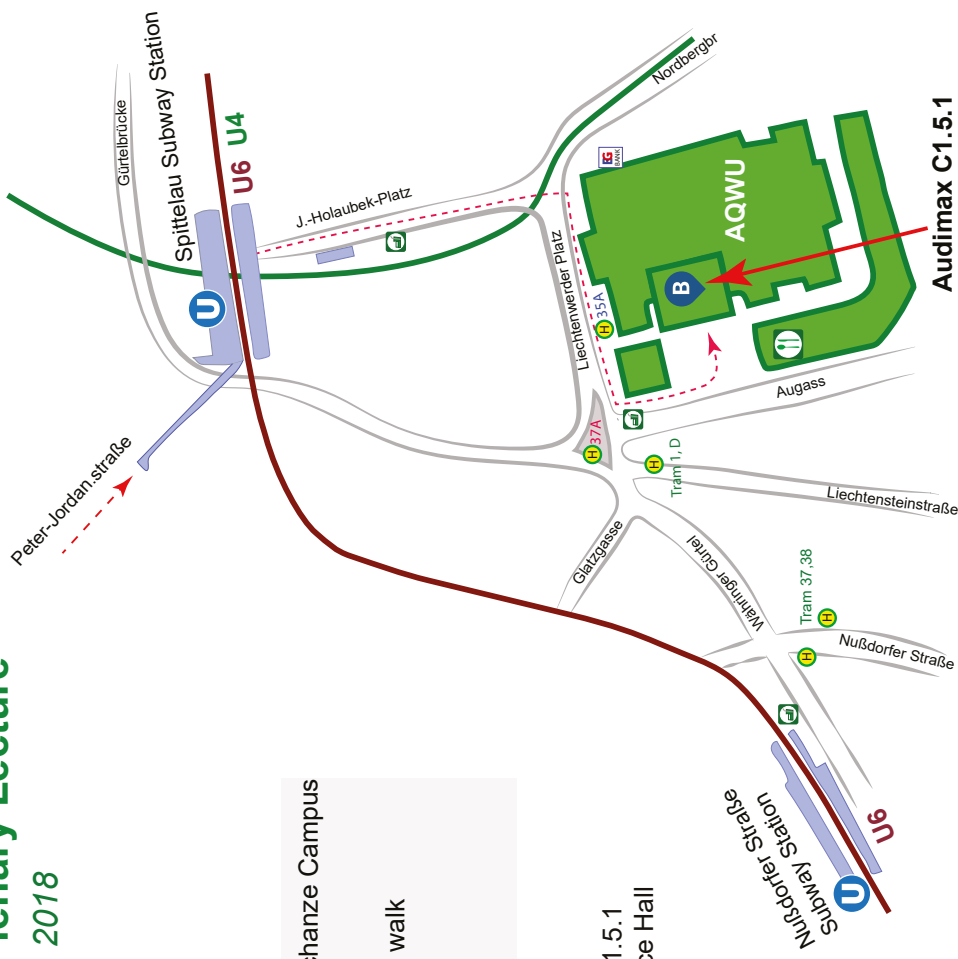
 20 minutes walk from BOKU Türkenschanze Campus

 **U6, U4** to Spittelau subway station,
J.-Hollaubek-Platz exit, then 3 minutes walk

 Bus **37A, 35A** to Spittelau station or
Tram **1,D** to Liechtenwerder Platz

Registration: Conference Hall Audimax C1.5.1

Lunch: at the cafeteria near the Conference Hall



General Information

Location and conference address

| | | | |
|-------------------|-----------------------------------|------|--------------------------------------|
| Opening Ceremony | Monday, August 13, 8:30-09:30 | AQWU | Augasse 2-6, 1090 Vienna |
| Plenary Lectures | Monday, August 13, 9:30-18:20 | AQWU | Augasse 2-6, 1090 Vienna |
| | Wednesday, August 15, 8:30-09:30 | GUTH | Feistmantelstrasse 4, 1180 Vienna |
| Parallel Sessions | Tuesday, August 14, 08:30-18:30 | | |
| | Wednesday, August 15, 10:00-17:30 | MENH | Gregor Mendelstrasse 33, 1180 Vienna |
| | Thursday, August 16, 08:30-12:30 | | |
| Closing Ceremony | Thursday, August 16, 14:00-15:00 | GUTH | Feistmantelstrasse 4, 1180 Vienna |

Registration and Information Desk

The Registration and Information Desk for CECGE2018 will be located as follows:

| | | |
|-----------------------------------|------|-----------------------------------|
| Sunday, August 12, 14:00-21:00 | GUTH | Feistmantelstrasse 4, 1180 Vienna |
| Monday, August 13, 08:30-17:00 | AQWU | Augasse 2-6, 1090 Vienna |
| Tuesday, August 14, 08:30-17:00 | | |
| Wednesday, August 15, 08:30-17:00 | GUTH | Feistmantelstrasse 4, 1180 Vienna |
| Thursday, August 16, 08:30-10:00 | | |

Internet

Wireless internet connection is available in the BOKU Türkenschanze. The name of the network is **BOKU-Public-Event**. User name: **geotech**, Password: **Chinaeurogeo2018**

Lunch

| | | |
|---|----------|--------------------------------------|
| Monday, August 13, 12:30-14:00 | AQWU | Augasse 2-6, 1090 Vienna |
| Wednesday, August 15, 12:00-13:30 | GUTH and | Feistmantelstrasse 4, 1180 Vienna; |
| Tuesday, Thursday, August 14, 16, 12:30-14:00 | SIMH | Peter Jordan Strasse 65, 1180 Vienna |

Oral Presentation

Authors are kindly asked to provide the session chairmen with their slides before the session. You may wish to use your own notebook if your presentation contains animations. A laser pointer will be provided

Conference hotline

If you need any help, please call the hotline at:

0043 6648654602 or over WeChat / WhatsApp (same as tel. number).

Dear Colleagues,

It is our great pleasure to welcome you to the China-Europe Conference on Geotechnical Engineering at BOKU, Vienna. This unique conference is intended to bring together researchers and practitioners from China, Europe and the world to share recent advances in geotechnical engineering. The response following our call has been overwhelming with about 350 participants from some 30 countries in the six continents. The 420 papers are published by Springer Nature, and the 300 oral presentations will be presented in 14 parallel sessions covering virtually the entire spectrum of geotechnical engineering. A special session is dedicated to Prof. Gerd Gudehus on occasion of his 80th birthday.

We would like to take this opportunity to express our thanks to all people who help make this conference a success. We wish you an enjoyable week in Vienna.

Wei Wu & Hsi-sui Yu
Conference chairmen

Program overview

| Sunday 12th Aug | Monday 13th Aug | Tuesday 14th Aug | Wednesday 15th Aug | Thursday 16th Aug | Friday 17th Aug |
|----------------------------------|---|--|---|---------------------------------------|---------------------------------|
| | Registration 08:30-17:00 | Registration 08:30-17:00 | Registration 08:30-17:00 | Registration 08:30-10:00 | 09:00-17:00 Technical Excursion |
| | 08:30-09:00 Opening Cerem- ony | 08:30-10:00 Parallel ses- sions | 08:30-09:30 Plenary lecture Richard Jardine | 08:30-10:00 Parallel ses- sions | |
| | 09:00-10:00 Plenary lecture Eduardo E. Alonso | | | | |
| | 10:00-10:30 Coffee break | 10:00-10:30 Coffee break | 09:30-10:00 Coffee break | 10:00-10:30 Coffee break | |
| | 10:30-11:30 Plenary lecture Zuyu Chen | 10:30-12:30 Parallel ses- sions | 10:00-12:00 Parallel ses- sions | 10:30-12:30 Parallel ses- sions | |
| | 11:30-12:30 Plenary lecture Michele Jamiol- kowski | | | | |
| | 12:30-14:00 Lunch | 12:30-14:00 Lunch | 12:00-13:30 Lunch | 12:30-14:00 Lunch | |
| 14:00-21:00 Registration | 14:00-15:00 Plenary lecture Pierre-Yves Hicher | 14:00-16:00 Parallel ses- sions | 14:00-16:00 Parallel ses- sions | 14:00-15:00 Closing Ceremony | |
| | 15:00-16:00 Plenary lecture Mario Manassero | | | | |
| | 16:00-16:30 Coffee Break | 16:00-16:30 Coffee Break | 15:30-16:00 Coffee Break | | |
| | 16:30-17:30 Plenary lecture Charles W. W. Ng | 16:30-18:00 Parallel ses- sions | 16:00-17:30 Parallel ses- sions | | |
| | 17:30-18:30 Plenary lecture Chang-Yu Ou | | | | |
| 18:00 -22:00 Welcome Drink | | 20:15-22:00 Concert at the Golden Hall | 19:00-22:00 Conference Dinner | | |

Social events

Admission to all social events except the concert at the Golden Hall is included in your conference registration fee. The concert tickets are included only for full and guest registration but can be purchased separately.

Your name badge is required for admission to all events.

1. Welcome Drink in the inner yard of Gregor Mendel Haus

Sunday, August 12, 18:00-22:00

Address: Gregor Mendel Strasse 33, 1180 Vienna

Public transport: bus station: Dänenstraße (40A/10A); Linneplatz (40A)

For bad weather, the welcome drink will be in SCWH Peter Jordan Strasse 82

Get to know the conference venue and meet the CECGE2018 participants, collect your registration package and enjoy the casual drink and light snacks.



2. Concert at the Golden Hall

Tuesday, August 14, 20:15-22:00

Address: Musikvereinsplatz 1, 1010 Vienna

Public transport: 1/2/71/D tram station: Kärntner Ring Oper; or U1/U2/U4 subway station: Karlsplatz.

From BOKU: Take bus 40A to Schottentor, and then subway line U2 to Karlsplatz.

Meet the CECGE2018 participants and enjoy the classical music in the Golden Hall

of the Musikverein, Vienna. We suggest you to arrive 20-30 minutes before the concert is scheduled to begin. Please dress for the occasion in suits and ties, or nice dresses or pantsuits. Training- or street wear is generally not permitted.

For Full and Guest Registration only (Registration as student is not included)

3. Banquet in the restaurant Buschenschank Fuhrgassl-Huber

Wednesday, August 15, 19:00-22:00

Address: Neustift am Walde 68, 1190 Vienna

Public transport: 35A bus station:

Neustift am Walde.



