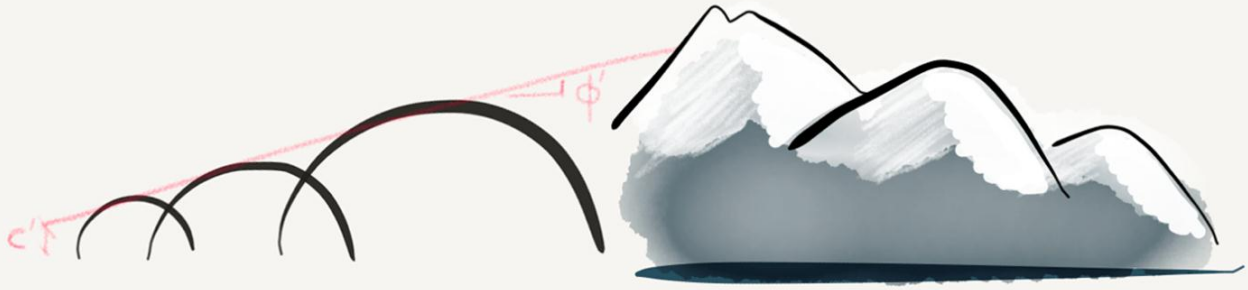
ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE



International Workshop: Advances in Laboratory Testing & Modelling of Soils and Shales

WORKSHOP PROGRAMME

18 – 20 January 2017
Villars-sur-Ollon
Switzerland

WELCOME !

The Swiss Federal Institute of Technology in Lausanne, the Laboratory of Soil Mechanics – Chair “Gaz Naturel” - Petrosvibri, the Technical Committees 101, 106 and 308 of the International Society for Soil Mechanics and Geotechnical Engineering, and the Swiss Alps welcome you to the International Workshop “Advances in Laboratory Testing and Modelling of Soils and Shales” (ATMSS-2017).

We are delighted to announce that almost 100 participants from 25 countries will attend the event. We hope that this workshop will once again provide a forum for debate, learning and innovation on the challenging topics on experimental analysis and modelling of soils and shales.

We believe Villars-Sur-Ollon is an ideal place for this workshop, providing an isolated and calm environment for excellent presentations, fruitful discussions and exchange of ideas. Welcome to the Swiss Alps!

Thank you very much for joining us.

Lyesse Laloui & Alessio Ferrari
January, 2016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LABORATORY OF SOIL MECHANICS
Chair "Gaz Naturel" - Petrosvibri

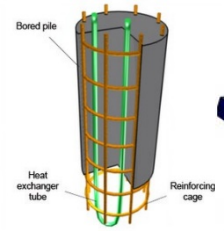
The Laboratory of Soil Mechanics Chair "Gaz Naturel" – Petrosvibri (LMS) is a part of the School of Architecture, Civil and Environmental Engineering (ENAC) at the Swiss Federal Institute of Technology, Lausanne (EPFL). Since its establishment - as the successor of the Geotechnical Laboratory founded in 1935 - the LMS has been contributing to fundamental and applied research activities, education, as well as consulting for civil engineering construction works.

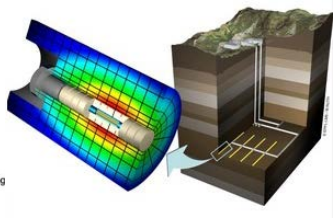
LABORATORY FOR SOIL MECHANICS CHAIR GAZ NATUREL «PETROSVIBRI»
LMS
EPFL
ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

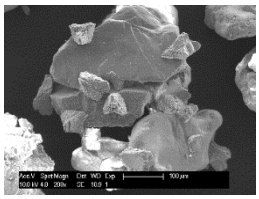
RESEARCH ACTIVITIES

The LMS gives priority to the protection from geo-hazards and industrial damage to the environment, landforms and structures. The main research areas are:

- Energy Geostructures
- Nuclear Waste Storage
- Landslide Analysis
- CO2 Storage
- Behaviour of Shales
- Bio-improved Soils







EXPERIMENTAL FACILITIES & MODELLING CAPABILITIES

Experimental and modelling resources of LMS are mobilised to understand, describe and predict the environmental impact of the technologies of future days. In addition to conventional geotechnical laboratory testing, laboratory equipment of LMS allows: Unsaturated soil testing, Non-isothermal testing of soils, Dynamic testing of soils, High pressure and high temperature testing, Hydro-mechanical testing of gas shales, Advanced triaxial cell for CO_2 injection.

CONSULTING SERVICES

The consulting services offered by the LMS deal with the preparation and updating of national and international standards and codes, laboratory and in-situ geomechanical tests, monitoring of structures and construction sites, numerical modelling, and expert's reports.

