6th Biot Conference on Poromechanics

A tribute to Olivier Coussy

organized by ENPC, IFSTTAR, CNRS
July 9-13, 2017, Paris, France

Program

ASCE

Matthieu Vandamme
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PREFACE

Biot Conferences on Poromechanics are named in honor of Maurice A. Biot (1905-1985), the father of the mechanics of porous solids. The series of Biot conferences dates back to 1998, when the first one was held in Louvain-la-Neuve (Belgium). Since then, the Biot conference is held every 3 to 4 years and has become the main international conference for the experts in the mechanics of porous solids. Previous editions of the Biot conference have been held in places with historical significance for the poromechanics community, such as: Université Catholique de Louvain (1st Biot conference in 1998) and Columbia University (4th Biot conference in 2009) where Maurice A. Biot worked, or the Vienna University of Technology (5th Biot conference in 2013) where Terzaghi derived the theory of consolidation. Other editions have been held at times of historical significance, such as the Biot centennial (3rd Biot conference in the University of Oklahoma in 2005).

The 6th Biot Conference on Poromechanics is held at École des Ponts ParisTech and IFSTTAR (Institut Français des Sciences et Technologies des Transports, de l'Aménagement, et des Réseaux, formerly known as Laboratoire Central des Ponts et Chaussées) in the Paris (France) area, from July 9 to July 13, 2017. This is the second time that a Biot conference is organized in France, after the 2nd Biot Conference at Université Joseph Fourier (Grenoble) in 2002. This 6th edition is a tribute to Olivier Coussy (1953-2010), who was the first recipient of the ASCE Biot medal. In the tradition of the previous editions held in places of historical significance, this edition is jointly organized by IFSTTAR (where Olivier worked for most of his career), by École des Ponts ParisTech (where Olivier was Professor), and by CNRS.

Dr. Olivier Coussy rationalized the fundamentals of poromechanics and of the thermodynamics of porous solids, extended the realm of poromechanics to a variety of macroscopic phenomena and in-pore physical processes, and reached relentlessly toward other scientific communities. His scientific legacy is best described by F.-J. Ulm, who wrote the obituary that can be found below. But, for us, Olivier had an impact that went well beyond his contribution to poromechanics.

Olivier was the founder and first director of Laboratoire Navier, in which the four of us work. Laboratoire Navier was created in 2008 and resulted from the merging of three laboratories: a laboratory dedicated to the mechanics of solids and structures, a laboratory dedicated to soil and rock mechanics, and a laboratory dedicated to the physics and rheology of civil engineering materials. Thanks to Olivier's visionary leadership, Laboratoire Navier is now an interdisciplinary laboratory fully dedicated to the mechanics and physics of solids and structures. With almost 200 permanent and non-permanent employees, among which about 50 permanent researchers, Laboratoire Navier is one of the most respected French laboratories working on civil and environmental engineering applications. It is also at the forefront of research applied to petroleum engineering and to the nuclear industry.

Dr. Coussy also founded the master program "Materials Science for Sustainable Construction" (SMCD) in 2006, in close collaboration with Lafarge. The SMCD master program was quite innovative at that time for a master program fully dedicated to the study of disordered porous materials such as the ones encountered in civil engineering applications: truly interdisciplinary, the SMCD master program gathers a teaching body made of world-renowned experts not only in mechanics (Olivier taught the mechanics and physics of porous solids in the master program), but also in physics, physical chemistry, molecular simulations, or multiscale modeling.

The same year, Olivier also succeeded in creating the first industrial Chair at École des Ponts ParisTech, called "Materials Science for Sustainable Construction" and financially supported by Lafarge (now LafargeHolcim). Among others, the Chair provides financial support to master students and fosters research at Laboratoire Navier in conjunction with cement-based materials. It also fully covers yearly workshops at École des Ponts ParisTech and abroad, thus making it possible to form and maintain a unique network of scientists interested in cement-based materials but coming from a variety of fields.

Through his dedication and his proactivity, Olivier created research environment conditions of which we still benefit today, for instance through our Ph.D. students (some of which are alumni of the SMCD master program) or through our industrial and academic collaborations in and outside Laboratoire Navier. Therefore, Olivier had an impact on our lives that went well beyond those one could expect from regular interactions with an exceptional scientist and engineer at the forefront of his discipline.

The plenary speakers at the conference were chosen such as to remain true to the interdisciplinary spirit advocated by Olivier: in addition to prominent and promising poromechanicians, lectures will be given by leading physicists or physical chemists, several of which have been close collaborators of Olivier. In the same spirit, rather than gathering contributions by fields of application or by types of material, we gathered contributions by scientific phenomena. By doing so, we hope to foster discussions between mechanicians, physicists, and physical chemists, independently of whether they apply their expertise to civil or building engineering, biomechanics or wood science, petroleum engineering or geomechanics.

All oral presentations at the conference are accompanied by a manuscript published by ASCE in the Proceedings of the Sixth Biot Conference on Poromechanics (ISBN number 978-0-7844-8077-9). Submissions gathered in these proceedings were all reviewed by voluntary participants to the conference. The list of reviewers is provided in the Acknowledgments section.

THE ORGANIZERS OF THE 6TH BIOT CONFERENCE ON POROMECHANICS
Matthieu VANDAMME, Patrick DANGLA, Jean-Michel PEREIRA, and Siavash GHABEZLOO

ACKNOWLEDGMENTS

The host organizations École des Ponts ParisTech, IFSTTAR, and CNRS are gratefully acknowledged for their administrative and logistical support. We thank EMI (the Engineering Mechanics Institute of the American Society of Civil Engineers) for co-sponsoring the event. The conference has benefited from a French government grant managed by ANR within the frame of the national program Investments for the Future, through the support of the Laboratoire d'Excellence «Modélisation et Expérimentation Multi-Échelle des Matériaux pour la Construction Durable» (Labex MMCD, ANR-11-LABX-022-01). The financial support of Respore (Réseau d'Excellence en Solides Poreux) is gratefully acknowledged. This action was financed by Paris Île-de-France Région.

We thank the Advisory Committee, the International Scientific Committee, and the students from École des Ponts ParisTech and IFSTTAR who helped us run the conference: Abudushalamu AILI, Axelle ALAVOINE, Sara BAHAFID, Malik BELMOKHTAR, Philipp BRAUN, Nam Nghia BUI, Benjamin DARDE, Yushan GU, Hafsa RAHOUI, Hadrien RATTEZ, Marcos SAMUDIO.