Join us in a convivial atmosphere with CECGE2018 participants and organizers. The banquet will take place in the restaurant Buschenschank Fuhrgassl-Huber, which is a popular wine tavern in the middle of Neustift am Walde (an independent municipality in the outskirts of Vienna)

Plenary lectures

Session chairmen: Wei Wu (Vienna, Austria)
Haisui Yu (Leeds, UK)

13th Aug 08:30-18:30

Session room Audimax C1.5.1 (Augasse 2-6, 1st floor)

08:30-09:30 **Opening Ceremony**

09:00-10:00 **Tunnelling in Urban Environments. Protecting Sensitive Buildings**
Eduardo E. Alonso

10:00-10:30 **Coffee break**

10:30-11:30 **Extensions to the Limit Equilibrium and Limit Analysis in Geomechanics**
Zuyu Chen

11:30-12:30 **Zelazny Most Tailings Disposal – Geotechnical Challenges**
Michele Jamiolkowski, Waldemar Świdziński, and Miroslaw Lipinski

12:30-14:00 **Lunch break**

14:00-15:00 **Multi-scale Modelling of Crushable Granular Materials**
Pierre-Yves Hicher

15:00-16:00 **Modelling Hydro-Chemo-Mechanical Behaviour of Active Clays Through the Fabric Boundary Surface**
Mario Manassero, Andrea Dominijanni, and Nicolò Guarena

16:00-16:30 **Coffee break**

16:30-17:30 **Bioengineering for Slope Stabilisation Using Plants: Hydrological and Mechanical Effects**
C. W. W. Ng, A. K. Leung, and J. J. Ni

17:30-18:30 **Performance of Composite Buttress and Cross Walls to Control Deformations Induced by Excavation**
Aswin Lim, and Chang-Yu Ou

15th Aug 08:30-09:30

Session room HS1 (Feistmantelstrasse 4, 1st and 2nd floor)

08:30-09:30 **Joint Research into the Behaviour of Driven Piles**
R. J. Jardine, and Z. X. Yang

Prof. Eduardo Alonso

13 Aug 9:00-10:00 **Tunnelling in Urban Environments. Protecting Sensitive Buildings**



Eduardo Alonso has been Professor of Geotechnical Engineering at the Civil Engineering School of UPC since 1986. He is a past Dean of the School and a past Vice-Rector for research at UPC.

His main research interests include the stochastic analysis of soil heterogeneity, unsaturated soil mechanics, rockfill mechanics, dam engineering, coupled thermo-hydro-mechanical, analysis, landslide research and some chemo-mechanical interactions.

He is known for his contributions to develop unsaturated soil mechanics and his involvement in a variety of Geotechnical Engineering cases, particularly those involving catastrophic failures. He has acted as a geotechnical consultant in several countries.

He is member of the Royal Academy of Engineering of Spain and he is the immediate past Editor of ICE journal *Géotechnique*. Past honorary lectures include Coulomb, Buchanan, Sowers, Croce, Heim, Kezdi, Rocha, BGA Touring lectures, Rankine and Leonards.



Prof. Zuyu Chen

13 Aug 10:00-11:00 **Extensions to the Limit Equilibrium and Limit Analysis in Geomechanics**

Zuyu Chen was born in 1943 in China and got his PhD at the Department of Hydraulic Engineering, Tsinghua University in 1991. Since 1981, he has worked as a senior research engineer of China Institute of Water Resources and Hydropower Research. Dr. Chen has been actively involved in research and consulting work on slope stability analysis and engineering.

He has published more than 100 papers on this subject, covering his research findings on limit equilibrium and limit analysis methods. As an expert of the World Bank, China Ministry of Water Resources and China Ministry of Energy, he has been extensively involved in the consulting activities for water resources development, which includes the Three Gorges, Xiaolangdi and the Yangtze River Dyke Strengthening Projects. Dr. Chen was elected member of Chinese Academy of Sciences in 2005.



Prof. Michele Jamiolkowski

13th Aug, 11:20-12:30 **Zelazny Most Tailings Disposal
– Geotechnical Challenges**

Michele Jamiolkowski, born in Poland, is Professor Emeritus in the Department of Geotechnical Engineering at the University of Torino. In 1964 he founded the engineering consulting company Studio Geotecnico Italiano in Italy.

His primary research interests include the mechanical behavior of soils, laboratory and in situ testing, soil dynamics, shallow foundations, and soil improvement. He is author of over 250 publications, many of them state-of-the-art keynote lectures or reports. He was President of the International Committee for Safeguarding the Leaning Tower of Pisa from 1990 to 2001. Working closely with Professors John Burland and Carlo Viggiani, he ensured the safety of the Pisa tower for a further 300 years through the technique of underexcavation.

He is chairman of the international panel of experts for the Zelazny Most copper mine tailings pond, as well as chairman of the technical committee for safeguarding the historic monuments of Rome during construction of the tunnels for the new subway line C. He also held the presidency of the International Society of Soil Mechanics and Geotechnical Engineering from 1994-1997.

Prof. Mario Manassero

13th Aug, 15:00-16:00 **Modelling Hydro-Chemo-Mechanical
Behaviour of Active Clays through the Fabric Boundary Surface**



Mario Manassero is Professor of Geotechnical Engineering at Politecnico di Torino and is the Vice-President for Europe of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) for the term 2017-2021.

His main research activities are devoted to the characterization of soil deposits by in-situ tests, soil improvement and reinforcement methods, containment systems for landfills and polluted subsoils, vacuum extraction of subsoil pollutants and the mechanical behavior of municipal and industrial solid wastes. He was involved in many landmark engineering

projects such as the protection of the Venice lagoon, the reclamation and rehabilitation of the Rome International Airport area.

He has authored, co-authored and/or edited five books and more than 150 technical and scientific papers in journals and conference proceedings. He has been invited lecturer in a number of international conferences and academic celebrations. Among them it is worth to mention the State of the Art Lecture on Environmental Geotechnics (GEOENG2000) and the second R. Kerry Rowe Lecturer (ICSMGE, 2017).



Prof. Pierre-Yves Hicher

13th Aug, 14:00-15:00 **Multi-scale Modelling of
Crushable Granular Materials**

Pierre-Yves Hicher is Emeritus Professor at the Ecole Centrale de Nantes. For the last twenty years, he directed both the Regional Institute for Research in Civil Engineering and Construction and the Research Institute in Civil Engineering and Mechanics, UMR CNRS-Ecole Centrale Nantes-University of Nantes in France.

His principal research is in the field of the mechanical behaviour of soils and granular materials. He has made major contributions to developing a methodology for connecting macroscopic properties to the micro structure of heterogeneous materials. He has also contributed to the knowledge of material properties under complex loading paths by developing original experimental procedures and parameter identification methods under inverse analysis techniques.

He has published more than 100 journal papers and several books. He has been invited for keynote and theme lectures in international conferences and has served as an associated editor for the Journal of Engineering mechanics and editorial board member in different journals. He was awarded Fellow membership by the Engineering Mechanics Institute (EMI) in 2015.



Prof. Charles W. W. Ng

13th Aug, 16:20-17:20 **Bioengineering for Slope Stabilisation
Using Plants: Hydrological and Mechanical Effects**

Charles W. W. Ng is currently the CLP Holdings Professor of Sustainability, Chair Professor in the Department of Civil and Environmental Engineering and Associate Vice-President for Research and Graduate Studies at the Hong Kong University of Science and Technology (HKUST). He is also the President of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE).

He has published some 300 SCI journal articles and 230 conference papers and delivered more than 50 keynotes and state-of-the-art reports. He is the main author of two reference books: (i) Soil-structure Engineering of Deep Foundations, Excavations and Tunnels and (ii) Advanced Unsaturated Soil Mechanics and Engineering.

He was elected an Overseas Fellow from Churchill College, Cambridge University, in 2005 and Fellow of the Hong Kong Academy of Engineering Sciences in 2008. He was elected Changjiang Scholar in China in 2010. Recently, he has delivered the 2017 Huangwenxi Lecture on "Atmosphere-plant-soil-interactions: theories and mechanisms", which is the most distinguished named lecture in geotechnical engineering in China.

Prof. Chang-Yu Ou

13th Aug, 17:20-18:20 **Performance of Composite Buttress and
Cross Walls to Control Deformations Induced by Excavation**



Chang-Yu Ou is a chair professor of the Department of Civil and Construction Engineering at National Taiwan University of Science and Technology, Taipei, Taiwan, C.

He received his Doctoral Degrees from Stanford University in 1987. He was the Dean of College of Engineering at the National Taiwan University of Science and Technology. He was also the Director of Ecological and Hazard Mitigation Engineering Research Center of the National Taiwan University of Science and Technology, Taipei, Taiwan. He was the President of Taiwan Geotechnical Society.

His areas of interest are deep excavations, soil behaviour, soft ground tunneling and ground improvement. He has published more than 100 journal papers, most of which are with SCI

index, and many conference papers. He also has published a monograph book regarding deep excavation in English by Taylor and Francis (2006) and three deep excavation books in Chinese.

He has received three outstanding research awards from the National Science Council and many journal paper awards.



Prof. Richard Jardine

15th Aug, 08:30-09:30 **Joint Research into the Behaviour of Driven Piles**

Richard Jardine is Professor of Geomechanics and Deputy Head of Civil and Environmental Engineering at Imperial College. His research focuses principally on advanced soil characterisation, field instrumentation, offshore geotechnics, geohazards and transport geotechnics. Richard has led several large recent projects related to advanced laboratory research and offshore foundation design for oil, gas and wind-energy projects.

Richard is a Fellow of the UK Royal Academy of Engineering and holds a Royal Society Advanced Newton Fellowship Award with colleagues at ZJU in China.

He has won 18 UK and International research prizes and has published over 250 papers. He sits on three ISSMGE Technical Committees and three International Offshore Geotechnical Engineering (API, ISO and SUT) Committees.

Richard's recent keynotes include the Bishop (Paris 2013), Sowers (Atlanta 2014), Rankine (London 2016, repeated since in over 20 countries), Milligan (2016, Kingston & Toronto Canada), Lovell (2016, Purdue USA), Wissa (2016, Tampa USA) and the Dutch Royal Engineering Society 2017 Geotechnics Day (Breda) Lectures.