For more information, please visit lms.epfl.ch

The ATMSS Workshop is supported by:

GEOTECHNIK SCHWEIZ
GÉOTECHNIQUE SUISSE
GEOTECNICA SVIZZERA

ISSMGE Technical Committees:
TC101 Laboratory Testing
TC106 Unsaturated Soils
TC308 Energy Geotechnics

The ATMSS Workshop is sponsored by:

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CHAIRMEN

Prof. Lyesse Laloui
Swiss Federal Institute of Technology, EPFL, Lausanne

Prof. Alessio Ferrari
Swiss Federal Institute of Technology, EPFL, Lausanne

ADVISORING COMMITTEE

Prof. Bernardo Caicedo
Universidad de Los Andes, Colombia

Prof. Mario Manassero
Politecnico di Torino, Italy

Dr. David Dewhurst
CSIRO, Australia

Prof. Dong Soo Kim
KAIST, South Korea

Prof. Junichi Koseki
University of Tokyo, Japan

PROGRAMME AT A GLANCE

Time	Tuesday, Jan 17
15:00 - 16:30	Visit of LMS laboratory at EPFL (optional)
16:30 - 18:00	Bus transfer to Villars-sur-Ollon (optional) 
18:00 - 19:30	**Registration**
19:30 - 21:30	Welcome cocktail 

Time	Wednesday, Jan. 18	
08:00 - 08:30	**Registration**	
08:30 - 08:50	**Workshop opening ceremony** Workshop organizers: Lyesse Laloui and Alessio Ferrari Vice-president for Europe of the ISSMGE: Antonio Gens Supportive organizations: TC101,TC106 and TC308 Representatives Supportive organizations: GS president Laurent Pitteloud	
08:50 - 09:30	**Keynote lecture: Mario Manassero** Intrinsic and state parameters governing the efficiency of bentonite barriers for contaminant control	
09:30 - 10:00	**Feature lecture: Charles Shackelford** Coupled Membrane and Diffusion Testing of Active Clays for Barrier Applications	
10:00 - 10:20	Coffee Break	
10:20 - 12:00	Unsaturated behaviour of soils and shales	Soil-structure interactions
12:00 - 13:30	Lunch	
13:30 - 16:30	Enjoy your stay in the Swiss Alps 	
16:30 - 17:10	**Keynote lecture : Charles Wang Wai Ng** Cyclic thermo-mechanical behaviour of unsaturated fine-grained soils	
17:10 - 17:40	**Feature lecture: Cristina Jommi** Evidences of the effects of free gas on the hydro-mechanical behaviour of peat	
17:40 - 18:00	Coffee Break	
18:00 - 19:00	Unsaturated behaviour of soils and shales	Advanced laboratory testing
20:30 - 20:35	Introduction to the Special Issue of GETE Journal by Alessio Ferrari	
20:35 - 21:45	**The 3rd Bishop Lecture** **Hervé Di Benedetto** Advanced testing and modelling of granular materials with and without viscous glue: Research and practical implication	
21:45 - 23:00	Wine and Cheese Party 	

Time	Thursday, Jan. 19		Time	Friday, Jan. 20	
08:15 - 08:30	**Registration**		08:15 - 08:30	**Registration**	
08:30 - 09:10	**Keynote lecture: Russel Ewy** Shale capillarity, osmotic suction and permeability, and solutions to practical testing		08:30 - 09:10	**Keynote lecture: Bernardo Caicedo** Hydro-mechanical behaviour of unsaturated argillaceous rocks	
09:10 - 09:40	**Feature lecture: Feng Zhang** Measurement of Supercritical CO2 Permeability in Porous Rock at Reservoir Conditions		09:10 - 09:40	**Feature lecture: Frank Wuttke** Advanced meso - scale modelling to study the effective T- M parameter in solid geomaterial	
09:40 - 10:00	Coffee Break		09:40 - 10:00	Coffee Break	
10:00 - 12:00	Opalinus Clay	Advanced laboratory testing for site-characterization and in-situ application studies	10:00 - 12:20	Hydro - mechanical behaviour of shales and stiff clays	Constitutive and numerical modeling of soils and shales
12:00 - 13:30	Lunch		12:20 - 14:00	Lunch	
13:30 - 16:30	Enjoy your stay in the Swiss Alps 		14:00 - 16:30	Enjoy your stay in the Swiss Alps 	
16:30 - 17:10	**Keynote lecture: Antonio Gens** Modelling the mechanical behaviour of Callovo - Oxfordian argillite. Formulation and application		16:30 - 17:10	**Keynote lecture: Richard Wan** Multiscale apporach to micro - poro - mechanical modelling of unsaturated shales	
17:10 - 17:40	**Feature lecture: Mahdia Hattab** Identification of local mechanisms in clays and energy - based modelling		17:10 - 17:40	**Feature lecture: Matthieu Vandamme** Measurement of mechanical properties of thin clay films and comparison with molecular simulations	
17:40 - 18:00	Coffee Break		17:40 - 18:00	Advanced laboratory testing	
18:00 - 19:00	Advanced laboratory testing	Constitutive and numerical modeling of soils and shales	18:00 - 18:20	Coffee	
			19:30 - 23:30	Workshop Gala dinner 	
19:15 - 20:00	Meeting of the editorial board of the Journal **Geomechanics for Energy and the Environment**				

KEYNOTE & FEATURE LECTURERS

WEDNESDAY 18TH JANUARY, 8:50 – 9:30
KEYNOTE LECTURE

Mario Manassero
Politecnico di Torino

Professor of Geotechnical Engineering at Politecnico di Torino. Past Chairman of Technical Committee (TC 215) "Environmental Geotechnics" of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). Appointed as the second Kerry Rowe Lecturer by ISSMGE TC 215. Research activities about soil improvement methods, landfill and polluted subsoil containment systems, mechanical behavior of municipal and industrial wastes, chemical-physical interaction between pore fluids and solid skeleton, multiphase coupled flows and associated transport phenomena. Geotechnical consultant of MOSE project for Venice lagoon protection and of Victoria State Environmental Protection Agency (Melbourne). Member of geotechnical design team for Messina Strait suspension bridge.