We are also grateful to the documentary services of École des Ponts ParisTech, and to Florence Rivière Lamor in particular, for gathering the publications of Dr. Olivier Coussy, and to Hugues Delahousse from IFSTTAR for providing Dr. Coussy's picture.

Finally, we want to gratefully acknowledge the time and care dedicated by the reviewers to the review process. The reviewers were Rachid ABABOU, Abudushalamu AILI, Sergei ALEXANDROV, Golnaz ALIPOUR ESGANDANI, Thomas ARENDS, Chloe ARSON, Lucas BABADOPULOS, Benoit BARY, Patrick BAUD, Elisabeth BEMER, Athma BHANDARI, Jakub BOTH, Claude BOUTIN, Philipp BRAUN, Sébastien BRISARD, Laurent BROCHARD, Donald BROWN, Ha Hong BUI, Quoc-Bao BUI, Quoc Tinh BUI, Tuan Anh BUI, Ali CABALAR, Eva CASPARI, Etienne CASSINI, Israel CAÑAMÓN VALERA, Bruno CHAREYRE, Laurent CHARPIN, Federico CIARDO, Benoit COASNE, Philippe COSENZA, Gary COUPLES, Arash DAHI TALEGHANI, Christian DAVID, Anirban DE, Jessica DELAVOIPIÈRE, Dominique DEROME, Emmanuel DETOURNAY, Jingqian DING, Thiep DOANH, Jerome DURIEZ, Gilles DUVEAU, Lionel ECAY, Mahdad EGHBALIAN, D. Nicolas ESPINOZA, Antonin FABBRI, Ida Lykke FABRICIUS, Faten FARHAT, Massimiliano FERRONATO, Sergey FOMENKO, Jerome FORTIN, Yixiang GAN, Seyed Ali GHOREISHIAN AMIRI, Albert GIRAUD, Sergey GOLOVIN, Gennady GOR, Wei GUAN, Junxin GUO, Marte GUTIERREZ, Ekkehard HOLZBECHER, Julia HOLZHAUER, Tulio HONORIO DE FARIA, Mengsu HU, Zhangli HU, Julien HUBERT, Bruno HUET, Jürg HUNZIKER, Depina IVAN, Antoine JACQUEY, Xiaoping JIA, David JOHNSON, Ralf JÄNICKE, Mariusz KACZMAREK, Ali KARRECH, Dinesh KATTI, Mohammad KHOSHINI, Christian KLUGE, Reidar Inge KORSNES, Kristian KRABBENHOFT, Tien Dung LE, Weixin LI, Zaobao LIU, Thi Ngoc MAC, Pooneh MAGHOUL, Julia MAINKA, Roman MAKHNENKO, Majid MANZARI, Anatoly MARKOV, Amin MEHRABIAN, Lionel MERCURY, Arnaud MESGOUEZ, Xing-Yuan MIAO, Felipe MIRANDA, Hamed MOGHADDASI KELISHOMI, Siavash MONFARED, Tobias MUELLER, Leonid NAZAROV, Larisa NAZAROVA, Thang NGUYEN, Andres NIETO, Anatoly NIKITIN, Maria Aikaterini NIKOLINAKOU, Ehsan NIKOOEE, Olufemi OLORODE, Claudiane OUELLET-PLAMONDON, Leonid PANKRATOV, Viswanath PAROL, Meghdad PAYAN, Laurent PERRIER, Bernhard PICHLER, Lucas PIMIENTA, Jubert PINEDA, Jean PRÉVOST, Beatriz QUINTAL, Hadrien RATTEZ, Saeed SALIMZADEH, Ettore SALUSTI, Marcos SAMUDIO, Julien SANAHUJA, Lorenzo SANAVIA, Vittorio SANSALONE, Juan SANTOS, Martin SCHANZ, Giulio SCIARRA, A.P.S. SELVADURAI, Morten Kanne SOERENSEN, Holger STEEB, Faraz TEHRANI, Mohammad VAHAB, Valliappan VALLIAPPAN, Anil VASHISTH, Rodolfo VENEGAS, Elsa VENNAT, Jenny VENTON, Arnold VERRUIJT, Shih-Jung WANG, Antoine WAUTIER, Ya WEI, Mateusz WYRZYKOWSKI, Xinyu XIE, Wenhao XU, Koji YAMAMOTO, Viktoriya YARUSHINA, Cong YU, Gonzalo ZAMBRANONARVAEZ, Mourad ZEGHAL, Lin ZHANG, Chaofa ZHAO, Junliang ZHAO, Shaohan ZHAO, Annan ZHOU, and Robert ZIMMERMAN.

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WAY TO THE CONFERENCE VENUE

The conference venue is located in the heart of the Cité Descartes in Champs-sur-Marne in the East of Paris.

ADDRESS: 6-8 Av. B. Pascal, 77420 Champs-sur-Marne

ACCESS BY RER A: LINE A, STATION NOISY - CHAMPS, EXIT 3 - CITÉ DESCARTES

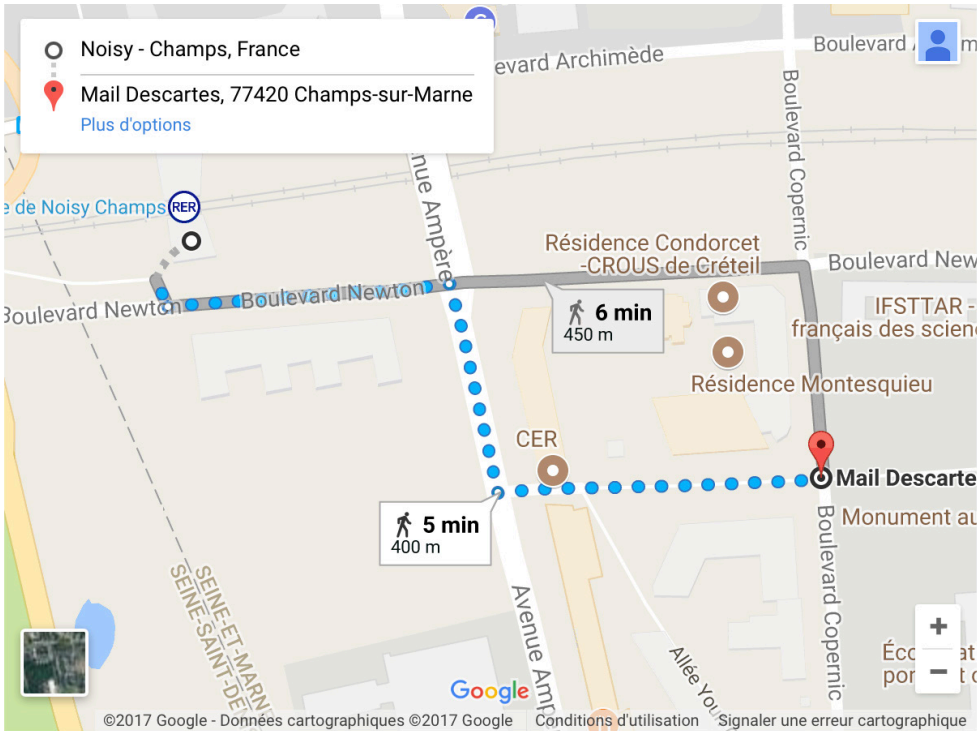
Once on the platform of the Gare de Lyon RER station, count about 35 minutes to reach the campus (i.e., 23 minutes of train + 12 minutes of walking).