Parallel session overview

| | | Room 01/26 | Room 03/08 | Room 03/28 | Room 03/36 | Room 03/39 | Room 01/43 | Room 01/36.1 |
|-------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------------|
| 14th Aug | 08:30 - 10:00 | GS | 1 | 10 | 4 | 5 | 7 | 9 |
| | 10:30 - 12:30 | | | | | | | |
| | 14:00 - 16:00 | | 2 | 3 | 8 | 11 | 6 | 12 |
| | 16:30 - 18:30 | | | | | | | |
| 15th Aug | 10:00 - 12:00 | | | | | | | |
| | 13:30 - 15:30 | | | | | | | |
| | 16:00 - 17:30 | | | | | | | |
| 16th Aug | 08:30 - 10:00 | | | | | | | 13 |
| | 10:30 - 12:30 | | | | | | | |
| | 14:00 - 16:00 | | | | | | | |

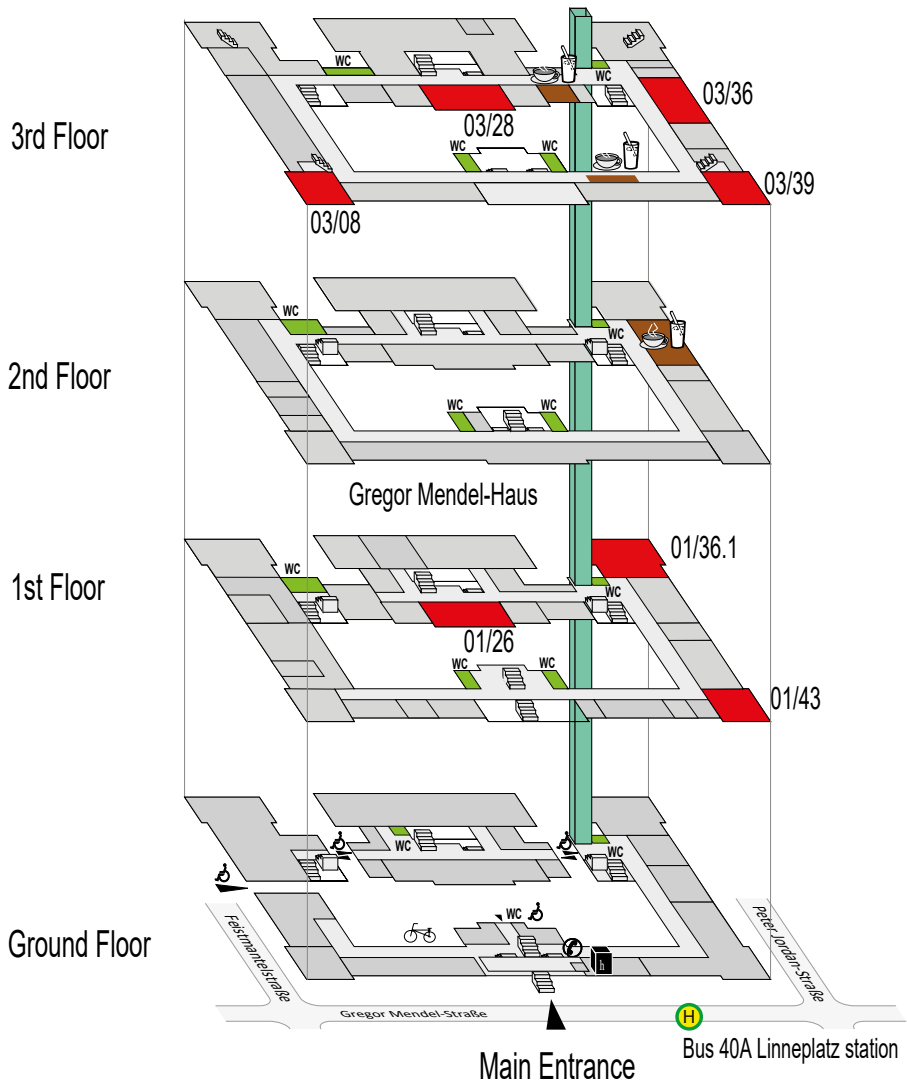
| No. | Session Name | Chairmen | Date |
|-----|---|---|--------------|
| GS | Workshop in honor of Gudehus' 80 th birthday | Alexander Scheuermann; Torsten Wichtmann | August 14-16 |
| 1 | Constitutive model | Erich Bauer; Maosong Huang; Jun Yang | August 14 |
| 2 | Micro-macro relationship | Mingjing Jiang; Stefan Luding | August 15-16 |
| 3 | Numerical simulation | Helmut F. Schweiger; Jidong Zhao | August 14-16 |
| 4 | Laboratory testing | Dariusz Wanatowski; Longtan Shao | August 14-15 |
| 5 | Geotechnical monitoring, instrumentation and field test | Roberto Cudmani; Anbin Huang | August 14 |
| 6 | Foundation engineering | Renpeng Chen; Jana Frankovska; Herbert Klapperich | August 14-16 |
| 7 | Environmental geotechnics | Rafiq Azzam; Yanjun Du; Brendan O'Kelly | August 14 |
| 8 | Geotechnics in transportation, structural and hydraulic Engineering, | Vincenzo Fioravante ; Erxiang Song; Ashutosh Trivedi | August 15-16 |
| 9 | New geomaterials and ground improvement | Marcos Arroyo; Jian Zhou | August 14 |
| 10 | Underground construction | Günther Meschke; Hehua Zhu | August 14 |
| 11 | Geohazards – risk assessment, mitigation and prevention | Xueyu Geng; Stefano Utili | August 15-16 |
| 12 | Unsaturated soils and energy geotechnics | Dariusz Łydźba; Weimin Ye | August 14-15 |
| 13 | Cold regions geotechnical engineering | Seyed Amiri; Jilin Qi | August 15-16 |



Parallel Session Floorplan

Gregor Mendel-Haus (MENH), BOKU

Gregor Mendelstrasse 33, 1180 Vienna



Workshop in honor of Gudehus' 80th birthday

Session chairmen: Alexander Scheuermann (Queensland, Australia)
Torsten Wichtmann (Weimar, Germany)

14th Aug 08:30-10:00

Session room MENH (01/26)

- 08:30-09:00 **Laudation**
D. Kolymbas
- 09:00-09:30 **Four Major Constructions in Japan and Their Geotechnical Tasks**
Toshihisa Adachi
- 09:30-10:00 **Deformation and Strength of Transversely Isotropic Rocks**
Yang Zhao, and Ronaldo I. Borja

14th Aug 10:30-12:30

Session room MENH (01/26)

- 10:30-11:00 **Fabric: A Missing Link Between Critical State and Critical State Theory**
A. I. Theocharis, E. Vairaktaris¹, Y. F. Dafalias, and A. G. Papadimitriou
- 11:00-11:30 **Non-destructive Evaluation of Residual Tension of Ground Anchor Using Resonance Phenomenon**
A. Yashima, H. Saito, K. Aoike, M. Yamazaki, Y. Sone, and T. Wachi
- 11:30-12:00 **The Development of the Material Point Method for Simulating Nonlocal Failure Evolution Involved in Multi-Phase Interactions**
Zhen Chen
- 12:00-12:30 **Approaches to Multi-hazard Landslide Risk Assessment**
Limin Zhang

14th Aug 14:00-16:00

Session room MENH (01/26)

- 14:00-14:30 **Discrete Element Modeling of Free-standing Wire Reinforced Jammed Granular Columns**
Pavel S. Iliev, Falk K. Wittel, and Hans J. Herrmann
- 14:30-15:00 **Hypoplastic Prediction of Path-dependent Failure in True Triaxial Tests of Granular Soils**
Wenxiong Huang
- 15:00-15:30 **On why and Where GSH Is Rate-independent**
Yimin Jiang, and Mario Liu
- 15:30-16:00 **Cyclical Softening of Plastic Soils: An Energy Approach**
Arcesio Lizcano

14th Aug 16:30-18:00

Session room MENH (01/26)

- 16:30-17:00 **Constitutive Relations from Particle Simulations**
Stefan Luding
- 17:00-17:30 **Modelling of Bentonite for Nuclear Waste Disposal Facilities with Hypoplasticity**
David Mašín
- 17:30-18:00 **Concepts of Barodesy**
Gertraud Medicus, Wolfgang Fellin, Dimitrios Kolymbas, and Fabian Schranz

15th Aug 10:00-12:00

Session room MENH (01/26)

- 10:00-10:30 **A Model for Trap Door Flow from a Deep Container**
H. B. Muhlhaus, and L. N. Moresi
- 10:30-11:00 **Development of Hypoplastic Models: Neo-hypoplasticity**
Andrzej Niemunis
- 11:00-11:30 **Modelling of Grain Fragmentation in Hypoplasticity**
Erich Bauer
- 11:30-12:00 **On How to Look Inside Geomaterials**
Alexander Scheuermann
- 12:00-12:30 **An Anisotropic Hypoplastic Model for Granular Soils**
Zhongxuan Yang

15th Aug 13:30-15:30

Session room MENH (01/26)

- 13:30-14:00 **On the Formulation of Multiphase Porous Geomaterials**
Fusao Oka, and Sayuri Komoto
- 14:00-14:30 **The Biot Coefficient for a Low Permeability Geomaterial with a Heterogeneous Fabric**
A.P.S. Selvadurai
- 14:30-15:00 **On the Use of the Finite Element Method for the Design of Offshore Wind Turbine Foundations**
Hendrik Sturm
- 15:00-15:30 **Hypoplasticity-based Formulation of Macroelement Models for Shallow and Deep Foundations**
Claudio Tamagnini

15th Aug 16:00-17:30

Session room MENH (01/26)

- 16:00-16:30 **Significance and Usefulness of the *tij* Concept**
Teruo Nakai
- 16:30-17:00 **Fabric Evolution in Granular Materials under Strain Probing**
Mehdi Pouragha, Niels P. Kruyt, and Richard Wan
- 17:00-17:30 **Soils under High- and Low-cycle Loading Experiments vs. Predictions by Constitutive Models**
Torsten Wichtmann

16th Aug 08:30-10:00

Session room MENH (01/26)

- 08:30-09:00 **Modelling of Shaking-induced Slope Displacements During Strong Earthquakes**
Roberto Cudmani
- 09:00-09:30 **On the Simulation of the Cyclic Mobility Effect with an ISA-hypoplastic Model**
W. Fuentes, and C. Lascarro
- 09:30-10:00 **Effective Stress and Effective Stress Equation**
Longtan Shao

1. Constitutive model

Session chairmen: Erich Bauer (Graz, Austria)
Maosong Huang (Shanghai, China)
Jun Yang (Hongkong, China)

14th Aug 08:30-10:00

Session room MENH (03/08)

- 08:30-09:00 **UH model for Granular Soils (invited talk)**
Yangping Yao, Lin Liu, and Ting Luo
- 09:00-09:20 **A Visco-hypoplastic Constitutive Model and its Implementation**
Guofang Xu, Wei Wu, Jilin Qi, Xiaoliang Yao, Fan Yu, and Aiguo Guo
- 09:20-09:40 **A Hard-sphere Model for Wet Granular Dynamics**
Kai Huang
- 09:40-10:00 **Hypoplastic Simulation of Axisymmetric Interface Shear Tests in Granular Media**
Hans Henning Stutz, and Alejandro Martinez

14th Aug 10:30-12:30

Session room MENH (03/08)