WEDNESDAY 18TH JANUARY, 9:30 – 10:00
FEATURE LECTURE

Charles D. Shackelford
Colorado State University

Professor and Head of the Department of Civil and Environmental Engineering at Colorado State University, USA. Dr. Shackelford's research is focused primarily on evaluating flow and transport of hazardous liquids and contaminants through engineered soil and geosynthetic barriers commonly used in geoenvironmental containment applications, as well as through soil-bentonite vertical cutoff walls used for in situ control and containment of polluted groundwater. In 2013, his career contributions to the area of Environmental Geotechnics were recognized with the receipt of the inaugural *Kerry Rowe Lecture* from the International Society of Soil Mechanics and Geotechnical Engineering.

WEDNESDAY 18TH JANUARY, 16:30 – 17:10
KEYNOTE LECTURE

Charles Wang Wai Ng
Hong Kong University of Scince and technology

Associate Vice-President for Research and Graduate Studies and a Chair Professor in the Department of Civil and Environmental Engineering at the Hong Kong University of Science and Technology. He obtained PhD degree from the University of Bristol in 1993. Prof Ng was elected an Overseas Fellow from Churchill College, Cambridge University, in 2005 and also was elected Changjiang Scholar (Chair Professorship in Geotechnical Engineering) by the Ministry of Education in China in 2010. He is Fellow of the Institution of Civil Engineers (FICE), the American Society of Civil Engineers (FASCE), and the Hong Kong Academy of Engineering Sciences. Currently, he chairs the Awards Committee of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) and is the Editor-in-Chief of the ISSMGE Bulletin and also an Associate Editor of the Canadian Geotechnical Journal. He has also served in many other editorial boards of reputable journals.

WEDNESDAY 18TH JANUARY, 17:10 – 17:40
FEATURE LECTURE

Cristina Jommi
Deltf University of Technology

She graduated cum laude in civil engineering from the Politecnico di Milano, and received her PhD from the Politecnico di Torino with a dissertation on the numerical modelling of coupled processes in saturated and unsaturated soils. She is Professor of Dykes and Embankments at the Faculty of Civil Engineering of Delft University of Technology since 2013, where she moved from the Politecnico di Milano where she had been assistant professor and associate professor of Soil Mechanics and Geotechnical Engineering. She is author or co-author of about 100 scientific papers, and delivered various invited lectures in different international conference. She is member of the TC106 (unsaturated soils) and of the TC214 (soft soils) of the ISSMGE. She has been serving several scientific journals as reviewer or member of the Editorial Board.

THURSDAY 19TH JANUARY, 8:30 – 9:10
KEYNOTE LECTURE

Russel Ewy
Chevron Energy Technology Co.

Russ Ewy is a Research Consultant with Chevron Energy Technology Co. He leads Chevron's technology development and deployment efforts in laboratory rock mechanics testing, and in reservoir geomechanics. Prior to joining Chevron in 1996, Russ was with Exxon Production Research. He has over 25 years of experience testing shales and claystones in the laboratory. Russ holds BS and M Eng degrees in mineral engineering and a PhD degree in rock mechanics (with minor in Geotechnical Engineering), all from the U. of California at Berkeley. Russ has served on the Board and the Executive Committee of the American Rock Mechanics Association, and currently serves as an associate editor for the Society of Petroleum Engineers Journal. Russ is also a member of the Petroleum Geomechanics Commission of the International Society for Rock Mechanics (a sister society of ISSMGE). With other commission members he has conducted a series of workshops on petroleum geomechanics testing methods, and has contributed to the development and publication of international testing standards.

THURSDAY 19TH JANUARY, 9:10 – 9:40
FEATURE LECTURE

Feng Zhang
Nagoya Institute of Technology

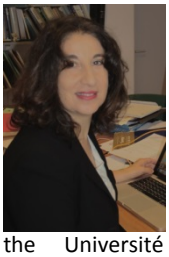
Dr. Feng Zhang is a professor of Nagoya Institute of Technology (NIT, National University Association, Japan) since 2005. He got Ph.D. degree from Kyoto University in 1995. He served as the head of Civil Engineering Department of NIT during 2006 to 2008 and the director of Advanced Disaster Prevention Engineering Center of NIT during 2011 to 2014. His main research interests are in constitutive modeling in soil mechanics & rock mechanics, numerical analyses in geotechnical engineering and seismic evaluation of earth structures. He is recipient of the awards including the Best Paper Medal of Soils & Foundations (2002, 2011) and the Best Paper Medal of Japan Society of Civil Engineers (2007).

THURSDAY 19TH JANUARY, 16:30 – 17:10
KEYNOTE LECTURE

Antonio Gens
Technical University of Catalonia

Antonio Gens graduated from the Technical University of Madrid and he obtained a M.Sc. and a Ph.D. degree from Imperial College in London. He is a professor of Geotechnical Engineering at the Technical University of Catalonia in Barcelona where he has been Head of the Department of Geotechnical Engineering and Geosciences and member of the Governing Council of the University.
He has been involved in geotechnical research, consulting and education for more than 30 years. He is the author or co-author of more than 250 scientific papers and he sits in the Editorial Board of several International Journals. He is a member of TC105 (unsaturated soils), TC215 (environmental geotechnics) and TC308 (energy geotechnics) of the ISSMGE. He has consulted widely and has given geotechnical advice on a series of landmark projects, both at home and abroad.