Once on the platform of the Nation RER station, count about 32 minutes to reach the campus (i.e., 20 minutes of train + 12 minutes of walking).

From other places, to calculate the duration of commuting, ***visit https://www.ratp.fr/en/itineraires***

ACCESS TO THE CAMPUS

For security reasons, entry into the campus is now exclusively via the security booth located on Copernic boulevard.



DR OLIVIER COUSSY, SCIENTIST AND ENGINEER OF THE MECHANICS AND PHYSICS OF POROUS MATERIALS

BY F.-J. ULM

Reprinted with permission from the Engineering Mechanics Institute of the American Society of Civil Engineering ASCE (EMI). Initially published in the EMI newsletter of February 2010.

Dr Olivier Coussy, the prominent scientist and engineer who developed the fundamentals of poromechanics theory that were transformational in many applications of civil, environmental and petroleum engineering, bioengineering and sustainable development of materials and structures, died on January 15, 2010, at his home in Vanves, close to Paris, France. The cause was a heart attack.

When Dr Coussy started his career in the 1980s in the field of poromechanics, in wave propagation in saturated porous media ('Acoustics of porous media', with T. Bourbié and B. Zinszner, Editions Technip, 1987), a small number of researchers in different countries had recognized the potential impact of M.A. Biot's consolidation theory for engineering applications. Trained as an engineering scientist in the best vein of the French mechanics school, 'La Mécanique Rationnelle', Dr Coussy recognized that the development of the vast field of engineering applications of poromechanics still lay ahead; and required a comprehensive macroscopic theory of the mechanics and physics of porous materials. Over the next 25 years, in three monographs he laid the foundation for and advanced many engineering applications of what became to be known as the Biot-Coussy theory of poromechanics. He was one of the founders of the Biot Conference on Poromechanics in 1998.

Olivier Coussy was born on November 3, 1953, in Marseille, France. His father was an Engineer, his mother was dedicated to the education of 6 children. He graduated from Ecole Nationale des Ponts et Chaussées, Paris, in 1975, received a PhD degree in 1978, and a Docteur ès Sciences Degree in 1985, both from University Pierre et Marie Curie, Paris. He became an engineering scientist at the Laboratoire Central des Ponts et Chaussées, last as director of the Institut Navier and of UR Navier at Université Paris-Est, a joint research unit between Ecole des Ponts, Laboratoire Central des Ponts et Chaussées and CNRS with 50 permanent scientists in mechanics and physics of materials and structures. Over the years, Dr Coussy worked in various fields of Applied Mechanics, such as limit analysis and yield design, wave propagation, dynamics of cracked materials, and dynamics of structures; before shaping and defining the field of poromechanics. He was a much sought partner and consultant for the Oil and Gas, Cement and Construction Industry, Nuclear Power and Nuclear Waste Agencies.

Dr Coussy broke new grounds in Applied Mechanics with his first monograph entitled 'Mécanique des Milieux Poreux' (Editions Technip, 1991), and its English translation and extension 'Mechanics of Porous Continua' (John Wiley & Sons, 1995). In this monograph, Dr Coussy developed a consistent thermodynamics theory of poromechanics, by considering porous continua, at the macroscopic scale of engineering applications, as open thermodynamic systems in which the addition of one or several fluid phases changes the energy and entropy balance of the solid system. The theory provides a seamless extension both of classical continuum mechanics theory of solids to porous materials, and of M.A. Biot's infinitesimal deformation poroelasticity theory to finite deformation thermoporoelasticity, poroplasticity, poroviscoelasticity and poroviscoplasticity of saturated porous media. His groundbreaking approach was quickly recognized by the community as the lingua franca of poromechanics.

In the late 1990s and 2000s, Dr Coussy extended the poromechanics theory of saturated to partially saturated porous media, including chemically reactive porous materials and other phenomena where the physics and chemistry of solid and fluids cause deformation of materials and structures. Many of these scholarly contributions were driven by the need for the development of predictive engineering models for large-scale engineering applications, such as early-age concrete behavior, drying shrinkage of concrete, swelling of clay, front propagation in calcium leaching and chloride diffusion, and so on. In this spirit, his second monograph entitled 'Poromechanics' (John Wiley & Sons, 2004) completed the development of the thermodynamics and constitutive models of materials subjected to coupled phenomena, at the intersection of mechanics of porous solids and physical chemistry. All this led the way for poromechanics to open up a whole new field of applications in chemomechanics and durability mechanics problems of materials and structures.

In his recent research, Dr Coussy returned to the very foundations of the thermodynamics approach of poromechanics, in advancing a theory that distinguishes energy and entropy contributions from the solid, the fluid and the interfaces. In his most recent seminal works, this new framework was key to solving many puzzles past and future, be it hardening plasticity for unsaturated porous materials; confined phase transitions in porous media (freezing materials, in-pore crystallization of salt); or adsorption-induced swelling of coal for carbon sequestration applications. For this new set of challenging engineering problems, poromechanics provides the host theory to formulate the macroscopic constitutive equations of partially liquid-saturated porous materials; while the physics of interfaces, informed by Molecular Dynamics simulations of adsorption phenomena in nano- and micropores, provides a means to analyze and quantify the multiscale effects of interface energy and interface tensions on macroscopic deformation. These recent developments have as common denominator the 'Mechanics and Physics of Porous Solids', the title of his third monograph on poromechanics, which went to press in late 2009 (John Wiley & Sons, 2010). With Dr Coussy's unique signature of rigor and depth and a new vision for poromechanics at the intersection of continuum mechanics and interface physics, this last monograph holds yet again the promise to shape the future of poromechanics.