- 10:30-10:50 **Review of N Models in Simulating Mechanical Behavior of Clays**
Jianhong Jiang, Hoe I. Ling, and Victor N. Kaliakin
- 10:50-11:10 **Modelling Root-reinforced Soils with Nor-Sand**
Barbara M. Switata, and E. James Fern
- 11:10-11:30 **A Simple Anisotropic Mohr-Coulomb Strength Criterion for Granular Soils**
Wei Cao, Rui Wang, and Jianmin Zhang
- 11:30-11:50 **Influence of Multidirectional Principal Stress Axes Rotation Sequences on Deformation of Sand**
Long Xue, Rui Wang, and Jianmin Zhang
- 11:50-12:10 **Constitutive Model for Granular-fluid Flows Based on Stress Decomposition**
Xiaogang Guo, Wei Wu, Liangtong Zhan, and Ping Chen
- 12:10-12:30 **The Hypoplastic Model Expressed by Mean Stress and Deviatoric Stress Ratio**
Xuzhen He, Wei Wu, Dichuan Zhang and Jong Kim

14th Aug 14:00-16:00

Session room MENH (03/08)

- 14:00-14:20 **A Multi-Phase-Field Anisotropic Damage-Plasticity Model for Crystal Line Rocks**
SeonHong Na, and Waiching Sun
- 14:20-14:40 **A Sand Model Incorporating an Analytical Back Stress Evolution Rule**
Zhongxuan Yang
- 14:40-15:00 **Modelling Volumetric Behaviour of Nanyang Expansive Clay**
Weilie Zou, Xiequn Wang, Zhong Han, and Dongxing Wang
- 15:00-15:20 **A Nonlinear Elastic Model for Dilatant Coarse-Grained Materials**
Sihong Liu, Yi Sun, and Cao-Min Shen
- 15:20-15:40 **Experience of Parameter Optimization of the High-Cycle Accumulation Model for Undrained Triaxial Tests on Sand**
Yining Teng, Hans Petter Jostad, and Youhu Zhang
- 15:40-16:00 **A Simple Hypoplastic Model and its FE Implementation**
Shun Wang, Wei Wu, Xuzhen He, Dichuan Zhang, and Jong Kim

14th Aug 16:30-18:00

Session room MENH (03/08)

- 16:30-16:50 **Strain-Rate and Temperature Dependency for Preconsolidation Pressure of Soft Clay**
Ting Li, Qiyin Zhu, and Lian-Fei Kuang
- 16:50-17:10 **Calibration and Verification of a Hypoplastic Constitutive Model for Weathered and Moisture Sensitive Rockfills**
Linke Li, and Erich Bauer
- 17:10-17:30 **Towards a Better Understanding of the Mechanics of Soil Liquefaction**
Jun Yang, H.Y. Eric Sze, Liming Wei, and Xiao Wei

2. Micro-macro relationship

Session chairmen: Mingjing Jiang (Shanghai, China)
Stefan Luding (Twente, Netherland)

15th Aug 10:00-12:00

Session room MENH (03/08)

- 10:00-10:20 **Simulation of One-dimensional Compression of Sand considering Irregular Grain Shapes and Grain Breakage**
Fan Zhu, and Jidong Zhao
- 10:20-10:40 **An Analytical Study of the Bi-Rock System considering Interface Effect**
Xingwei Chen, and Zhongqi Quentin Yue
- 10:40-11:00 **DEM Simulation of Wave Propagation in Anisotropic Granular Soil**
Xiaoqiang Gu, and Shuocheng Yang
- 11:00-11:20 **Investigating the Mechanical Behavior of Pore-Filling Type Methane Hydrate Bearing Sediments by the Discrete Element Method**
Mingjing Jiang, Wenkai Zhu, and Jie He
- 11:20-11:40 **Validation of Synthetic Images for Contact Fabric Generated by DEM**
Max Wiebicke, Vaclav Smilauer, Ivo Herle and Edward Ando, and Gioacchino Viggiani
- 11:40-12:00 **DEM Simulation of Oedometer Tests with Grain Crushing Effects**
Jia Lin, Erich Bauer, and Wei Wu

15th Aug 13:30-15:30

Session room MENH (03/08)

- 13:30-13:50 **DEM Investigation of Fracture Characteristic of Calcareous Sand Particles under Dynamic Compression**
Lei Wang, Xiang Jiang, Hanlong Liu, and Yang Xiao
- 13:50-14:10 **Evaluation of Grain Shape Parameters of Fujian Standard Sand**
Shuai Li, Wanjuan Zhou, Xueying Jing, and Huaxiang Zhu
- 14:10-14:30 **Size Effects in Cone Penetration Tests in Sand**
Peizhi Zhuang, and Hai-Sui Yu
- 14:30-14:50 **Investigation on Stress-Fabric Relation for Anisotropic Granular Material**
Jiangu Qian, Weiyi Li, and Xiaoqiang Gu
- 14:50-15:10 **Micromechanical Analysis of the At-Rest Lateral Pressure Coefficient of Granular Materials**
Chaomin Shen, and Sihong Liu
- 15:10-15:30 **Shortcomings of Existing Scan Line Void Fabric Tensors**
A. I. Theocharis, E. Vairaktaris, and Y. F. Dafalias

15th Aug 16:00-17:30

Session room MENH (03/08)

- 16:00-16:20 **Analytical Data Based Time-dependent Mechanical Responses of an Intergranular Bond Considering Various Bond Sizes**
Huaning Wang, Na Che, H. Gong, and M. J. Jiang
- 16:20-16:40 **Kinematic Nature of Sand Strength**
Zenon Szypcio
- 16:40-17:00 **Natural State Parameter for Sand**
Katarzyna Dołyżk-Szypcio
- 17:00-17:20 **The Effect of Particle Shape Polydispersity on Deformability of Granular Materials**
Yuxuan Che, Fang Liu, and Gang Deng

16th Aug 08:30-10:00

Session room MENH (03/08)

- 08:30-08:50 **Calibrating the Strength Ratio and the Failure Envelope for DEM Modeling of Quasi-Brittle Materials**
Yifei Ma, and Haiying Huang
- 08:50-09:10 **DEM Simulation of the Behavior of Rockfill Sheared with Different Intermediate Principle Stress Ratios**
Juntian Hong, Ming Xu, and Erxiang Song
- 09:10-09:30 **Grain Learning: Bayesian Calibration of DEM Models and Validation Against Elastic Wave Propagation**
Hongyang Cheng, Takayuki Shuku, Klaus Thoeni, Pamela Tempone, Stefan Luding, and Vanessa Magnanimo
- 09:30-09:50 **Induced Crack Network Evolution in Geomaterials: μ CT Examination and Mathematical Morphology Based Analysis**
Maciej Sobótka, Michał Pachnicz, and Magdalena Rajczakowska

16th Aug 10:30-11:30

Session room MENH (03/08)

- 10:30-10:50 **DEM Simulation of Sand Liquefaction under Partially Drained Conditions**
Qianqian Hu, Rui Wang, and Jianmin Zhang
- 10:50-11:10 **Dilatancy Phenomenon Study in Remolded Clays – A Micro-Macro Investigation**
Qianfeng Gao, Mohamad Jrad, Lamine Ighil Ameer, Mahdia Hattab, and Jean-Marie Fleureau
- 11:10-11:30 **Linking Microstructural Behavior with Macrostructural Observations on Unsaturated Porous Media**
Hiram Arroyo, and Eduardo Rojas

3. Numerical simulation

Session chairmen: Helmut F. Schweiger (Graz, Austria)
Jidong Zhao (Hongkong, China)

14th Aug 16:30-18:00

Session room MENH (03/28)

- 16:30-16:50 **Experimental and Numerical Study of the Mechanical Properties of Granite after High Temperature Exposure**
Suran Wang, and Youliang Chen
- 16:50-17:10 **Numerical Simulation of a Post-Grouted Anchor and Validation with In-Situ Measurements**
Carla Fabris, Václav Račanský, Boštjan Pulko, and Helmut F. Schweiger
- 17:10-17:30 **Numerical Simulation of the Bearing Capacity of a Quadrate Footing on Landfill**
Dawei Xue, and Xilin Lv
- 17:30-17:50 **Dynamic Analysis by Lattice Element Method Simulation**
Zarghaam Haider Rizvi, Frank Wuttke, and Amir Shorian Sattari
- 17:50-18:10 **DEM Investigation of Particle Crushing Effects on Static and Dynamic Penetration Tests**
Ningning Zhang, Marcos Arroyo, Antonio Gens, and Matteo O. Ciantia

15th Aug 10:00-12:00

Session room MENH (03/28)

- 10:00-10:30 **Global Method for Stability Analysis of Slopes with Anchor Reinforcement (invited talk)**
Tan Zhang, Hong Zheng, and Cong Sun
- 10:30-10:50 **Numerical Analyses with an Equivalent Continuum Constitutive Model for Reinforced Soils with Angled Bar Components**
Seyed Mehdi Nasrollahi, and Ehsan Seyed Hosseininia
- 10:50-11:10 **Numerical Analysis of Spudcan-Footprint Interaction Using Coupled Eulerian-Lagrangian Approach**
Jingbin Zheng, and Dong Wang
- 11:10-11:30 **Multiscale Modeling of Large Deformation in Geomechanics: A Coupled MPM-DEM Approach**
Jidong Zhao, and Weijian Liang
- 11:30-11:50 **Modelling of Deep Excavation Collapse Using Hypoplastic Model for Soft Clays**
Jan Jerman, and David Mašín
- 11:50-12:10 **Transversely Isotropic Strength Criterion for Soils based on the Characteristic Mobilized Plane**
Jingyu Liang, Dechun Lu, and Chao Ma, Xiuli Du

15th Aug 13:30-15:30

Session room MENH (03/28)

- 13:30-14:00 **Applications of the Particle Finite Element Method in Soil-tool Interaction Problems (invited talk)**
Lluís Monforte, Marcos Arroyo, Maxat Mamirov, and Jong R. Kim A
- 14:00-14:20 **Upper Bound Solution for Ultimate Bearing Capacity of Suction Caisson Foundation Based on Hill Failure Mode**
Wenbo Zhu, Guoliang Dai, Weiming Gong, and Xueliang Zhao
- 14:20-14:40 **GPU-accelerated Three-dimensional SPH Solver for Geotechnical Applications**
Chong Peng, Wei Wu, and Haisui Yu
- 14:40-15:00 **Numerical Modelling of a Monopile for Estimating the Natural Frequency of an Offshore Wind Turbine**
David Igoe, Luke J. Prendergast, Breiffni Fitzgerald, and Saptarshi Sarkar
- 15:00-15:20 **Construction Simulation and Sensitivity Analysis of Underground Caverns in Fault Region**
Chao Su, and Yijia Dong
- 15:20-15:40 **Enriched Galerkin Finite Element Method for Locally Mass Conservative Simulation of Coupled Hydromechanical Problems**
Jinhyun Choo, and Sanghyun Lee