THURSDAY 19TH JANUARY, 17:10 – 17:40
FEATURE LECTURE



Mahdia Hattab
Université de Lorraine

Mahdia Hattab is full Professor of civil engineering at the Université de Lorraine, she works in the field of Soil mechanics and Geotechnics. At the Université de Lorraine she teaches an undergraduate course of geotechnical engineering, and applications of finite elements to geotechnical structures, a graduate course of soil mechanics and, at doctoral level, a course in multiscale multiphysical behavior of clayey soils.
Mahdia Hattab research activities are mainly focused on experimental investigation of strain mechanisms in clayey materials. Strain mechanisms are considered from the mesoscopic scale (groups of particles) to the macroscopic scale (specimen level). Mahdia Hattab serves as codirector of Civil Engineering Master of the Université de Lorraine, and as Vice chair of EMI « Granular Material » Committee of the ASCE. She is chair of the first EMI International Conference organized in Europe (2016EMI International Conference).

KEYNOTE & FEATURE LECTURERS

FRIDAY 20TH JANUARY, 8:30 – 9:10
KEYNOTE LECTURE

Bernado Caicedo
Los Andes University

Graduate in Civil Engineering at the Cauca University in Colombia (1986), DEA in geotechnics and structures, Ecole Centrale de Paris (1987), PhD in Geotechnics and Structures Ecole Centrale de Paris (1991). Professor at Los Andes University since 1991. Member of the editorial board of Geotechnique Letters, Acta Geotechnica and the Journal of Transportation Geotechnics. Referee for several international journals. Supervisor of 95 master thesis, 12 doctoral thesis in Uniandes. Leader of more than 65 research projects in pavements and geotechnics in Uniandes. Editor of one book and author of 80 conference papers and 36 journal papers.

FRIDAY 20TH JANUARY, 9:10 – 9:40
FEAUTRE LECTURE

Frank Wuttke
Kiel University

Frank Wuttke studied Civil Engineering at the Bauhaus-University Weimar. In 2005 he earned his doctorate. During his post-doctoral work, he had different research visits at the Bulgarian Academy of Science, Institute of Mechanics, at the Colorado School of Mines, Center of Wave Phenomena and at GeorgiaTech, Particulate Media Research Lab. In 2013 he earned his Habilitation and in the same year he starts at the new Professorship Marine and Land Geomechanics & Geotechnics at Kiel University. He is member of different national and international task forces in geotechnical, earthquake and energy-geotechnical fields.

FRIDAY 20TH JANUARY, 16:30 – 17:10
KEYNOTE LECTURE

Richard Wan
University of Calgary

Richard Wan is a Professor with the Department of Civil Engineering at the University of Calgary. He holds a diplôme d'ingénieur from the Ecole Nationale des Travaux Publics de L'Etat (ENTPE), an MSc in geotechnical engineering from the University of Ottawa, and a PhD. in geomechanics from the University of Alberta.
He has many years of experience in geomechanics with special emphasis on continuum mechanics, micromechanics, experimental mechanics, soil and rock mechanics, constitutive laws for engineering materials and numerical modelling of complex geotechnical structures. He sits on the Editorial Board of several International Journals and is the Vice-Chair of the TC103 (Numerical Methods) of the ISSMGE. His research expertise covers the fields of Geomechanics and Computational Mechanics with applications such as energy resource extraction and cold regions engineering. He also conducts biomechanics/biomedical research related to the freezing of tissues such as in Prostrate Cryosurgery.

FRIDAY 20TH JANUARY, 17:10 – 17:40
FEATURE LECTURE

Matthieu Vandamme
École Nationale des Ponts et Chaussées

Matthieu VANDAMME received his Ph.D. from the Civil and Environmental Engineering department at MIT (Cambridge, MA) in 2008, for a study of the creep properties of cementitious materials by nanoindentation. He is also engineer from Ecole Polytechnique (France) and from École Nationale des Ponts et Chaussées (France), and received an M.S. in solid mechanics from École Nationale des Ponts et Chaussées in 2002. He was awarded the 2016 EMI Leonardo da Vinci Award.
Since 2008, he has been working at Laboratoire Navier (ENPC, CNRS, IFSTTAR) at École Nationale des Ponts et Chaussées. He performs Materials Science applied to materials relevant for Civil and Petroleum Engineering (i.e., cementitious materials, coal, clay-based materials…). More precisely, his main interest lies in the mechanics and physics of porous solids.