Throughout his distinguished career, Dr Coussy was a dedicated educator, an inspiring instructor and a generous mentor. He taught both foundational subjects such as Fluid Mechanics at Ecole Polytechnique, and Solid Mechanics at the University of Marne-la-Vallée, which inspired the textbook 'Mechanics and Durability of Solids. I. Mechanics of Solids' (with F-J. Ulm, Prentice Hall, 2002); as well as advanced graduate subjects such as Thermodynamics at the University of Marne-la-Vallée. Last, he was a Professor at Ecole des Ponts ParisTech, where he developed and implemented an innovative education and research program, the Master of 'Materials Science for Sustainable Construction' as a joint venture of Ecole des Ponts ParisTech, Ecole Polytechnique and Lafarge. This combination of research and education was a hallmark of Dr Coussy's career and true to his principle that 'La bonne recherche finira dans l'enseignement' (good research ends up in education). This left a lasting impact on all his students and associates; be it in the class room, on the drawing board in his office or in the 5 books and more than 100 scholarly papers he authored and co-authored.

For his contributions, Dr Coussy received many recognitions; among which the Jean Mandel Award (1985) from the French Association of Mechanics; the Plumey Award (1999) from the French Academy of Sciences; the Knight of the National Order of Merit (2000); and the Biot Medal (2003) from the American Society of Civil Engineers, of which he was the first recipient.

FRANZ-JOSEF ULM
Massachusetts Institute of Technology
Cambridge, U.S.A.
January 30, 2010

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The full bibliography of Dr. Olivier Coussy is available at the address:
https://biot2017.sciencesconf.org/resource/page/id/12

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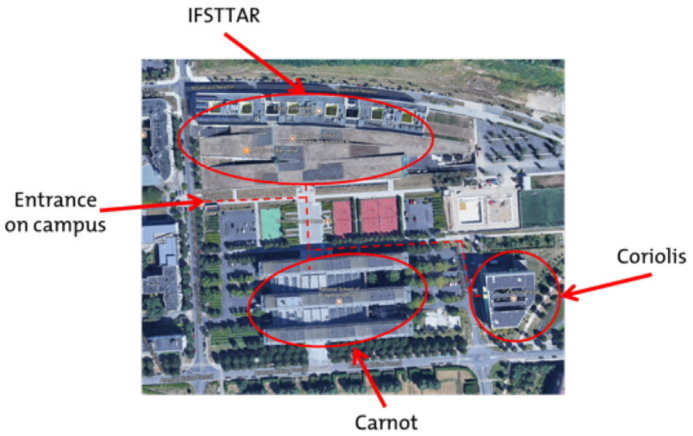
CAMPUS MAP

The sessions will be spread over 3 buildings: the “IFSTTAR” building, and the buildings “Carnot” and “Coriolis” of École des Ponts ParisTech.

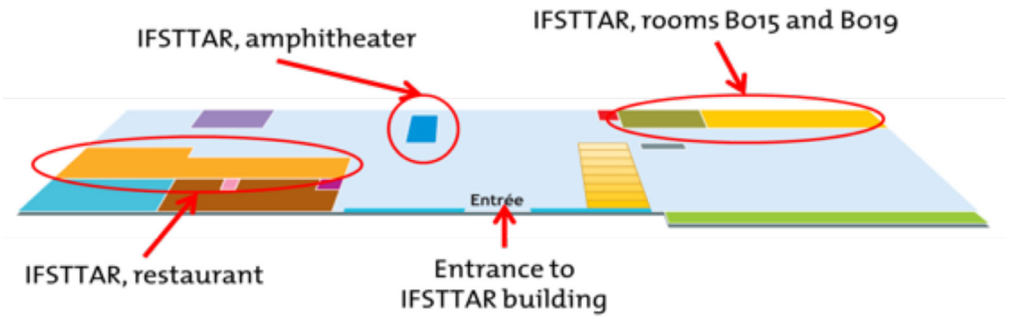
IFSTTAR

Carnot

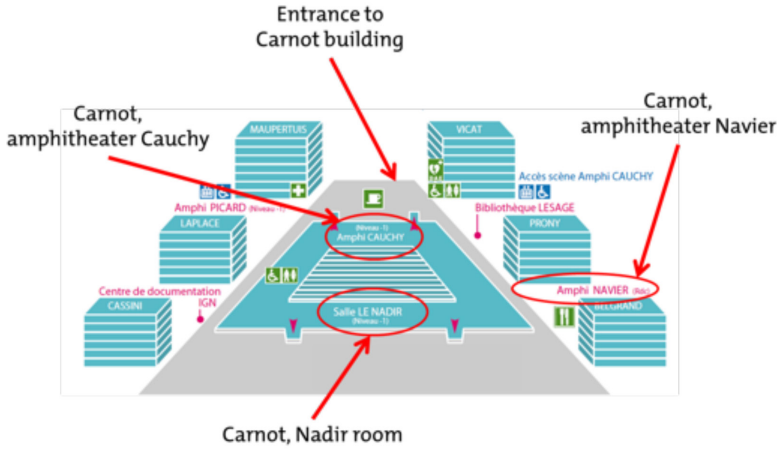
Coriolis



The IFSTTAR building, whose map is drawn below, will welcome parallel sessions in its amphitheater and in rooms B015 and B019. Lunches and the wine & cheese party will take place in the restaurant of this same building.



The Carnot building, whose map is drawn below, will welcome parallel sessions in its amphitheaters Cauchy and Navier. The poster session will take place in its Nadir room.