15th Aug 16:00-17:30

Session room MENH (03/28)

- 16:00-16:20 **An Optimization-Based Parameter Identification Tool for Geotechnical Engineering**
Zhenyu Yin, and Yinfu Jin
- 16:20-16:40 **Influence of Individual Strut Failure on Performance of Deep Excavative on in Soft Soil**
Kamchai Choosrithong, and Helmut F. Schweiger
- 16:40-17:00 **Seepage and Deformation Analyses in Unsaturated Soils using ANSYS**
Yangyang Li, Harianto Rahardjo, and K.N. Irvine
- 17:00-17:20 **Extrusion Flow Modelling of Concentrated Mineral Suspensions**
Chuan Chen, Damien Rangedard, and Arnaud Perrot

16th Aug 08:30-10:00

Session room MENH (03/28)

- 08:30-08:50 **MPM Simulations of the Impact of Fast Landslides on Retaining Dams**
Francesca Ceccato, Paolo Simonini, and Veronica Girardi
- 08:50-09:10 **Simulation of Caisson Foundation in Sand using a Critical State Based Soil Model**
Zhuang Jin, Zhenyu Yin, Panagiotis Kotronis, and Zexiang Wu
- 09:10-09:30 **Numerical Simulation of Plane Wave Propagation in A Semi-Infinite Media with a Linear Hardening Plastic Constitutive Model**
Erxiang Song, Abbas Haider, and Peng Li
- 09:30-09:50 **How Spatial Variability of Initial Porosity and Fines Content Affects Internal Erosion in Soils**
Jie Yang, Zhenyu Yin, Pierre Yves Hicher, and Farid Laouafa

16th Aug 10:30-12:00

Session room MENH (03/28)

- 10:30-10:50 **Effect of Principal Stress Rotation on the Wave-Induced Seabed Response around a Submerged Breakwater**
Hongyi Zhao, Jianfeng Zhu, and Dongsheng Zheng
- 10:50-11:10 **Implementation of Advanced Constitutive Models for the Prediction of Surface Subsidence after Underground Mineral Extraction**
Yury Derbin, James Walker, Dariusz Wanatowski, and Alec M Marshall
- 11:10-11:30 **SPH-FDM Boundary Method for the Heat Conduction of Geotechnical Materials considering Phase Transition**
Bing Bai, Dengyu Rao, Nan Wu, and Tao Xu
- 11:30-11:50 **An Improved Beam-Spring Model for Excavation Support**
Biao Huang, Mingguang Li, Jinjian Chen, Yongmao Hou, and Jianhua Wang
- 11:50-12:10 **Boundary Element Analysis of Geomechanical Problems**
Sha Xiao, and Zhongqi Yue

4. Laboratory testing

Session chairmen: Dariusz Wanatowski (Leeds, UK)
Longtan Shao (Dalian, China)

14th Aug 08:30-10:00

Session room MENH (03/36)

- 08:30-08:50 **Shear Band Between Steel and Carbonate Sand under Monotonic and Cyclic Loading**
Shengjie Rui, Zhen Guo, Lizhong Wang, Wenjie Zhou, and Kanmin Shen
- 08:50-09:10 **Digital Image Measurement System for Soil Specimens in Triaxial Tests**
Longtan Shao, Xiaoxia Guo, and Boya Zhao
- 09:10-09:30 **Adaptive Strength Criterion of Sandy Gravel Material Based on Large-scale True Triaxial tests**
Yuefeng Zhou, Jiajun Pan, Zhanlin Cheng, and Yongzhen Zuo
- 09:30-09:50 **Comparative Study on the Compressibility and Shear Parameters of a Clayey Soil**
Erik Schwiteilo, and Ivo Herle

14th Aug 10:30-12:30

Session room MENH (03/36)

- 10:30-10:50 **Different Oven-Drying Temperatures**
Brendan O'Kelly, and Weichao Li
- 10:50-11:10 **Creep of Reconstituted Silty Clay with Different Pre-Loading**
Minyun Hu, Bin Xiao, Shuchong Wu, Peijiao Zhou, and Yuke Lu
- 11:10-11:30 **Undrained Shear Behaviour of Gassy Clay with Varying Initial Pore Water Pressures**
Yi Hong, L.Z. Wang, and B. Yang
- 11:30-11:50 **True Triaxial Tests on Natural Shanghai Clay**
Guanlin Ye, Shuo Zhang, Yunqi Song, and Jianhua Wang
- 11:50-12:10 **Introducing a New Test System for the Rock-Machine Interaction**
S.D. Li, Zhongming Zhou, and W.S. Hou
- 12:10-12:30 **A Parallel Comparison of Small-strain Shear Modulus in Bender Element and Resonant Column Tests**
Xin Liu, and Jun Yang

14th Aug 14:00-16:00

Session room MENH (03/36)

- 14:00-14:20 **Thermo-mechanical Behavior of Reinforced Concretes for Energy Piles**
Wei Huang, Wei Xiang, and Jin Luo

- 14:20-14:40 **Shear Modulus and Damping Ratio of Coarse Fused Quartz**
Gangqiang Kong, Hui Li, Qing Yang, Gang Yang, and Liang Chen
- 14:40-15:00 **Experimental Study of Small Strain Stiffness of Unsaturated Silty Clay**
Tomáš Mohyla, and Jan Boháč
- 15:00-15:20 **Study on Strength of Expanded Polystyrene Concrete Based on Orthogonal Test**
Quan You, Linchang Miao, Chao Li, Shengkun Hu, and Huanglei Fang
- 15:20-15:40 **Mechanical Behaviors of GRPS Track-Bed with Changing Water Levels and Loading Cycles**
Hanlin Wang, and Renpeng Chen
- 15:40-16:00 **Experimental Study on Static Liquefaction of Carbon Fiber Reinforced Loose Sand**
Xiaohua Bao, Zhiyang Jin, Hongzhi Cui, and Haiyan Ming

14th Aug 16:30-18:00

Session room MENH (03/36)

- 16:30-16:50 **Dynamic Behaviour of Wenchuan Sand with Nonplastic Fines**
Tugen Feng, Qiuying Qian, Fuhai Zhang, Mi Zhou, and Kejia Wang
- 16:50-17:10 **Open Science Interface Shear Device**
Hans Henning Stutz, Ralf Doose, and Frank Wuttke
- 17:10-17:30 **Effects of Soil Fabric on Volume Change Behaviour of Clay under Cyclic Heating and Cooling**
Qingyi Mu, C.W.W.Ng, C.Zhou, and H.J.Liao
- 17:30-17:50 **Direct Simple Shear Tests on Swedish Tailings**
Qi Jia, and Jan Laue

15th Aug 10:00-12:00

Session room MENH (03/36)

- 10:00-10:20 **Effects of Induced Anisotropies on Strength and Deformation Characteristics of Remolded Loess**
Yongzhen Feng, Wuyu Zhang, Lingxiao Liu, and Yanxia Ma
- 10:20-10:40 **Liquefaction of Firoozkuh Sand under Volumetric-Shear Coupled Strain Paths**
S.R. Falsafizadeh, and A. Lashkari
- 10:40-11:00 **Study on the Influence of Moisture Content on Mechanical Properties of Intact Loess in Qinghai, China**
Anbang Guo, Wuyu Zhang, Lingxiao Liu, and Yanxia Ma
- 11:00-11:20 **Development of a Large Temperature-Controlled Triaxial Device for Rockfill Materials**
Hangyu Mao, and Sihong Liu
- 11:20-11:40 **Shear Strength of Stabilized Dredged Soil from Izmir Bay**
Inci Develioglu, and Hasan Firat Pulat

5. Geotechnical monitoring, instrumentation and field test

Session chairmen: Roberto Cudmani (Munich, Germany)
Anbin Huang (Hsingchu, Taiwan, C.)

14th Aug 08:30-10:00

Session room MENH (03/39)

- 08:30-09:00 **Real-Time Monitoring to Inform the Construction of Large-Diameter Caissons (invited talk)**
Brian Sheil, Ronan Royston, and Byron Byrne
- 09:00-09:20 **Influences on CPT-Results in a Small Volume Calibration Chamber**
Florian T. Stähler, S. Kreiter, M. Goodarzi, D. Al-Sammarraie, T. Stanski, and T. Mörz
- 09:20-09:40 **Evaluation of Engineering Characteristics of South China Sea Sedimentary Soil in Sanya New Airport Based on CPTU Data**
Kuikui Li, Wencheng Liang, Guojun Cai, Songyu Liu, Yu Du, and Liuwen Zhu
- 09:40-10:00 **Evaluation of the Variation of Deformation Parameters before and after Pile Driving using SCPTU Data**
Wei Duan, Guojun Cai, Jun Yuan, and Songyu Liu

14th Aug 10:30-12:30

Session room MENH (03/39)

- 10:30-10:50 **Cyclic Tests with a New Pressuremeter Apparatus**
Soufyane Aissaoui, Abdeldjalil Zadjajoui, and Philippe Reiffsteck
- 10:50-11:10 **Life-Cycle Analysis of Foundation Structures using Sensor-Based Observation Methods**
Arne Kindler, and Karolina Nycz
- 11:10-11:30 **From Mobile Measurements to Permanent Integrity Control: New Geotechnical Monitoring Instruments for Leakage Detection and Localization**
Mike Priegnitz, and Ernst Geutebrück
- 11:30-11:50 **An Internet Based Intelligent System for Early Concrete Curing in Underground Structures**
Yongbin Wei, Jindi Lin, Wei Zhao, Chao Hou, Zhenhuan Yu, Maowei Qiao, and Bangan Liu
- 11:50-12:10 **Gravity Grouting and its Future Alternative for Soil Reinforcement Systems**
Mohammad Zahidul Islam Bhuiyan, and Shanyong Wang, Scott William Sloan, Daichao Sheng, Liang Kee Ming

12:10-12:30 **Development of IoT Sensing Modulus for Surficial Slope Failures**
Wenjong Chang, Anbin Huang, Shihhsun Chou, and Jyhfang Chen

14th Aug 14:00-16:00

Session room MENH (03/39)