THE 3rd BISHOP LECTURE

WEDNESDAY 18TH JANUARY, 20:35 – 21:45

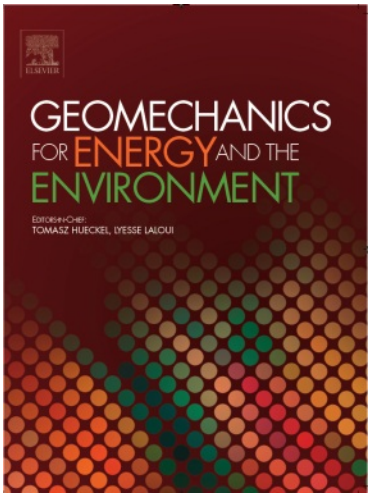
Hervé Di Bnedetto University of Lyon

Professor Hervé Di Benedetto received his Diploma of Civil Engineer from the "Ecole Nationale des TPE" (ENTPE). He is Doctor of Engineering in Soil Mechanics (1981) and "Docteur ès-Sciences" (1987), both from the University of Grenoble, France. Currently he is Professor at ENTPE, University of Lyon. Prof. Di Benedetto's research focuses on the study of mechanical, thermo-mechanical and structural behaviour of geomaterials, including experimental and modelling aspects. He is working in the fields of soils mechanics and road engineering, working in closing the gap between these two disciplines.
He has been the Supervisor of more than 50 PhD students and of a large volume of research works in collaboration with various private and public partners. He is author of more than 180 publications. Prof. Di Benedetto has been frequently Invited or Keynote Speaker for international conferences. He Chaired Technical Committee 101 "Laboratory testing" of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) from 2009 to 2013. He was President from 2013 to 2015 of the International Society of Asphalt Pavement (ISAP), and is cofounder and member of the Steering Committee the European Asphalt Technology Association (EATA). He is a Fellow and member of the Technical Advisory Committee of RILEM (International Union of Laboratories and Experts in Construction Materials, Systems and Structures) where he animated and animates different working groups. He belongs to the Board of different journals and is Editor-in-Chief of the SCI International Journal "Road Materials and Pavement Design".
Bishop Lecture was established by the Technical Committee 101 in commemoration to the Professor Alan W. Bishop. The 3rd Bishop Lecture is entitled "Advanced testing and modelling of granular material with and without viscous glue: research and practical implication".

SPECIAL ISSUE

THEMED ISSUE OF ATMSS FOR THE JOURNAL OF GEOMECHANICS FOR ENERGY AND THE ENVIRONMENT

Participants to the ATMSS Workshop will receive the opportunity to publish in the Journal of Geomechanics for Energy and the Environment.



The aim of the Geomechanics for Energy and the Environment is to publish research results of the highest quality and of lasting importance on the subject of geomechanics, with the focus on applications to geological energy production and storage, and the interaction of soils and rocks with the natural and engineered environments.

Editors-in-Chief: Prof. Lyesse Laloui
Prof. Tomasz Hueckel

Guest Editor for the special issue: Prof. Alessio Ferrari

AGENDA:

31 January 2017: the Authors that are interested in publishing an extended version of their contribution should contact Prof. Alessio Ferrari (alessio.ferrari@epfl.ch) within this date.

15 February 2017: selection of the contributions to be considered for the special issue and notification to Authors.

1 March 2017: opening of the submission process through the journal platform.

30 June 2017: deadline for the submission through the journal platform.

31 December 2017: all the papers will be fully reviewed and final decisions will be made by this deadline.

Early 2018: Publications of the accepted papers.

DETAILED PROGRAMME

	Tuesday, Jan. 17	
15:00 - 16:30	Visit of LMS laboratory at EPFL (optional) EPFL-LMS, Building GC, Station 18, CH-1015 Lausanne, Switzerland	
16:30 - 18:00	Bus transfer to Villars-sur-Ollon (optional)	
18:00 - 19:30	Registration	
19:30 - 21:30	Welcome cocktail	

	Wednesday, Jan. 18	
08:00 - 08:30	Registration	
08:30 - 08:50	Workshop opening Workshop Organizer: Prof. Lyesse Laloui and Prof. Alessio Ferrari Vice-president for Europe of the ISSMGE: Prof. Antonio Gens Supportive organizations: - TC101: Dr. Erdin Ibraim - TC106: Prof. Bernardo Caicedo - TC308: Representative - GS: Mr. Laurent Pitteloud	
	Chair: Alessio Ferrari	
08:50 - 09:30	Keynote lecture **Mario Manassero** Intrinsic and state parameters governing the efficiency of bentonite barriers for contaminant control	
09:30 - 10:00	Feature lecture **Charles Shackelford** Coupled membrane and diffusion testing of active clays for barrier applications	
10:00 - 10:20	Coffee Break	
10:20 - 12:00	SESSION A **Unsaturated behaviour of soils and shales** Chair: Cristina Jommi	SESSION B **Soil – structure interactions** Chair: Frank Wuttke

SESSION A:

Use of psychrometers, capacitive sensors and vapour transfer technique to determine the water retention curve of compacted bentonite
María Victoria Villar, Rubén Javier Iglesias, Carlos Gutiérrez-Álvarez, Gemma Campos

Water content effect on the fault rupture propagation through wet soil using direct shear tests
Mohammad Ahmadi, Mojtaba Moosavi, Mohammad Kazem Jafari

Specimen preparation techniques for testing fully and partially saturated sands in dynamic simple shear (DSS) test device with confining pressure
Derya Burcu Gulen, E. Ece Eseller – Bayat

Response of clay rock to moisture change
Chun-Liang Zhang

Measurement of vertical strain of compacted bentonite at changing of potential of without lateral stress
Tomoyoshi Nishimura, Keita Iwasaki

SESSION B:

Experimental and numerical study of the thermo-mechanical behaviour of energy piles for Belgian practice
Malek Allani, Gust Van Lysebetten, Noël Huybrechts

Drained & Undrained Analysis for Foundations based on Triaxial Tests
André Arnold, Manuel Krähenbühl, Andreas Schmid

Impact of thermally induced soil deformation on the serviceability of energy pile groups
Alessandro Rotta Loria, Lyesse Laloui

Numerical analysis of seismic soil-pile-structure interaction in soft soil with strong nonlinearity and its validation by 1g shaking table test
Kheradi Hamayoon, Ye Bin, Morikawa Yukihiro, Zhang Feng

On the interface shearing behavior between granular soil and artificial rough surfaces
Xue-Ying Jing, Wan-Huan Zhou, Hua-Xiang Zhu, Zhen-Yu Yin, Yangmin Li