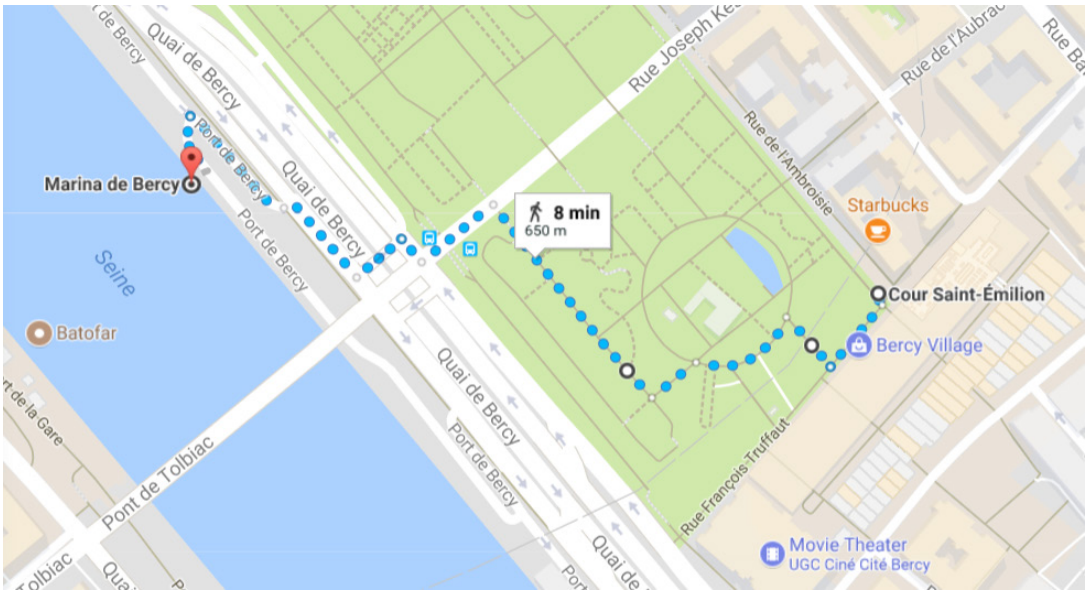


INSTRUCTIONS FOR BANQUET DINNER

The cruise for the banquet dinner will leave at 20:00 sharp, from the Escale de Bercy (see map below). Doors will open at 19:30.

Address for parking: 210-215, quai de Bercy, 75012 Paris.

From the location of the conference, the easiest way to reach the port, from where the boat will leave from, is to take public transportation to the metro station “Cour Saint-Émilion” (RER A from Noisy-Champs to Gare de Lyon, and then metro 14 from Gare de Lyon to Cour Saint-Émilion). The port can then be reached by walking in 10 minutes, by following the map below.



SCIENTIFIC PROGRAM

PRACTICAL INFORMATION

INFORMATION FOR LECTURERS

- Technical staff is assigned to each lecture room for help with technical equipment.
- Each lecture room is equipped with a notebook (Windows 7, Microsoft Office 2010, Acrobat Reader) and a video projector. You are asked to upload your presentation, at the very latest, in the break before the session.
- Please be present at least 10 minutes prior to the start of your session and let the chairperson know you are there.
- Please make sure to stay in your session from the beginning in order to ensure smooth changes between the individual presentations.
- The time allotted for the presentations is 20 min. (incl. discussion) for all presentations. The chairpersons are requested to stop presentations after the allotted time has passed.

INFORMATION FOR CHAIRPERSONS

- All lecturers of your session are requested to approach you in the lecture room at least 10 minutes before the start of the session. This allows you to identify lecturers who have not arrived yet.
- Technical staff is assigned to each lecture room for help with technical equipment. They are responsible for the technical equipment in the lecture room and are ready to help you in any other aspect.
- You are kindly asked to switch between presentations by simply announcing the name of the next presenter and the title of the presentation. Due to the tight schedule, there will not be sufficient time for introducing individual lecturers in a more detailed manner.
- Please do your best to strictly limit the duration of each presentation and discussion to the allotted time.
- If a lecturer is missing, please stick to the original program, i.e., extend the discussion time of the preceding presentation or allow a break for the duration of the missing lecture(s). This enables participants to listen to chosen individual lectures according to the announced sequence.

INFORMATION FOR POSTER PRESENTERS

- The format of poster must be A0 vertical.
- Panels will be provided, with all necessary equipment to hang the posters.

KEYNOTE LECTURE

Monday, July 10, 2017, 9:30-10:05. Chair: Vandamme Matthieu
Coriolis, amphitheater

9:30-10:05 ***Ulm Franz-Josef, Pellenq Roland***
Biot-Coussy theory: Bridging from continuum mechanics to statistical physics of porous materials

PLENARY LECTURES

All plenary lectures are delivered in Coriolis amphitheater.

Monday, July 10, 2017, 9:55-10:45. *Chair: Vandamme Matthieu*

9:55-10:20	***Selvadurai A. P. S., Suvorov Alexander*** Certain canonical analytical solutions in poro-hyperelasticity: One-dimensional compression and pure shear
10:20-10:45	***Desarnaud Julie, Haenen Koen, Bera Bijoyendra, Bonn Daniel, Shahidzadeh Noushine*** The pressure induced by salt crystals growing in porous media

Tuesday, July 11, 2017, 9:00-10:40. *Chair: Dangla Patrick*

9:00-9:25	***Bažant Zdeněk, Chau Viet, Rahimi-Aghdam Saeed*** Three-phase cracked porous medium: Shale fracking and ASR damage
9:25-9:50	***Fortin Jerome, Pimienta Lucas, Borgomano Jan, Guéguen Yves*** Dispersion and attenuation in saturated sandstone and limestone
9:50-10:15	***Borja Ronaldo, Choo Jinhyun, Semnani Shabnam*** On the anisotropy, thermoplasticity, and multiscale poromechanics of shale
10:15-10:40	***Neimark Alexander*** Reconciliation of gibbs excess adsorption thermodynamics and poromechanics of nanoporous materials

Wednesday, July 12, 2017, 9:00-10:40. *Chair: Pereira Jean-Michel*

9:00-9:25	***Santamarina Juan Carlos, Sun Zhonghao*** Mixed fluid conditions: Capillary phenomena
9:25-9:50	***Barbarulo Remi, Begaud Fabienne, Dalas Florent, Delaplace Arnaud, Horgnies Matthieu, Huet Bruno, Meulenyzer Samuel, Pham Gabriel, Rinaldi David, Termkhajornkit Pipat, Vu Quochuy*** Contribution of poromechanics to the development of cementitious materials in an industrial context
9:50-10:15	***Levitz Pierre*** Multiscale porous material: Interplay between structure, adsorption and diffusion processes
10:15-10:40	***Murad Marcio A., Pereira Patricia, Rocha Aline, Lopes Tuane, Garcia Eduardo, Obregon Jesus, Castro Eduardo, Cazarin Caroline, Falcão Flavia*** Hydro-mechanical modeling of reservoirs containing complex geological structures