- 14:00-14:30 **Monitoring a Flexible Barrier under the Impact of Large Boulder and Granular Flow Using Conventional and Optical Fibre Sensors (invited talk)**
Jianhua Yin, Jieqiong Qin, Dao-Yuan Tan, and Zhuohui Zhu
- 14:30-14:50 **Establishment of a Health Monitoring Assessment System for Hong-Gu Tunnel in China**
Xiangchun Xu, Songyu Liu, Liyuan Tong, Jun Guo, and Xing Long
- 14:50-15:10 **Development of an FBG-sensed Miniature Pressure Transducer and Its Applications to Geotechnical Centrifuge Modelling**
Anbin Huang, Kuenwei Wu, Mohammed Z. E. B. Elshafie, Wen-Yi Hung, and Yen-Te Ho
- 15:10-15:30 **Monitoring and Early Warning System in Earth Management - Based on Self-Organized Fusion Sensor Networks**
Rafig Azzam, Hui Hu, and Herbert Klapperich
- 15:30-15:50 **Long-Term Field Monitoring of Additional Strain of Vertical Shaft Linings in East China**
Guoqing Zhou, Lianfei Kuang, Guangsi Zhao, Hengchang Liang, and Xiaodong Zhao

14th Aug 16:30-18:10

Session room MENH (03/39)

- 16:30-16:50 **Optimization of Location of Robotic Total Station in Tunnel Deformation Monitoring**
Bangan Liu, and Yongbin Wei
- 16:50-17:10 **Simplified Vibration Control Technique of Monitoring Devices in Operating Tunnels**
Bangan Liu, and Yongbin Wei
- 17:10-17:30 **CFD Analysis of Free-Fall Ball Penetrometer in Clay**
Yuqin Zhang, and Jun Liu
- 17:30-17:50 **Visual and Quantitative Investigation of the Settlement Behavior of an Embankment using Aerial Images under Large-size Field Loading**
Ali Alper Saylan, Okan Önal, Ali Hakan Ören, Gürkan Özden, and Yeliz Yükselen Aksoy
- 17:50-18:10 **Estimation of Relative Density in Calcareous Sands Using the Karlsruhe Interpretation Method**
Franz Tschuchnigg, Johannes Reinisch, and Robert Thurner

6. Foundation engineering

Session chairmen: Renpeng Chen (Changsha, China)
Jana Frankovska (Brastilava, Slovakia)
Herbert Klapperich (Freiberg, Germany)

14th Aug 14:00-16:00

Session room MENH (01/43)

- 14:00-14:30 **New Method for Determining Foundation Bearing Capacity based on Plate Loading Test**
Guanghua Yang, Yan Jiang, Chuanbao Xu, Zhiyun Li, Fuqiang Chen, and Kai Jia
- 14:30-14:50 **Application of Semi-active Control Strategy for the Wall Retaining Granular Fills**
Nisha Kumari, and Ashutosh Trivedi
- 14:50-15:10 **Application Examples of Elastic Support Layers for High-Rise Buildings in China**
Alexander Tributsch, Silke Appel, and Bertram Grass
- 15:10-15:30 **Mechanically Stabilised Earthwalls with Uneven Reinforcement Lengths (Trapezoidal Walls) - Design Development and Challenges**
Ching Dai and James Livingston
- 15:30-15:50 **Failure Mechanism of Rigid Piles under an Embankment Load**
Haizuo Zhou, Gang Zheng, and Jiapeng Zhao

14th Aug 16:30-18:10

Session room MENH (01/43)

- 16:30-16:50 **Free Vibration Calculations of an Euler-Bernoulli Beam on an Elastic Foundation using He's Variational Iteration Method**
Alima Tazabekova, Desmond Adair, Askar Ibrayev, and Jong Kim
- 16:50-17:10 **CPT-Based Approach to Study the Load-Displacement Behavior of Driven Piles by the New Method of Stress Characteristics**
Fatemeh Valikhah, Abolfazl Eslami, and Mehdi Veiskarami
- 17:10-17:30 **Dynamic Response of Embedded Block Foundation under Vertical Vibration**
Kavita Tandon, Rohit Ralli, B. Manna, G. V. Ramana, and M. Datta
- 17:30-17:50 **Vertical Response of 2 × 2 Pile Group under Rotating Machine Induced Vibrations**
Shiva Shankar Choudhary, Sanjit Biswas, and Bappaditya Manna
- 17:50-18:10 **Influence of Rock Joint Orientation on the Natural Frequency of Dam-Foundation System**
Ajay Rampal, Prasun Halder, Bappaditya Manna, and K. G. Sharma

15th Aug 10:00-12:00

Session room MENH (01/43)

- 10:00-10:20 **Behavior of T-shaped Soil-cement Column-treated Soft Ground under Embankment**
Yaolin Yi, Pengpeng Ni, and Songyu Liu
- 10:20-10:40 **Experimental Studies on Model Single Pile and Pile Groups Subjected to Torque**
Sagar Mehra, and Ashutosh Trivedi
- 10:40-11:00 **Formation of Biomineralized Calcium Carbonate Precipitation and its Potential to Strengthen Loose Sandy Soils**
Sangeeta Shougrakpam, and Ashutosh Trivedi
- 11:00-11:20 **Measured and Predicted Response of a Post-grouted Pile in Cohesionless Soil**
Xiong Xiao, Shanyong Wang, Scott Sloan, and Daichao Sheng
- 11:20-11:40 **The Joint Inspector - A New Method of Quality Control for Diaphragm Walls**
Nikolaus Schneider
- 11:40-12:00 **Case Study: Moxy Hotel Bored Piles Wall**
Cláudia Carvalho, and Alexandre Pinto

15th Aug 13:30-15:30

Session room MENH (01/43)

- 13:30-13:50 **Precast Concrete Piles in Europe – AARSLEFF's Experience**
Piotr Dziadziuszko, and Dariusz Sobala
- 13:50-14:10 **Ageing Effect on Pull-out Capacity of Driven Micropiles in Dunkirk Sand**
Imane Salama, C. Dano, M. Silva, and Miguel Benz Navarrete
- 14:10-14:30 **On Safety Alarm in Deep Excavations**
Xueshan Cao, Lisu E, and Xiyang Lai
- 14:30-14:50 **An Innovative Bolt Fastener for Steel Tube Bracing in Deep Excavations**
Mingju Zhang, Meng Yang, Pengfei Li, and Dechun Lu
- 14:50-15:10 **Soil Characterisation Based on Pipejacking Parameters and Spoil Characteristics**
Wenchieh Cheng, James C. Ni, and Jack Shuiling Shen
- 15:10-15:30 **Parameter Identification of the High-Fill Foundations using Response Surface Method**
Ming Xu, Dehai Jin, and Erxiang Song

15th Aug 16:00-17:30

Session room MENH (01/43)

- 16:00-16:20 **Finite Element Analysis of Deep Excavation: A Case Study**
Tugce Aktas, Oguz Calisan, and Erdal Cokca
- 16:20-16:40 **On Performance of Anchored Retaining Piles and Stability of Excavations**
Xiaoyi Yuan, Longzhu Chen, and Chunyu Song
- 16:40-17:00 **Field Study on the Behavior Super-long and Large-diameter Grouted Drilled Shafts**
Zhihui Wan, Guoliang Dai, Weiming Gong, and Mingxing Zhu
- 17:00-17:20 **Nonlinear Analysis on Buried Pipelines Effected by Tunnelling**
Chenrong Zhang, and Haili Li

16th Aug 08:30-10:00

Session room MENH (01/43)

- 08:30-08:50 **Dynamic Responses of Mono-piles in the Presence of Scour Holes**
Rui He, Tao Zhu, Bo Ma, and Wenyan Tao
- 08:50-09:10 **Experimental Study on Dynamic Penetration of OMNI-Max Anchor in Clay**
Congcong Han, Jun Liu, and Wei Zhao
- 09:10-09:30 **Study on Penetration Resistance of Bucket Foundation Breakwater by Centrifuge Model Tests**
Yunfei Guan, and Yongyong Cao
- 09:30-09:50 **Viscoplastic Modeling of Soft Soils for Shallow Foundations**
Huan Wang, Giulio Sciarra, and Panagiotis Kotronis

16th Aug 10:30-12:30

Session room MENH (01/43)

- 10:30-10:50 **Stability Analysis of L-Shape Slurry Trench During Concrete Diaphragm Wall Installation in c-φ Soils**
Wei Liu, Peixin Shi, Qiang Tang, and Fei Wang
- 10:50-11:10 **Excavation and Peripheral Earth Retaining Solutions for a Building at the Intendente Square, in Lisbon, Portugal**
Vanessa Aleixo, Rui Tomásio, and Alexandre Pinto
- 11:10-11:30 **Vertical Capacity of Large and Deep Barrette Pile for Bangkok Subsoils**
Wanchai Teeparaksa, Mike Sinkinson, and Jirat Teeparaksa
- 11:30-11:50 **Numerical Analysis of Monopile Behavior under Short-term Cyclic Loading**
Anfeng Hu, Peng Fu, and Kanghe Xie

11:50-12:10

**On the Pseudo-Coupled Winkler Spring Approach for Soil-Mat
Foundation Interaction Analysis**

Dimitrios Loukidis, and Georgios-Pantelis Tamiolakis

7. Environmental geotechnics

Session chairmen: Rafiq Azzam (Aachen, Germany)
YanJun Du (Nanjing, China)
Brendan O'Kelly (Dublin, Ireland)

14th Aug 08:30-10:00

Session room MENH (01/43)

- 08:30-08:50 **New Method to Reduce Porosity of Rockfill Materials with Composite Slurry**
Tao Wang, Sihong Liu, and Yan Feng
- 08:50-09:10 **NaCl Activation of Steel Slag upon Component Adjustment**
Li Liu, Qianwen Liu, Yongfeng Deng, and Yu Zhao
- 09:10-09:30 **Experimental Study on Effects of NaCl Solutions on Soil-Water Characteristic Curves of Expansive Soil**
Xiujuan Yang, Wojciech T. Sołowski, Henghui Fan, and Jinqian Dang
- 09:30-09:50 **Three-dimensional Numerical Analysis of the Air Phase Flow during Air Sparging in Sands**
Zhibin Liu, S.Y. Liu, Z.L. Chen, Y. Wang, L.L. Lu, and G.Y. Du
- 09:50-10:10 **Long-Term Performance of a Three-Layer Capillary Barrier Cover System in Humid Climates**
Jian Liu, Yuedong Wu, Rui Chen, and C. W. W. Ng

14th Aug 10:30-12:30

Session room MENH (01/43)

- 10:30-10:50 **Effect of Liner Consolidation on Contaminant Transport through a Landfill Bottom Liner System**
Hefu Pu, Jinwei Qiu, Junjie Zheng, and Rongjun Zhang
- 10:50-11:10 **Numerical Modeling of Leakage, Transport and Remediation of Mixed DNAPL And LNAPL in the Unsaturated Clayey Soil Underlain by Saturated Sandy Soil**
Yuzhang Bi, Yanjun Du, Xingyuan You, Kaixuan Yuan, and Jin Ni
- 11:10-11:30 **Field Pilot Scale Ex-Situ S/S of Electroplating Industrial Contaminated Soil using Two Novel Binders**
Yasong Feng, Yanjun Du, Weiye Xia, and Krishna R. Reddy
- 11:30-11:50 **Heat Transfer in a Geosynthetics Composite Liner System Containing Wrinkles**
Mayu Tincopa, Abdelmalek Bouazza, and R. Kerry Rowe