12:00 - 13:30 Lunch

13:30 - 16:30 Enjoy your stay in the Swiss Alps: skiing, relaxing or just working in a beautiful landscape

DETAILED PROGRAMME

	Chair: Charles Shackelford	
16:30 - 17:10	Keynote lecture **Charles Wang Wai Ng** Cyclic thermo-mechanical behaviour of unsaturated fine-grained soils	
17:10 - 17:40	Feature lecture **Cristina Jommi** Evidences of the effects of free gas on the hydro-mechanical behaviour of peat	
17:40 - 18:00	Coffee Break	
18:00 - 19:00	SESSION A **Unsaturated behaviour of soils and shales** Chair: Chun-Liang Zhang	SESSION B **Advanced laboratory testing** Chair: Thomas Brandon
	SESSION A: ***Evaluation of the instantaneous profile method for the determination of the relative permeability function*** *Anne-Catherine Dieudonné, Robert Charlier* ***Volumetric behaviour of lime treated high plasticity clay subjected to suction controlled drying and wetting cycles*** *Marco Rosone, Camillo Airó Farulla, Clara Celauro, Alessio Ferrari* ***Crack initiation and propagation of clays under indirect tensile strength test by bending related to the initial suction*** *Lamine Ighil Ameur, Mahdia Hattab* *SESSION B:* **A double cell triaxial apparatus for testing un-saturated soil under heating and cooling** *Qing Cheng, Raejee Kaewsong, Chao Zhou, Charles Wang Wai Ng* ***Determining fluid compressibility and soil permeability of quasi saturated sand with the alternating flow apparatus*** *Jeanne Ewers, Fabian Karl* **Effect of Specimen Confinement Method on Simple Shear Test of Clay** *Bhagaban Acharya, David Airey*	
20:30 - 20:35	**Introduction to the Special Issue of Geomechanics for Energy and the Environment (GETE) Journal** Alessio Ferrari	

20:35 - 21:45	***The 3rd Bishop Lecture*** **Hervé Di Benedetto** Advanced testing and modelling of granular materials with and without viscous glue: Research and practical implication Chair: Lyesse Laloui
21:45 - 23:00	"Wine and cheese" party 

	Thursday, Jan. 19	
8:15 - 8:30	Registration	
	Chair: Lyesse Laloui	
08:30 - 09:10	Keynote lecture **Russel Ewy** Shale capillarity, osmotic suction and permeability, and solutions to practical testing	
09:10 - 09:40	Feature lecture **Zhang Feng** Measurement of supercritical CO_2 permeability in porous rock at reservoir conditions	
09:40 - 10:00	Coffee Break	
10:00 - 12:00	SESSION A **Opalinus Clay** Chair: Maria Victoria Villar	SESSION B **Advanced laboratory testing for site characterization and in-situ application studies** Chair: Mahdia Hattab
	SESSION A : ***One-Dimensional Compression Behaviour of Opalinus Clay*** *Valentina Favero, Alessio Ferrari, Lyesse Laloui* ***The role of anisotropy on the volumetric behaviour of Opalinus Clay upon suction change*** *Alberto Minardi, Eleonora Crisci, Alessio Ferrari, Lyesse Laloui* ***Consolidated-undrained triaxial test results of Opalinus Clay and comparison with caprock shales*** *Silvio Giger, Russell Ewy, Rudy Stankovic*	

DETAILED PROGRAMME

	One dimensional consolidation of Opalinus Clay from shallow depth *Eleonora Crisci, Alessio Ferrari, Silvio Giger, Lyesse Laloui* ***Lessons learned from electron microscopy of deformed Opalinus Clay*** *Ben Laurich, Janos L. Urai, Guillaume Desbois, Jop Klaver, Christian Vollmer, Christophe Nussbaum* ***The rock mechanical behavior of Opalinus Clay – 20 years of experience in the Mont Terri rock laboratory*** *David Jaeggi, Paul Bossart, Christophe Nussbaum* *SESSION B:* **Cyclic testing on low - density chalk** *Sven Pilgaard Larsen, Nataša Katić, Niels Trads* **Long duration oedometric tests to analyse the creep behaviour of lacustrine sediments** *Luca Bonzanigo, Fabrizio Jauch* ***Deep soil mixing method for the bio-cement by means of bender element test*** *Keeratikan Piriyakul, Janjit Iamchaturapatr* ***Studying of shale organic matter structure and pore space transformations during hydrocarbon generation*** *Dina Giliazetdinova, Dmitry Korost* ***On the application of the microbially induced calcite precipitations for soils: a multiscale study*** *Dimitrios Terzis, Lyesse Laloui* ***Determination of intergranular strain parameters and their dependence on properties of grain assemblies*** *Sparsha Nagula, Jürgen Grabe*
12:00 - 13:30	Lunch
13:30 - 16:30	Enjoy your stay in the Swiss Alps: skiing, relaxing or just working in a beautiful landscape 
	Chair: Bernardo Caicedo
16:30 - 17:10	Keynote lecture **Antonio Gens** Modelling the mechanical behaviour of Callovo - Oxfordian argillite. Formulation and application
17:10 - 17:40	Feature lecture **Mahdia Hattab** Identification of local mechanisms in clays and energy - based modelling