Thursday, July 13, 2017, 13:30-15:10. *Chair: Ghabezloo Siavash*

13:30-13:55	***Hellmich Christian, Vass Viktoria, Köningsberger Markus, Shahidi Mehran, Godinho Pedro, Claire Morin, Pichler Bernhard*** Poro-micromechanics of materials with complex morphologies? A review, and recent results for concrete, bone, and paper
13:55-14:20	***Weigel Coralie, Polian Alain, Kint Matthieu, Rouquette Jerome, Haines Julien, Foret Marie, Vacher Rene, Ruffle Benoit, Coasne Benoit*** Poroelastic theory applied to the adsorption-induced deformation of vitreous silica
14:20-14:45	***Revil André*** Electromagnetic couplings of electrokinetic nature associated with hydromechanical disturbances in poroelastic media
14:45-15:10	***Carmeliet Jan, Chen Mingyang, Derome Dominique*** Sorption induced deformation and hysteresis

PARALLEL SESSIONS

HYDROMECHANICAL COUPLINGS IN SATURATED MATERIALS

Monday, 11:25-12:45, IFSTTAR, amphitheater
Monday, 14:15-15:50, IFSTTAR, amphitheater
Tuesday, 11:10-12:30, IFSTTAR, amphitheater
Tuesday, 14:00-15:40, IFSTTAR, amphitheater
Tuesday, 16:10-17:50, IFSTTAR, amphitheater
Wednesday, 14:00-15:40, IFSTTAR, room B015
Thursday, 9:30-10:30, IFSTTAR, amphitheater
Thursday, 11:00-12:00, IFSTTAR, amphitheater

MULTIPHYSICAL COUPLINGS

Tuesday, 16:10-17:50, IFSTTAR, room B015
Wednesday, 11:10-12:30, IFSTTAR, amphitheater
Wednesday, 14:00-15:40, IFSTTAR, amphitheater
Wednesday, 16:10-17:30, IFSTTAR, amphitheater
Thursday, 9:30-10:30, Carnot, amphitheater Cauchy
Thursday, 11:00-12:00, Carnot, amphitheater Cauchy

PARTIALLY SATURATED POROUS MATERIALS, SURFACE EFFECTS AND ADSORPTION

Tuesday, 11:10-12:30, amphitheater Coriolis
Tuesday, 14:00-15:40, amphitheater Coriolis
Tuesday, 16:10-17:50, amphitheater Coriolis
Wednesday, 11:10-12:30, Carnot, amphitheater Navier
Wednesday, 16:10-17:30, Carnot, amphitheater Navier
Thursday, 9:30-10:30, amphitheater Coriolis
Thursday, 11:00-12:00, amphitheater Coriolis

CHARACTERIZATION OF MATERIALS AND PROPERTIES

Tuesday, 11:10-12:30, Carnot, amphitheater Cauchy
Wednesday, 11:10-12:30, Carnot, amphitheater Cauchy
Wednesday, 14:00-15:40, Carnot, amphitheater Cauchy
Wednesday, 16:10-17:30, Carnot, amphitheater Cauchy

CREEP AND PLASTICITY

Monday, 11:25-12:45, Carnot, amphitheater Navier
Monday, 14:15-15:55, Carnot, amphitheater Navier
Tuesday, 11:10-12:30, IFSTTAR, room B019
Tuesday, 16:10-17:50, IFSTTAR, room B019

TRANSPORT

Monday, 11:25-12:45, IFSTTAR, room B015
Monday, 14:15-15:55, IFSTTAR, room B015
Tuesday, 14:00-15:40, IFSTTAR, room B015

RELATION BETWEEN MICROSTRUCTURE AND PROPERTIES

Monday, 11:25-12:45, amphitheater Coriolis
Monday, 14:15-15:55, amphitheater Coriolis
Tuesday, 14:00-15:40, IFSTTAR, room B019
Wednesday, 11:10-12:30, amphitheater Coriolis
Wednesday, 14:00-15:40, amphitheater Coriolis
Wednesday, 16:10-17:30, amphitheater Coriolis

DYNAMIC PHENOMENA

Tuesday, 11:10-12:30, Carnot, amphitheater Navier
Tuesday, 14:00-15:40, Carnot, amphitheater Navier
Tuesday, 16:10-17:50, Carnot, amphitheater Navier
Wednesday, 11:10-12:30, IFSTTAR, room B019
Wednesday, 14:00-15:40, IFSTTAR, room B019
Wednesday, 16:10-17:30, IFSTTAR, room B019
Thursday, 9:30-10:30, IFSTTAR, room B019
Thursday, 11:00-12:00, IFSTTAR, room B019

TOM PLONA MEMORIAL SESSION

Tuesday, 11:10-12:30, Carnot, amphitheater Navier
Tuesday, 14:00-15:40, Carnot, amphitheater Navier
Tuesday, 16:10-17:50, Carnot, amphitheater Navier

INSTABILITIES AND STRAIN LOCALIZATION

Wednesday, 14:00-15:40, Carnot, amphitheater Navier
Thursday, 9:30-10:30, Carnot, amphitheater Navier
Thursday, 11:00-12:00, Carnot, amphitheater Navier

FRACTURE PROPAGATION AND PETROLEUM ENGINEERING

Monday, 11:25-12:45, Carnot, amphitheater Cauchy
Monday, 14:15-15:55, Carnot, amphitheater Cauchy
Tuesday, 14:00-15:40, Carnot, amphitheater Cauchy
Tuesday, 16:10-17:50, Carnot, amphitheater Cauchy

PROGRAM OVERVIEW

THE PARALLEL SESSIONS WILL BE ORGANIZED AROUND THE FOLLOWING TOPICS:

- Hydromechanical couplings in saturated materials (sessions «HM SAT»)
- Multiphysical couplings (sessions «MULTIPHYS»)
- Partially saturated porous materials, surface effects and adsorption (sessions «PARTIAL SAT»)
- Characterization of materials and properties (sessions «CHAR»)
- Creep and plasticity (sessions «CREEP PLAST»)
- Transport (sessions «TRANSPORT»)
- Relation between microstructure and properties (sessions «MICRO»)
- Dynamic phenomena (sessions «DYNAMIC»). Part of the presentation on this topic will be presented in the Tom Plona memorial session (sessions «DYNAMIC/PLONA»)
- Instabilities and strain localization (sessions «INST»)
- Fracture propagation and petroleum engineering (sessions «FRAC PETRO»)