- 11:50-12:10 **Effect of Plant Root Reinforcement on Slope Stability: Centrifuge Model Tests**
Rick Veenhof, Wei Wu
- 12:10-12:30 **Engineering Properties and Mechanism of Solidifying Materials Treated Sludge**
Zhenhua Wang, Wei Xiang, Qingbing Liu, and Xueting Wu

8. Geotechnics in transportation, structural and hydraulic Engineering

Session chairmen: Vincenzo Fioravante (Ferrara, Italy)
Erxiang Song (Beijing, China)
Ashutosh Trivedi (Delhi, India)

15th Aug 13:30-15:30

Session room MENH (03/36)

- 13:30-14:00 **Construction, Requirements and Control of Compaction through Statistical Evaluation of Ramming Probes (DPH – Dynamic Probing Heavy) at the Sealing Wall of the Diavik Diamond (invited talk)**
Konrad Nübel, Joshua Schorr, and Roberto Cudmani
- 14:00-14:20 **Geosynthetic Strain during Filling Stage of Geosynthetic-Reinforced Pile-Supported (GRPS) Embankments**
Haiyun Yan, Binglong Wang, and Chengyu Liu
- 14:20-14:40 **Tentative Investigation of Structure Size Effect of High-Filled Geotechnical Structures**
Erxiang Song, Tianliang Zheng, and Yufei Kong
- 14:40-15:00 **Design Improvement of Sandy Soil Levees in Hydro-engineering Projects, China**
Chunbao Yang, Feng Zhu, An Zhang, and Shuli Jiang
- 15:00-15:20 **Deflection Mechanism and Stress Analysis of Large Steel Structure Derrick in Mine**
Zhishu Yao, Mingkai Liu, Xiaojian Wang, Bin Tang, and Weipei Xue

15th Aug 16:00-17:30

Session room MENH (03/36)

- 16:00-16:20 **Fractional Derivative Approaches to Non-Darcian Flow in Porous Media**
R. Wang, Hongwei Zhou, S. Yang, and Z. Zhuo
- 16:20-16:40 **Numerical Analysis of Stone Columns for Road Embankment Construction**
Jakub Stacho, Jana Frankovska, and Peter Mušec
- 16:40-17:00 **Kinematics of Piled Embankments with Defective Piles**
Louis King, Abdelmalek Bouazza, and Stephen Dusky
- 17:00-17:20 **Mechanism of Isolated Piles in Reducing Tunnel Settlement of Hong Kong-Zhuhai-Macao Bridge Project**
Peng Li, Erxiang Song, Abbas Haider, Ming Lin, and Xiaodong Liu

17:20-17:40 **Initial Sinking Method for Large Open Caisson in a Highway Bridge Project**
Peng Li, Erxiang Song, and Tianliang Zheng

16th Aug 08:30-10:00

Session room MENH (03/36)

- 08:30-08:50 **Using the FE-Method for Lock Repair Measures at the Main-Danube-Canal**
Oliver Stelzer, and Annette Richter
- 08:50-09:10 **Influence of Matric Suction on the Long-Term Behavior of Fouled Road Base Materials under Traffic Loading**
Jingyu Chen, Yuanqiang Cai, Zhigang Cao, and Chuan Gu
- 09:10-09:30 **Geotechnical Solutions for Linear Transport Infrastructure in Mining Areas**
Jacek Kawalec
- 09:30-09:50 **Analytical Investigation of the Dynamic Impaction of a Moving Surface Load on the Underground Tunnel**
Zhigang Cao, Si Sun, Zonghao Yuan, and Yuanqiang Cai
- 09:50-10:10 **Field Test Study of Long-Term Displacement of Bridge Foundation Subjected to Lateral Loads**
Weiming Gong, Guangming Yu, and Guoliang Dai

16th Aug 10:30-12:30

Session room MENH (03/36)

- 10:30-10:50 **Dynamic Shakedown of Cohesive-Frictional Materials Under Moving Traffic Load**
Yuchen Dai, Jiantu Qian, Xiaoqiang Gu, and Maosong Huang
- 10:50-11:10 **Seismic Behavior of Pile Supported Railway Track**
Jinsun Lee, Mintaek Yoo, and Yunwook Choo
- 11:10-11:30 **Study of the Shallow Groundwater Dynamics in Drainage and Wetting Sand Column Experiments**
Jincheng Hang, and Haijiang Liu
- 11:30-11:50 **The Relation Between Static and Dynamic Shakedown Limits of Slab Track Substructures Under Moving Train Loads**
Juan Wang, and Shu Liu
- 11:50-12:10 **Analysing the Permanent Deformation of Cohesive Subsoil Subject to Long Term Cyclic Train Loading**
Natalie M. Wride, and Xueyu Geng
- 12:10-12:30 **Modelling Stress Distribution in Subgrade due to Staged Construction of Enlarged Embankment**
Heng Wang, Cong Mou, Jianwen Ding, and Xing Wan

9. New geomaterials and ground improvement

Session chairmen: Marcos Arroyo (Barcelona, Spain)
Jian Zhou (Hangzhou, China)

14th Aug 08:30-10:00

Session room MENH (01/36.1)

- 08:30-09:00 **The Investigation of the Mechanical Properties of the Martian Soils at the InSight Mission Landing Site (invited talk)**
Pierre Delage, M. Golombek, Foivos Karakostas, A. Demaided, P. Lognonné, and B. Banerdt
- 09:00-09:20 **The Effects of Colemanite and Ulexite Additives on the Geotechnical Index Properties of Bentonite and Sand-Bentonite Mixtures**
Sükran Gizem Alpaydin, and Yeliz Yukselen-Aksoy
- 09:20-09:40 **Stress Dilatancy Behavior for Fiber-reinforced Sand**
Yuxia Kong
- 09:40-10:00 **Engineering Properties and Microstructure Feature of Dispersive Clay Modified by Fly Ash**
Henghui Fan, YingJia Yan, XiuJuan Yang, Lu Zhang, and HaiJun Hu

14th Aug 10:30-12:30

Session room MENH (01/36.1)

- 10:30-10:50 **Effect of Fly Ash on Swell Behaviour of a Very Highly Plastic Clay**
Inci Süt-Ünver, Musaffa Ayşen Lav, and Erdal Çokça
- 10:50-11:10 **Strength Development of Lateritic Soil Stabilized by Local Nanostructured Ashes**
Duc Bui Van, Kennedy Onyelowo Chibuzor, Phi Van Dang, Dinh Phuc Hoang, Nu Thi Nguyen, and Wei Wu
- 11:10-11:30 **Numerical Simulation on Pore Pressure in Electro-Osmosis Combined with Vacuum Preloading**
Tianjiao Zhang, Fanglei Zhan, Jian Zhou, Cunyi Li, and Xiaonan Gong
- 11:30-11:50 **Enhancing the Strength Characteristics of Expansive Soil Using Bagasse Fibre**
Liet Chi Dang, and Hadi Khabbaz
- 11:50-12:10 **Enhancement of Mechanical Properties of Expansive Clayey Soil Using Steel Slag**
Anurag Hirapure, and Rupa Dalvi
- 12:10-12:30 **Compaction Characteristics and Shrinkage Properties of Fibre Reinforced London Clay**
Jianye Wang, Andrew Sadler, Paul Hughes, and Charles Augarde

14th Aug 14:00-16:00

Session room MENH (01/36.1)

- 14:00-14:20 **Experimental Study on Calcium Carbonate Precipitates Induced by *Bacillus Megaterium***
Xiaohao Sun, Linchang Miao, and Chengcheng Wang
- 14:20-14:40 **Effect of Fine Particles on Cement Treated Sand**
Ganapathiraman Vinoth, Sung-Woo Moon, Jong-Ryeol Kim, and Taeseo Ku
- 14:40-15:00 **Laboratory Carnonation Model of Single Soil-mgo Mixing Column in Soft Ground**
Guanghua Cai, Songyu Liu, and Guangyin Du
- 15:00-15:20 **The Revolution in Road Substructures – Polymer Modified Cement Stabilization (PMCS)**
Michael Salzmann
- 15:20-15:40 **Improvement of Soft Soils using Bio-cemented Sand Columns**
Aamir Mahawish, Abdelmalek Bouazza, and Will P. Gates

10. Underground construction

Session chairmen: Günther Meschke (Bochum, Germany)
Hehua Zhu (Shanghai, China)

14th Aug 08:30-10:00

Session room MENH (03/28)

- 08:30-09:00 **Geotechnical Challenges During Construction of Based Tunnel in Austria (invited talk)**
K. Bergmeister
- 09:00-09:20 **Semmering Base Tunnel, Austria**
Michael Proppreiter, and Enrico Soranzo
- 09:20-09:40 **Numerical Modeling of the Effects of Ground Fissure Dislocation on the Metro Tunnel**
Ming Wu, Jianbing Peng, Yahong Deng, and Xin Liu
- 09:40-10:00 **Torque Fluctuation and Penetration Analysis of Shield Tunnel in Rock–Soil Mixed Ground**
Yu Zhao, Quanmei Gong, Runlai Zhang, and Jie Xia

14th Aug 10:30-12:30

Session room MENH (03/28)

- 10:30-11:00 **On Tunnel Design in Seismically Active Zones (invited talk)**
G. Dierssen
- 11:00-11:20 **Numerical Investigation on the Influence of the Excavation Rate on the Mechanical Response of Deep Tunnel Fronts in Cohesive Soils**
Luca Flessati, and Claudio di Prisco
- 11:20-11:30 **Numerical Investigation of Impact of Non-Circular Tunneling in Sensitive Soft Clay Layers**
Tadashi Hashimoto, Yujian Liu, Teruo Nakai, Hossain MD. Shahin, Yaohong Zhu, and Zibo Dong
- 11:30-11:50 **Adequate Numerical Simulation of Tail Void Grouting for Tunneling in Saturated soil**
Chenyang Zhao, Arash A. Lavasan, and Tom Schanz
- 11:50-12:10 **Soil-structure Interaction in Computational Simulations of Mechanized Tunnel Advancement in Soft Soils**
Günther Meschke
- 12:10-12:30 **Monitoring System for Previous Convergence Measurements in Tunnel Construction**
Stephan Großwig, and Maria Barbara Schaller

