

Conference reports

The 7th International Conference on Unsaturated Soils, Hong Kong



The 7th International Conference on Unsaturated Soils (UNSAT2018) successfully took place on August 3rd – 5th, 2018 at the Hong Kong University of Science and Technology (HKUST; Figure 1). This conference was financially sponsored by the HKUST's School of Engineering and supported by the Hong Kong Geotechnical Society (HKGES) and the Geotechnical Division Committee of the Hong Kong Institution of Engineers (HKIE). Support was also received from TC106 (Unsaturated Soils) of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE).



Figure 1. Overview of the HKUST campus

UNSAT2018 has provided an excellent opportunity for students, academics, engineers, scientists and government officials to present and discuss the latest developments in theories, experimental techniques and findings. The conference featured one Blight Lecture, 6 keynote lectures, 6 general reports and 9 special invited lectures delivered by prominent professors and researchers around the world.

Blight lecturer

Prof. Del Fredlund

Presentation topic

Role of the soil-water characteristic curve in unsaturated soil mechanics

Keynote speakers

Prof. Eduardo Alonso

Advances in landslide modelling of unsaturated soils

Prof. Yumin Chen/

Lessons from the catastrophic landslide of construction waste dump occurred in Shenzhen of China on 20th December 2015

Prof. Tony Liangton Zhan

On the hydration of unsaturated barriers for high-level nuclear waste disposal

Prof. Antonio Gens

Macroscopic effects of the hydration mechanisms in smectites; applications to engineered and geological barriers for radioactive waste disposal

Prof. Pierre Delage

Prof. Lyesse Laloui

Gas shales: geomechanical challenges and analysis

Prof. Lidija Zdravkovic

On the modelling of soil-atmosphere interaction in cut and natural slopes

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General reporters

Prof. David Toll	Fundamental soil behaviour (Part I)
Prof. Vinayagamoothy Sivakumar	Fundamental soil behaviour (Part II) - a wider perspective of hydro-mechanical and thermal behaviour of unsaturated soils
Prof. John McCartney	Geotechnical engineering problems in unsaturated soils
Prof. Marcelo Sanchez	Energy and environmental issues
Prof. Fernando Marinho	New equipment and testing methods
Dr. David Masin	Constitutive, numerical and physical modelling

Special invited speakers

Prof. Daichao Sheng	Importance of SWCC equations in modelling vapour flow in unsaturated freezing soils
Prof. Ning Lu	Soil sorptive potential: root of matric potential
Prof. Yangping Yao	The UH model for unsaturated soils
Prof. Yu Jun Cui	Compacted unsaturated lime treated soils of different aggregate sizes
Prof. Harianto Rahardjo	Geospatial Distribution of Unsaturated Soil Properties for Slope Stability Assessment
Prof. Changfu Wei	Chemomechanical Behavior of Unsaturated Soils: Conception and formulation
Prof. Malek Bouazza	Unsaturated geosynthetics: a promising intersection for unsaturated soils and geosynthetics
Prof. Bernardo Caicedo	Soil-atmosphere interaction
Prof. De'an Sun	Hydro-mechanical behavior and strength prediction of unsaturated soils over wide suction range

The conference received and reviewed a total of 203 six-page regular papers from six continents: Africa, Asia, Australasia, Europe, South and North Americas. Two conference proceedings were produced. Volume One contains the Blight lecture, six Keynotes, two Special Invited Papers, six General Reports and 84 regular papers under the theme of “Fundamental Soil Behaviour”. This theme covers the areas of *Strength and Stiffness*, *Water Retention Properties*, *Flow and Wettability*, *Volume Change and Desiccation Cracks*, *Temperature Effects* and *Microscopic Behaviour*. Volume Two contains 26, 34, 33 and 26 papers under the themes of “New Equipment and Testing Methods”, “Constitutive, Numerical and Physical Modelling”, “Geotechnical Engineering Problems” and “Energy and Environmental Issues”, respectively. All the papers have been made open-accessed to the public via: <http://gcf-conf.ust.hk/unsat2018/paper/index.pdf>, and the online *ISSMGE Library* <https://www.issmge.org/publications/online-library>

On 2nd Aug, a welcome reception financially supported by the Fraser Construction Company Ltd, is organised (Fig. 2). More than 250 people registered and attended the event (Fig. 3).



Figure 2. Sponsor by the Fraser Construction Company Ltd.