	Sunday, July 9
17:00-20:00	***Ice breaker & registration***
	Monday, July 10
< 9:00	***Registration***
9:00-9:30	***Opening session***
9:30-10:05	***Keynote lecture : Prof. F.-J. Ulm***
10:05-10:55	***Plenary session: Profs. Selvadurai, Shahidzadeh***
10:55-11:25	***Break***
11:25-12:45	***Parallel sessions*** HM SAT – CREEP PLAST – FRAC PETRO – MICRO – TRANSPORT
12:45-14:15	Lunch
14:15-15:55	***Parallel sessions*** HM SAT – CREEP PLAST – FRAC PETRO – MICRO – TRANSPORT
16:00-17:45	***Poster session (Carnot, Nadir room)***
> 17:45	***Wine & cheese (IFSTTAR, restaurant)***
	Tuesday, July 11
< 9:00	***Registration***
9:00-10:40	***Plenary session: Profs. Bažant, Fortin, Borja, Neimark***
10:40-11:10	***Break***
11:10-12:30	***Parallel sessions*** HM SAT – DYNAMIC/PLONA – CHAR – PARTIAL SAT – CREEP PLAST

12:30-14:00	***Lunch***
14:00-15:40	***Parallel sessions*** HM SAT – DYNAMIC/PLONA – FRAC PETRO – PARTIAL SAT – MICRO – TRANSPORT
15:40-16:10	***Break***
16:10-17:50	***Parallel sessions*** HM SAT – DYNAMIC/PLONA – FRAC PETRO – PARTIAL SAT – CREEP PLAST – MULTIPHYS
	Wednesday, July 12
< 9:00	***Registration***
9:00-10:40	***Plenary session: Profs. Santamarina, Huet, Levitz, Murad***
10:40-11:10	***Break***
11:10-12:30	***Parallel sessions*** MULTIPHYS – PARTIAL SAT – CHAR – MICRO – DYNAMIC
12:30-14:00	***Lunch***
14:00-15:40	***Parallel sessions*** MULTIPHYS – INST – CHAR – MICRO – DYNAMIC – HM SAT
15:40-16:10	***Break***
16:10-17:30	***Parallel sessions*** MULTIPHYS – PARTIAL SAT – CHAR – MICRO – DYNAMIC
> 19:30	***Banquet dinner***
	Thursday, July 13
< 9:30	***Registration***
9:30-10:30	***Parallel sessions*** HM SAT – INST – MULTIPHYS – PARTIAL SAT – DYNAMIC
10:30-11:00	***Break***
11:00-12:00	***Parallel sessions*** HM SAT – INST – MULTIPHYS – PARTIAL SAT – DYNAMIC
12:00-13:30	***Lunch***
13:30-15:10	***Plenary session: Profs. Hellmich, Coasne, Revil, Carmeliet***
15:10-15:30	***Closing session***

MONDAY, JULY 10, 2017

9:00-9:30	**Opening Ceremony. Coriolis, amphitheater.** Welcome addresses ***Vandamme Matthieu*** (Conference chairman) ***De la Bourdonnaye Armel*** (Director of École nationale des ponts et chaussées) ***Jacquot-Guimbal Hélène*** (Director of Ifsttar, l'Institut français des sciences et technologies des transports, de l'aménagement et des réseaux) ***Chaker Amar*** (Director of the Engineering Mechanics Institute (EMI) of the American Society of Civil Engineers)
9:30-10:05	**Keynote lecture. Coriolis, amphitheater. Chair: Vandamme Matthieu**
9:30	***Ulm Franz-Josef, Pellenq Roland*** Biot-Coussy theory: Bridging from continuum mechanics to statistical physics of porous materials
9:30-10:55	**Plenary session. Coriolis, amphitheater. Chair: Vandamme Matthieu**
10:05	***Selvadurai A. P. S., Suvorov Alexander*** Certain canonical analytical solutions in poro-hyperelasticity: One-dimensional compression and pure shear
10:30	***Desarnaud Julie, Haenen Koen, Bera Bijoyendra, Bonn Daniel, Shahidzadeh Noushine*** The pressure induced by salt crystals growing in porous media
10:55-11:25	***Coffee break***

11:25-12:45

11:25-12:45	**Hydromechanical couplings in saturated materials (session 1/8). IFSTTAR, amphitheater. Chair: Poulet Thomas**
11:25	***Noorzad Ali, Vaezi Iman*** Simulation of lateral spreading and evaluation of lateral displacement of gently sloping liquefied ground
11:45	***Ben Zeev Shahar, Goren Liran, Parez Stanislav, Toussaint Renaud, Clément Cécile, Aharonov Einat*** The combined effect of buoyancy and excess pore pressure in facilitating soil liquefaction
12:05	***Zeghal Mourad, Goswami Nithyagopal, Manzari Majid, Kutter Bruce*** Performance of a soil liquefaction model
12:25	***Nikolinakou Maria Aikaterini, Heidari Mahdi, Flemings Peter, Hudec Michael*** Coupling flow and deformation in evolving salt basins
11:25-12:45	**Creep and plasticity (session 1/4). Carnot, amphitheater Navier. Chairs: Sanahuja Julien & Charpin Laurent**
11:25	***Miranda Pino Luis Felipe, Kelly Piaras, Baudet Beatrice*** Modelling Isotropic and Kinematic Hardening of granular materials with a thermodynamical approach
11:45	***Hu Zhangli, Hilaire Adrien, Wyrzykowski Mateusz, Scrivener Karen, Lura Pietro*** Elastic and visco-elastic behavior of cementitious materials at early ages
12:05	***Alipour Esgandani Golnaz, Moghaddasi Hamed, Khoshghalb Arman, Shahbodaghkhan Babak, Khalili Nasse*** A 3D bounding surface plasticity model for soils
12:25	***Nallathamby Sivasithamparam, Jorge Castro*** Cylindrical cavity expansion in anisotropic fine-grained geomaterials: theoretical solution

11:25-12:45 Transport (session 1/3). IFSTTAR, room B015. Chair: Davy Catherine

11:25 ***Holzbecher Ekkehard***
Transport Processes across Multiphase Interfaces

11:45 ***Ababou Rachid, Cañamón Valera Israel, Marcoux Manuel, Millard Alain, Rajeh Tawfik***
Hydro-mechanical feed-back coupling in a fluid-filled fractured rock: Stress-dependent macro-scale permeability and porosity

12:05 ***Pu Hefu, Qiu Jinwei, Zhang Rongjun*** Coupled large strain deformation and solute transport in saturated multi-layer porous media