17:40 - 18:00	Coffee Break	
18:00 - 19:00	SESSION A **Advanced laboratory testing** Chair: Enrique Romero	SESSION B **Constitutive and numerical modelling of soils and shales** Chair: Matthieu Vandamme
	SESSION A: **A suction- and temperature-controlled oedometric device** *Hugo Troupel, Jean-Michel Pereira, Matthieu Vandamme* **Acoustic emission technology to investigate internal micro-structure behavior of shear banding in sands** *Wenli Lin, Wuwei Mao, Junichi Koseki* ***Direct and indirect local deformations of sand in undrained cyclic triaxial tests by image analysis technique*** *Chuang Zhao, Junichi Koseki, Yukika Miyashita* *SESSION B:* ***Constitutive framework for unsaturated soils with differentiation of capillarity and adsorption*** *Yafei Qiao, Wenqi Ding, Lyesse Laloui* ***Efficient Parameter Identification for THM Behaviour of claystone using optimization methods*** *Roger Schlegel, Johannes Will* ***A thermodynamic model for rate-dependent geomaterials*** *Hao Wang, Xiaohui Cheng*	
19:15 - 20:00	**Meeting of the editorial board of the Journal Geomechanics for Energy and the Environment**	

	Friday, Jan. 20
8:15 - 8:30	Registration
	Chair: Mario Manassero
08:30 - 09:10	Keynote lecture **Bernardo Caicedo** Hydro - mechanical behaviour of unsaturated argillaceous rocks
09:10 - 09:40	Feature lecture **Frank Wuttke** Advanced meso - scale modelling to study the effective T-M parameter in solid geomaterial

DETAILED PROGRAMME

09:40 - 10:00	Coffee Break	
10:00 - 12:20	SESSION A **Hydro - Mechanical behaviour of shales and stiff clays** Chair: Silvio Giger	SESSION B **Constitutive and numerical modelling of soils and shales** Chair: Xiaohui Cheng

SESSION A:

Fractal analysis of the progressive failure of shales and stiff clays under shear
Luis E. Vallejo, Jairo M. Espitia, Bernardo Caicedo

Recent Developments in Measurement and Use of Fully Softened Shear Strength in the USA
Bernardo A. Castellanos, Thomas L. Brandon

Chemical influence of pore pressure on brine flow in clay-rich material
Etienne Cassini, Roman Makhnenko, Danila Mylnikov

Development of Classification Charts for Q index of shale from Parameters
Nandyala Darga Kumar, Ravikant R. Singh, Faijal Ali, Efray'im

Exploring fissure opening in a Cenozoic clay induced by gas injection
Laura-Gonzalez Blanco, Romero Enrique, Cristina Jommi, Xavier Sillen, Xiangling Li

Profiling the In situ Compressibility of Cretaceous Shale using Grouted-in Piezometers and Laboratory Testing
Laura Smith, S. Lee Barbour, M. Jim Hendry, David Elwood

Seismic dispersion in shales: saturation and stress effects
Andreas Bauer

SESSION B:

Thermo-viscoplastic subloading soil model for isotropic stress and strain conditions
João R. Maranha, C. Pereira, A. Vieira

Coupled analysis of CO_2 injection induced stress variation in the caprock
Chao Li, Lyesse Laloui

Numerical simulation of multi-phase flow in CO_2 geological sequestration
X.W. Wang, Bin Ye, Y.L. Xiong, F. Zhang, K.Y. Li, W.M. Ye

Mechanics and modeling of cohesive frictional granular materials
Saurabh Singh, Ramesh K. Kandasami, Tejas G. Murthy

Numerical modelling of liquefaction tests of partially saturated sands in CSSLB
Seyed Mohsen Seyedi Viand, E.Ece Eseller-Bayat

Aspects of Thermal Fracturing of Clays with Electromagnetic Excitation
Morteza Mohamadi, Richard G. Wan

	Reproduction of discrete element model by 3D printing and its experimental validation on permeability issue *Akihiko Kondo, S. Matsumura, T. Mizutani, E. Kohama*
12:20 - 14:00	Lunch
14:00 - 16:30	Enjoy your stay in the Swiss Alps: skiing, relaxing or just working in a beautiful landscape 
	Chair: Antonio Gens
16:30 - 17:10	Keynote lecture **Richard Wan** Multiscale approach to micro - poro - mechanical modelling of unsaturated shales
17:10 - 17:40	Feature lecture **Matthieu Vandamme** Measurement of mechanical properties of thin clay films and comparison with molecular simulations
17:40 - 18:00	***A New Laboratory Setup for Phase Equilibria Studies of Methane Hydrate in Porous Media*** *Brice Y. Kim, I. Yucel Akkutlu*
18:00 - 18:20	Coffee
19:30 - 23:30	**Workshop Gala dinner**

GALA DINNER on Friday, January 20th

The Gala Dinner will take place at the center of the ski area of Villars-sur-Ollon, at the restaurant "Col de Betraye" at an altitude of 1808 m. Participants will arrive at the restaurant by train. The train ride and the restaurant offer a beautiful view of the landscape! Please note that transport is included. The meeting point is the Eurotel Victoria main Hall at 19.30. For this special occasion, we suggest participants to leave aside the typical "gala dinner" dress code and attend the dinner in **warm and casual clothes** since a surprise party will follow the Gala dinner and the **expected outside temperature is -10°C!**

Don't forget to bring your badge!

