International Society of Soil Mechanics and Geotechnical Engineering
TC-211 Ground Improvement Technical Committee

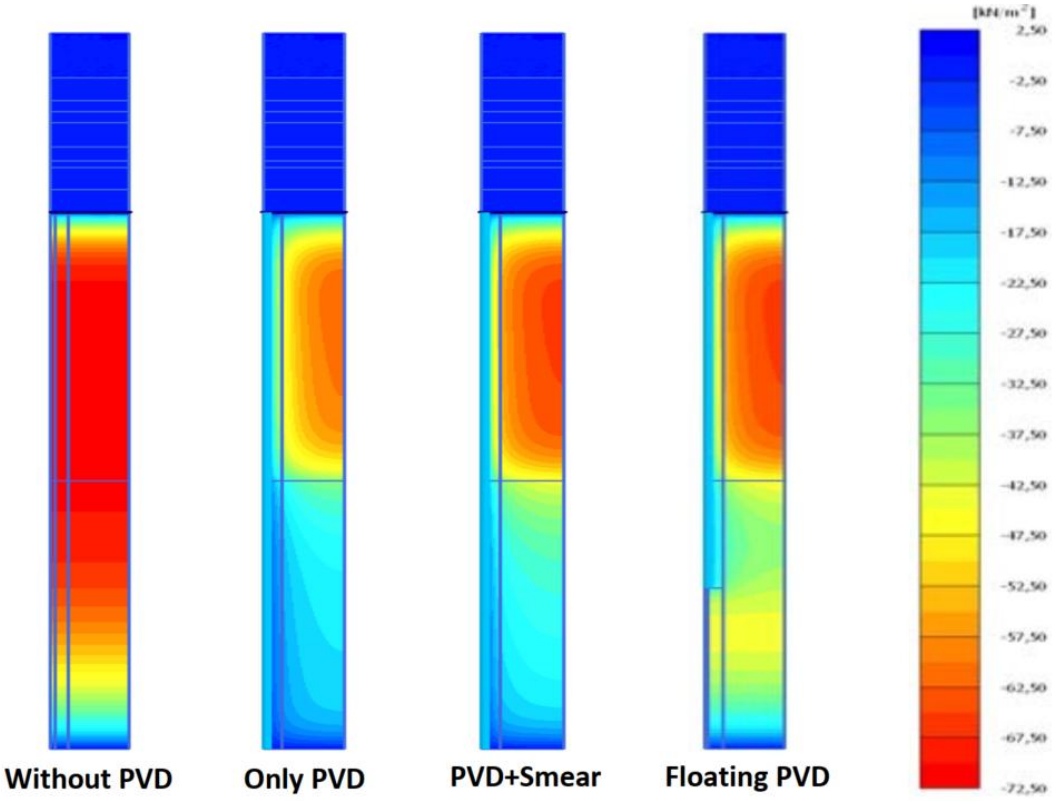
Online Presentation

NUMERICAL ANALYSIS OF GROUND IMPROVEMENT

The presentation will give a short overview on ground improvement techniques for which numerical analysis provides additional value compared to more traditional methods. Modelling aspects concerning the geometrical representation of regular patterns of columns (stone columns, rigid inclusions, etc.) will be addressed pointing out advantages and limitations of different approaches.

Examples for the application of vertical drains highlighting the importance of taking into account the smear zone will be presented. It will be shown that the increase of undrained shear strength due to vacuum consolidation in combination with vertical drains can be quantitatively assessed by numerical models providing valuable input for designing such improvement techniques.

Finally, the presentation will briefly introduce a constitutive model for unreinforced concrete, which enables a more realistic representation of the mechanical behaviour of cement-stabilized columns.



About the Speaker

After obtaining his Ph.D. from the University of Wales, Swansea, UK Prof. Helmut F. Schweiger joined the Institute for Soil Mechanics, Foundation Engineering and Computational Geotechnics at the Graz University of Technology where he was initiating and leading the Computational Geotechnics Group for 25 years. Although now formally retired from the university, he remains actively engaged in research and serves on several international committees.

His main research interests are the development of multilaminate models for soils and the assessment of the influence of the constitutive model for solving practical problems, in particular deep excavations, deep foundations and tunnels. His research is reflected in more than 350 publications in International Journals and Conference Proceedings and invitations to keynote and plenary lectures at International Conferences on Soil Mechanics and Computational Geotechnics.

WHEN
Friday 11 July 2025

START TIME
* 9:00 AM Central European Time
* 10:00 AM Vienna
* 1:30 PM New Delhi
* 4:00 PM Hong Kong
* 6:00 PM Sydney

LOCATION
Online (Zoom Link)
https://utsmeet.zoom.us/j/89658918418

Participants can join the on-line presentation directly by using the provided link but can send an expression of interest to the Event's Contact to receive a reminder notification.

EVENT CONTACT
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Prof Helmut Schweiger

Professor Schweiger serves on the editorial boards of several leading journals, including *Geotechnique* (2004-2007, 2018-2020), *Computers and Geotechnics* and currently as Associate Editor of the *International Journal of Geomechanics*.

In 2005 he received the "Excellent Contributions Award Regional" of the International Association for Computer Methods and Advances in Geomechanics, the "Best Paper Award" of the Japanese Geotechnical Society and in 2010 the "George Stephenson Medal" of the Institution of Civil Engineers, London, UK for a paper published in *Geotechnique*. He delivered the Szechy Lecture, the Suklje Lecture in 2018 and the Jennings Memorial Lecture in 2025.

Prof Schweiger is the current president of the Austrian Geotechnical Society and the Chairman of the upcoming 21 International Conference on Soil Mechanics and Geotechnical Engineering to be held in Vienna in June 2026.