14th Aug 14:00-16:00

Session room MENH (03/28)

- 14:00-14:30 **Loading of Deep Tunnel Linings at the BBT**
Tobias Cordes, and Barbara Schneider Muntau, and Konrad Bergmeister
- 14:30-14:50 **Effects of Fault Zones on Failure Mechanism of Tunnel,
an Experimental Study**
Ba Thao Vu, Hehua Zhu, Qianwei Xu, and Xiaoying Zhuang
- 14:50-15:10 **Validation of an In-situ Stress Level Rating Method**
Fei Chen, and Jianhui Deng
- 15:10-15:30 **Case Study: BIM and Geotechnical Project in Urban Area – Infinity
Tower**
João Gondar, Alexandre Pinto, and Catarina Fartaria
- 15:30-15:50 **Performance of Retaining Wall and Surrounding Ground Due to
Pre-excavation Dewatering: Test and Numerical Study**
Chaofeng Zeng, ZhiCheng Yuan, Xiuli Xue, Wei Hu

11. Geohazards – risk assessment, mitigation and prevention

Session chairmen: Xueyu Geng (Warwick, UK)
Stefano Uti (New Castle, UK)

15th Aug 10:00-12:00

Session room MENH (03/39)

- 10:00-10:30 **Upper Bound Stability Analysis of MSW Slope Layered by Fill Age Considering Particle Compressibility (invited talk)**
Maosong Huang, Xinping Fan, Haoran Wang, and Xilin Lu
- 10:30-10:50 **On Stability of Embankments on Soft Clays**
Akzhunis Zhamanbay, Jong R. Kim, and Sung-Woo Moon
- 10:50-11:10 **Deformation and Instability Mechanism of Reservoir Landslide: A Case Study**
Changjun Zhao, and Minghui Xu
- 11:10-11:30 **Modeling of Landslides and Assessment of Their Impact on Infrastructure Objects in Ukraine**
Olena Ivanik
- 11:30-11:50 **Introduction to the Badong Field Test Site for Landslide Research in the Three Gorges Reservoir Area of China**
Jinge Wang, Wei Xiang, Aijun Su, and Chengren Xiong
- 11:50-12:10 **On Geological Hazards in Georgia**
Diana Egiazarova, and Zurab Tchkonla

15th Aug 13:30-15:30

Session room MENH (03/39)

- 13:30-13:50 **Numerical Investigation of Drilled Shafts near an Embankment Slope under Combined Torque-Lateral Load Scenario**
Aigul Mussabayeva, Jong Kim, Deuckhang Lee, Taeseo Ku, and SungWoo Moon
- 13:50-14:10 **Modelling of Castaño Viejo Tailings Flow Case History**
Francisco Zabala, Gustavo Navarta, and Luciano A. Oldecop
- 14:10-14:30 **Factors Influencing Landslide Deformation from Observations in the Three Gorges Reservoir**
Beibei Yang, Suzanne Lacasse, Kunlong Yin, and Zhongqiang Liu
- 14:30-14:50 **Influence of Bulk Density and Slope on Debris Flows Deposit Morphology: Physical Modelling**
Shuai Li, Xiaoqing Chen, Gongdan Zhou, Dongri Song, and Jiangang Chen

- 14:50-15:10 **Back Analysis Algorithm Based on Particle Swarm Optimization**
Abdoulie Fatty, and A. J. Li
- 15:10-15:30 **Dimensionless Stability Charts for c- ϕ Slopes with Tension Cracks Subject to Seismic Action**
S. Utili, and A. Abd

15th Aug 16:00-17:30

Session room MENH (03/39)

- 16:00-16:20 **Simulation of Building Failure by Landslide Impact**
Hongyu Luo, and Limin Zhang
- 16:20-16:40 **Numerical Modelling of Main Shock and Aftershock Line of Chuya Earthquake 27.09.2003 Altay, Russia**
Mikhail Eremin, and Pavel Makarov
- 16:40-17:00 **Geotechnical Issues of Landslides in Ukraine: Simulation, Monitoring and Protection**
Iurii Kaliukh, Gennadiy Fareniuk, and Iegor Fareniuk
- 17:00-17:20 **Effect of Air Compression and Counterflow on Shallow Landslides under Intense Rainfall**
Tongchun Han, Shiguo Ma, and Riqing Xu

16th Aug 08:30-10:00

Session room MENH (03/39)

- 08:30-08:50 **Centrifuge Modelling of Slope Instability Due to Leakage of Buried Pipes**
Kit Chan, Limin Zhang, Hong Zhu, and Te Xiao
- 08:50-09:10 **Centrifuge Model Test on Excavation-induced Failure of Soil Slopes Overlying Bedrock**
Yiyang Zhao, and Ga Zhang
- 09:10-09:30 **Centrifuge Modelling of Slope Stabilized by Piles**
Guoping Lei and Wei Wu
- 09:30-09:50 **Discrete Element Models of Soil-Geogrid Interaction**
Alina Irsainova, Marcos Arroyo, and Jong-Ryeol Kim

16th Aug 10:30-12:30

Session room MENH (03/39)

- 10:30-10:50 **The Roots Reinforcement in a Distributed Slope Stability Model: An Application at Regional Scale to Forecast Shallow Landslides**
Elena Benedetta Masi
- 10:50-11:10 **A Simple Method for Evaluating Progressive Failure Process of Rainfall-induced Shallow Landslide**
Yang Tang, KunLong Yin, and Wei Wu
- 11:10-11:30 **Characteristics and Application of Micropiles in Slope Engineering**
Li Ma, Yifu Hu, Desheng Gu, and Chong Jiang

12. Unsaturated soils and energy geotechnics

Session chairmen: Weimin Ye (Shanghai, China)
Dariusz Łydzba (Wrocław, Poland)

14th Aug 16:30-18:30

Session room MENH (01/36.1)

- 16:30-17:00 **Geothermal Uses in China: Potential, Projects and Experience (invited talk)**
Horst Kreuter
- 17:00-17:20 **Experimental Study on Highly Compacted Bentonite Aggregates Subjected to Wetting and Drying**
Haiquan Sun, David Mašín, and Jan Najser
- 17:20-17:40 **Calculation of Osmotic Suctions for Bentonite in Saline Solutions**
Xiaoyue Li, X.J. Zheng, and Yongfu Xu
- 17:40-18:00 **Dependency of Poisson's Ratio on Water Content for Unsaturated Soils**
Yi Dong
- 18:00-18:20 **Thermo-Mechanical Behaviour of Inventory Materials in a Packed Bed Thermal Energy Storage**
Xuetao Wang, and Christoph Niklasch

15th Aug 10:00-12:30

Session room MENH (01/36.1)

- 10:00-10:30 **Determination of gas breakthrough in saturated materials with low permeability (invited talk)**
Weimin Ye
- 10:30-10:50 **Thermal Conductivity of Unsaturated Soil: Equivalent Microstructure Approach**
Dariusz Łydzba, Adrian Rózański, and Damian Stefaniuk
- 10:50-11:10 **A New Setup to Measure Hydraulic Properties of Unsaturated Soils**
Tiande Wen, Longtan Shao, and Xiaoxia Guo
- 11:10-11:30 **Flow Behaviour of Fractured Geothermal Reservoir Rocks Under In-Situ Stress and Temperature Conditions**
W.G.P. Kumariand, and P.G. Ranjith
- 11:30-11:50 **Principle of Effective Stress is an Approximated Method**
Chenggang Zhao, Zhaoyang Song, Jian Li, Guoqing Cai, and Weihua Li
- 11:50-12:10 **Soil Texture Based Approach for Thermal Conductivity Evaluation**
Adrian Rózański
- 12:10-12:30 **Interpretation of Plate Load Tests on Unsaturated Sand**
Yi Tang, and Zhengyin Cai

13. Cold regions geotechnical engineering

Session chairmen: Seyed Amiri (Trondheim, Norway)
Jilin Qi (Beijing, China)

15th Aug 13:30-15:30

Session room MENH (01/36.1)

- 13:30-14:00 **Thermal characteristics of Permafrost Subgrades in the Qinghai-Tibet Plateau (invited talk)**
Mingyi Zhang, Yuanming Lai, Wansheng Pei, Qihao Yu, and Zhongrui Yan
- 14:00-14:20 **On the Thaw Consolidation of Permafrost under Roadway Embankments**
Jilin Qi, Xiaoliang Yao
- 14:20-14:40 **Experimental Study of Elastic Properties of Saturated Clay subjected to Freeze-Thaw Cycles**
Feng Zhang, Bo Lin, Tao Li, and Decheng Feng
- 14:40-15:00 **Experimental Study on the Strength Characteristics of Frozen Clay on π Plane**
Yanhu Mu, Wei Ma, Dun Chen, Zhiwei Zhou, Dayan Wang, and Lele Lei
- 15:00-15:20 **Experimental Study on Anti-Frost Jacking of Belled Pile in Seasonally Frozen Ground Regions**
Xubin Huang, and Yu Sheng

15th Aug 16:00-17:30

Session room MENH (01/36.1)

- 16:00-16:30 **A Constitutive Model for Frozen Granular Soils (invited talk)**
Roberto Cudmani, Jian Sun, and Wei Yan
- 16:30-16:50 **Study on the Stability of Spread-Footing Foundations on Permafrost Regions**
Zhi Wen, Zhizhong Sun, and Shujuan Zhang
- 16:50-17:10 **Challenges and Countermeasures of a Power Transmission Line in Permafrost Regions-the Qinghai-Tibet Power Transmission Line**
Qihao Yu
- 17:10-17:30 **Experimental Study on the Interaction Between Pipe and Soil under Frost Heave Condition**
Long Huang, and Yu Sheng

16th Aug 08:30-10:30

Session room MENH (01/36.1)

- 08:30-08:50 **Experimental Study on the Mechanical Properties of Coarse-grained Soils in High Altitude and Cold Areas under Freeze-Thaw Cycle**
Yonglong Qu, Guoliang Chen, Fujun Niu, Wankui Ni, Yanhu Mu, Tao Chen, and Dun Chen
- 08:50-09:10 **Numerical Modeling of Rate-Dependence Behavior of Saturated Frozen Soil**
Qiyin Zhu, Xiangyu Shang, Lianfei Kung, and Li Gang
- 09:10-09:30 **Creep of frozen soils**
Xiaoliang Yao, Boxiang Dang, and Jilin Qi
- 09:30-09:50 **Microstructural analysis of frozen clay with different water content and temperature by Cryo-SEM**
Chengsong Yang
- 09:50-10:10 **The Crystallization and Salt Expansion Characteristics of a Silty Clay**
Jianhong Fang, Xu Li, Jiankun Liu, and Chenyinan Liu



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