GENERAL INFORMATION

EMERGENCY CONTACT NUMBERS

If for any reason you are in need of emergency assistance, please dial:

- General Emergency **112**
- Fire service **118**
- Police **117**
- Ambulance **144**

For any emergency concerning your attendance to the ATMSS Workshop please dial:

- +41216932810 **for French and Chinese**
- +41216935387 **for English and Turkish**
- +41216934213 **for Italian**

PUBLIC TRANSPORTATION

Villars-sur-Ollon has one train station situated in the center of the village. It will take you a ten minutes' walk to reach the station from the Workshop Venue. There is one bus and one train per hour leaving the village in the direction of AIGLE or BEX. From these two locations, you can take a train to Lausanne, Geneva or Milano. A bus leaves the village each hour at XY:55. Beware the public transportation ends at 10 pm. For more information on public transportation time schedule: http://fahrplan.sbb.ch/bin/query.exe/en
Please note that a shuttle is available in front of the Workshop Venue until Villars train station.

ATMSS TWITTER HASHTAG

Please use **#ATMSS** in your tweets, so all tweets can be quickly found and read.

WHATSAPP GROUP

A WhatsApp group has been created for the participants that wish to receive information before and during the event. If you did not give us your phone number during the registration and you wish to participate, please let us know.

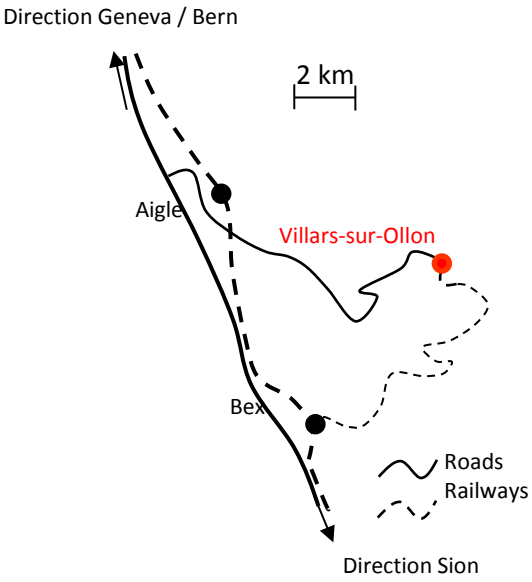
PRACTICAL INFORMATION

The electric current used in Switzerland is 230 Volts AC. Wall outlets are unique to Switzerland. You can find adaptors at the airport. Some adaptors are also available at the venue reception, a deposit of 5.- CHF is requested.

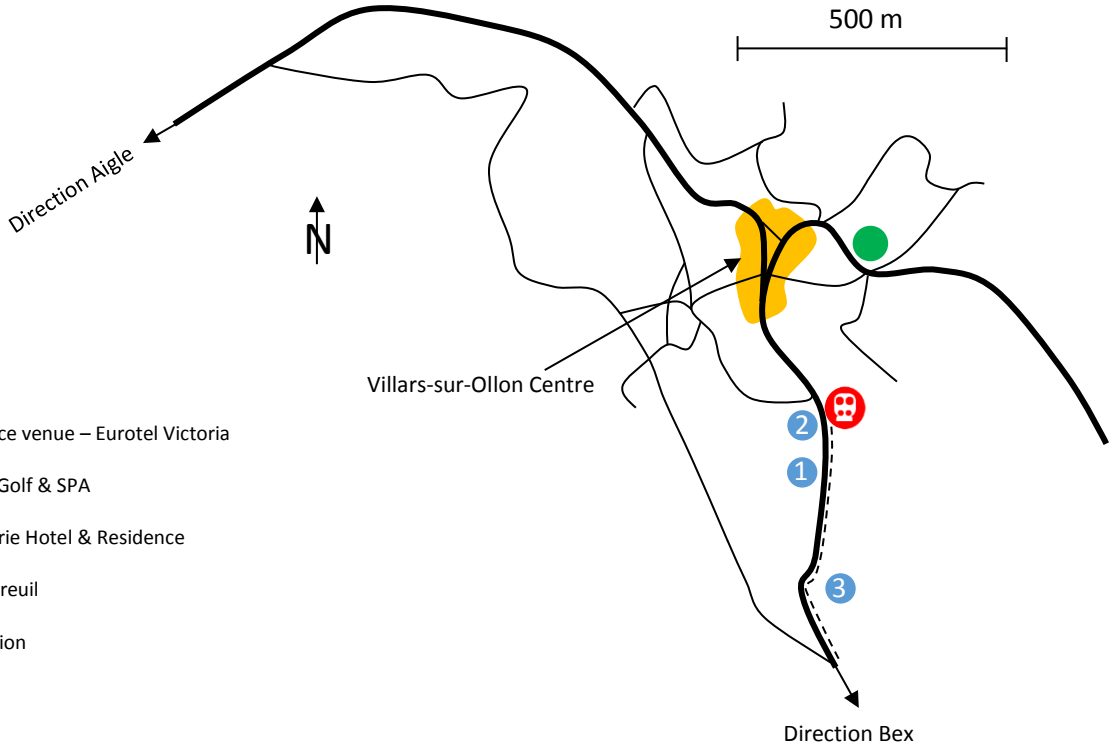
Swiss wall outlet and hexagonal three pin plug

MAP OF WESTERN SWITZERLAND

MAP OF THE REGION



MAP OF VILLARS-SUR-OLLON



- Conference venue – Eurotel Victoria
- 1 Hôtel du Golf & SPA
- 2 Alpe Fleurie Hotel & Residence
- 3 Hotel Ecureuil
- Train station

Gala Dinner Sponsorship

Reception Sponsorships

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International Workshop: Advances in Laboratory Testing & Modelling of Soils and Shales

18 – 20 January 2017
Villars-sur-Ollon, Switzerland

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