Figure 3. Participants greeting with each other

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The first day of the conference (3rd Aug) started with an opening ceremony (Fig. 4), followed by the Blight lecture, two keynote lectures and two general reports in a plenary session in the morning (Fig. 5). In the afternoon, two parallel sessions were run and started with two special invited speakers, followed by five-minute elevator pitch session where speakers are invited to present the key elements of their work. During the coffee breaks, each speaker had the opportunity to further present and discuss their work to the participants with the help of posters (Fig. 6).



Figure 4. Prof. Charles Ng (chair of UNSAT2018 and ISSMGE president) delivering an opening speech



Figure 5. Audience paying attention to the lecture in the plenary session

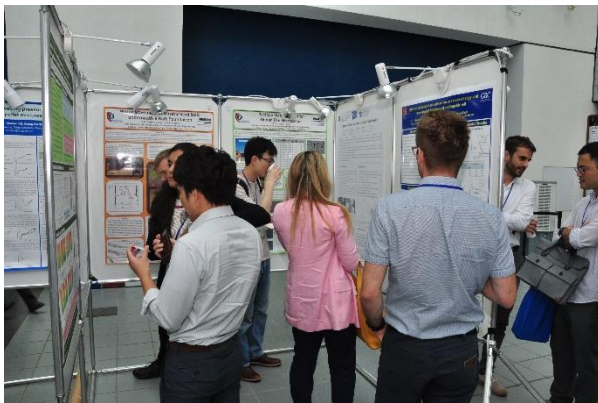


Figure 6. Delegates studying and discussing posters during coffee break

The second and the third day of the conference (4th and 5th Aug) followed a similar format as the first day. To enable young members (those aged 36 or below) of ISSMGE to take the main stage at this conference, four ISSMGE Bright Spark Lecturers were selected to deliver their state-of-the-art work in the plenary session on 5th August. These four young lecturers (Fig. 7) were Dr Amin Askarinejad from TU Delft, the Netherlands, Dr Majid Ghayoomi from University of New Hampshire, USA, Dr Annan Zhou from RMIT, Australia and Dr Chao Zhou from HKUST, HKSAR.

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(a)



(b)



(c)



(d)

Figure 7. Prof. Charles Ng (right on each picture; Chair of UNSAT2018) and Prof. Apiniti Jotisankasa (left on each picture; Chairman of the plenary session) presenting the certificate to four ISSMGE Bright Spark Lecturers to (a) Dr Chao Zhou; (b) Prof. Majid Ghayoomi; (c) Prof. Amin Askarnejad and (d) Dr. Annan Zhou

During lunch time on the three days of the conference, lab tours to HKUST Geotechnical Laboratory (Fig. 8) and the Geotechnical Centrifuge Facility (Fig. 9) were arranged.

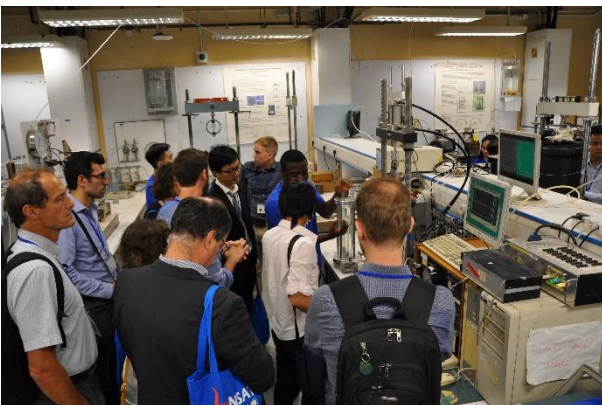


Figure 8. Students explaining the working principle of an HKUST developed temperature-controllable triaxial apparatus



Figure 9. Students showcasing a new wave tank equipped in the HKUST geotechnical centrifuge for offshore foundation testing

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The conference banquet was held on the second day of the conference on a Star Ferry sailing the Victoria Harbour of Hong Kong (Fig. 10). Delegates took in the wonderful night scene of the harbour from the comfort of the ferry while enjoying a sumptuous dinner (Figs 11 -14).



Figure 10. A stunning night view of Hong Kong along the Victoria Harbour



Figure 11. Delegates enjoying the night view of Hong Kong



Figure 12. Delegates having buffet dinner in the ferry sailing along the Victoria Harbour



Figure 13. Students never stop learning (dancing)



Figure 14. Delegates dancing in the pool

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Figure 15. Participants cheering for the success of the conference

On the closing ceremony of the conference, the TC106 announced that the 8th International Conference on Unsaturated Soils will be host by the Hellenic Society of Soil Mechanics and Geotechnical Engineering in Milos, Greece, 2022.

Prof. Anthony Leung, Technical Secretary of UNSAT2018