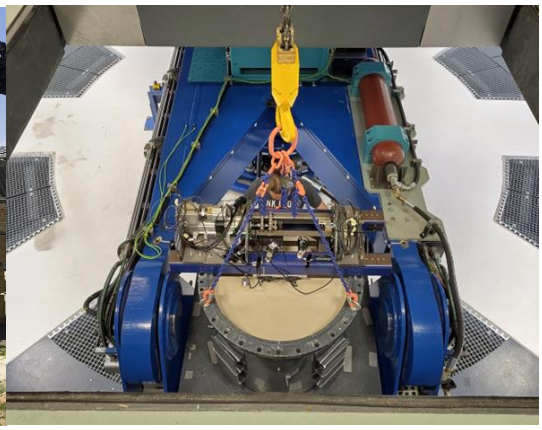
Special Session:

Physical modelling – from Practice/Industry to Academia

Organisers

André Arnold; Lucerne University of Applied Sciences and Arts, School of Engineering and Architecture, Switzerland (andre.arnold@hslu.ch)

André Arnold is a Professor for Geotechnical Engineering. He was involved in several industrial projects on the design of retaining structures, excavations, piled foundations, shallow foundations and anchored structures in slopes. He was also involved as a proof engineer in complex geotechnical projects such as excavations close to train infrastructures. He has been managing industrial joint research projects on screw-piles, dam stability due to flooding scenarios using centrifuge modelling and long-term behaviour of micro-piles exposed to corrosive environment. He combines scientific knowledge with industrial experience to put forward better approaches for the design of geotechnical structures.

Matthias J. Rebhan; Graz University of Technology, Austria (rebhan@tugraz.at)

Matthias J. Rebhan is the Head of the Soil Mechanics Laboratory. He holds MSc degrees in Civil- and Geotechnical Engineering and a PhD in Geotechnical Engineering (corrosion of cantilever walls). He has been managing industrial joint projects on anchors and tension elements. His further research topics are as follows: soil-structure interaction; soil classification and determination of soil mechanical parameters; construction methods and soil improvement techniques; natural hazard protection engineering. He is the co-founder of the company recordIT GmbH.

Miguel Cabrera; Delft University of Technology, the Netherlands (M.A.Cabrera@tudelft.nl)

Miguel’s research is in the area of geotechnical engineering with a focus on complex, multiphase, geophysical and environmental flows, and soil-fluid-structure interaction. His interests lie in linking the fundamental understanding of such physical processes with the current and future challenges of the natural and built environment. Miguel's PhD focused on the simulation of granular flows in rotating systems. From 2016 to 2022 Miguel was appointed as Assistant and then Associate Professor at Universidad de los Andes, Colombia. Since August 2022, Miguel joined the section of Geo-Engineering at TU Delft, working in the physical modelling of land instabilities and soil-structure interaction.

Network of participants*:

Matthias Ryser (Dr. Vollenweider AG, consulting company, Switzerland); Pirmin Betschart (JMS Risi, Contractor & Member of Swiss Society of Contractors (Infra Suisse), Switzerland); Samuel Dietrich (Ghelma AG, Spezialtiefbau, Contractor, Switzerland); Daniel Hasler (Kibag AG, Contractor, Switzerland), Markus Rindlisbacher (Kuechler Technik AG, Contractor-supplier, Switzerland), Network of VÖBU (Austrian Society of Contractors), Austria; Jort van Wijk (IQIP), Netherlands.

**The organizers will contact more potential participants from industry subsequently.*

Session Description

The scope of this Special Session lays on emerging tasks in geotechnical engineering practice where physical modelling could help to better understand main issues and to deepen specific knowledge.

The Special Session aims to bring experts from industry together with experts from academia. The discussion could help to understand the needs of geotechnical engineers and contractors in practice. This would create the basis for tackling practical projects with the help of physical modelling.

A number of practical projects as well as some basics of physical modelling in geotechnics are presented by the organisers at the beginning of the session to stimulate the discussion. The participants from industry are then asked to present their possible tasks which they may have prepared in advance and where they think that physical modelling could help to gain more knowledge.

The session will focus on construction processes as well as the optimisation and improvement of geotechnical structures and construction forms through physical modelling. The scope of this session will also include areas such as resource conservation, the (re-) use of materials and climate change - in order to include currently controversial and future challenging topics in the discussion.

Towards the end of the Special Session there will be the possibility to deepen ideas on a bilateral basis between industry and academia.