12:25 ***David Christian, Wassermann Jérôme*** The KG2B project: A world-wide benchmark of low permeability measurement

11:25-12:45 Relation between microstructure and properties (session 1/6). Coriolis, amphitheater. Chair: Cosenza Philippe

11:25 ***Fabricius Ida, Haugwitz Christian, Larsen Pernille, Schovsbo Niels***
Elasticity and density of paleozoic shales from bornholm

11:45 ***Tahmasebi Pejman, Sahimi Muhammad, Andrade Jose*** Direct modeling of granular materials

12:05 ***Monfared Siavash, Laubie Hadrien, Radjai Farhang, Pellenq Roland, Ulm Franz-Josef***
Discrete poroelasticity of heterogeneous media

11:45 ***Wang Linlin, Bornert Michel, Chanchole Serge***
Microscopic investigation of the deformation mechanisms of argillaceous rock

11:25-12:45 Fracture propagation and petroleum engineering (session 1/4). Carnot, amphitheater Cauchy. Chair: Bemer Elisabeth

11:25 ***Valliappan Valliappan, Remmers Joris, Barnhoorn Auke, Smeulders David***
Hydraulic fracturing in an anisotropic and heterogeneous rock

11:45 ***Shovkun Igor, Espinoza D. Nicolas*** Depletion-induced permeability changes in naturally-fractured gas-sorbing formations: A double-porosity fluid flow and poromechanical model

12:05 ***Bui Binh, Tutuncu Azra*** Contribution of osmotic transport on oil recovery from rock matrix in unconventional reservoirs

11:45 ***Bhandari Athma, Flemings Peter, Polito Peter***
Permeability behavior and the effective stress law for a partially fractured eagle ford shale sample

12:45-14:15 ***Lunch break***

MONDAY, JULY 10, 2017

14:15-15:55

14:15-15:55 **Hydromechanical couplings in saturated materials (session 2/8). IFSTTAR, Amphitheater. Chair: Marte Gutierrez**

14:15 ***Dorostkar Omid, Johnson Paul A., Guyer Robert A., Marone Chris, Carmeliet Jan*** Do fluids modify the stick-slip behavior of sheared granular media?

14:35 ***Sweijen Thomas, Hassanizadeh S. Majid, Aslannejad Hamed, Leszczynski Szymon*** Grain-scale modelling of swelling granular materials using the discrete element method and the multi-sphere approximation

14:55 ***Yu Cong, Malakpoor Kamyar, Leszczynski Szymon, Huyghe Jacques*** A full 3D mixed hybrid finite element model of superabsorbent polymers

15:15 ***Ghaffaripour Omid, Khoshghalb Arman*** Hydro-mechanical triaxial behavior of compacted earth at different temperatures

15:35 ***Do Duc Phi, Tran Hung, Hoxha Dashnor*** Behavior of horizontal borehole in anisotropic poro-elastic media with transient fluid flow: Closed form solution based on the complex potential approach

14:15-15:55 **Creep and plasticity (session 2/4). Carnot, amphitheater Navier. Chairs: Charpin Laurent & Sanahuja Julien**

14:15 ***Sanahuja Julien, Huang Shun, Dormieux Luc, Bary Benoit, Lemarchand Eric, Hervé Myriam*** Porous materials undergoing time-dependent phase transformations: Effective ageing viscoelasticity

14:35 ***Aili Abudushalamu, Vandamme Matthieu, Torrenti Jean Michel, Masson Benoit*** On a poromechanical approach to long-term autogenous shrinkage

14:55 ***Wei Ya, Liang Siming, Gao Xiang*** Simulation of porosity effect on mechanical and creep properties of cement paste at microscale

15:15 ***Charpin Laurent, Sow Thierno, D'estève De Pradel Xavier, Hamon François, Mathieu Jean-Philippe*** Numerical simulation of 12 years long biaxial creep tests. Efficiency of assuming a constant Poisson's ratio.

15:35 ***Bui Tuan Anh, Wong Henry, Deleruyelle Frédéric*** A framework for modelling the time-dependent behaviour of unsaturated rocks based on irreversible thermodynamics

14:10-15:50 **Transport (session 2/3). IFSTTAR, room B015. Chair: Cusatis Gianluca**

14:15 ***Nikitin Anatoly, Plyushchenkov Boris*** On permeability estimation from borehole acoustic and electromagnetic flexural waves

14:35 ***Song Yang, Davy Catherine, Troadec David, Marinova Maya, Blanchenet Anne-Marie, Bourbon Xavier*** Mesoscale assessment of the 3D pore network of a high performance concrete: towards the understanding of fluid transport

14:55 ***Yastrebov Vladislav, Anciaux Guillaume, Shvarts Andrei, Molinari Jean-François, Cailletaud Georges*** Modeling creeping flow through a closed crack with a self-affine geometry and an extension to permeability of cracked media

15:15 ***Ecay Lionel, Grégoire David, Khaddour Fadi, Pijaudier-Cabot Gilles*** A new model for estimating fluid transfer properties of cementitious materials

15:35 ***Argungu Maryam, Tweedy Jennifer*** Microcirculation of blood and interstitial fluid in a poroelastic model of the liver

14:15-15:55	**Relation between microstructure and properties (session 2/6). Coriolis, amphitheater. Chair: Wang Linlin**
14:15	***Zhang Dongxiao, Zhao Junliang, Wu Tianhao, Tang Haoyu, Xuan Qihan, Jiang Zheng*** Multiscale approach to mechanical characterization of shale
14:35	***H.t. Nguyen Nhu, H. Bui Ha, D. Nguyen Giang, Sounthararajah Arooran, Kodikara Jayantha*** Numerical study of particle size distribution effect on the failure of asphalt mixtures using discrete element method
14:55	***Jeanneret Dit Grosjean Romain, Arson Chloe, Vennat Elsa*** Homogenization of dentin elastic properties based on microstructure characterization, statistical back-analysis and FEM simulation
15:15	***Nikooee Ehsan*** The effect of stress level on soil porous structure: insights from fractal analysis
15:35	***Couples Gary*** Idealised discrete pore-scale model of poro-elasticity via closed-form analytical expressions
14:15-15:55	**Fracture propagation and petroleum engineering (session 2/4). Carnot, amphitheater Cauchy. Chair: Lecampion Brice**
14:15	***Olorode Olufemi, Akkutlu Yucel, Efendiev Yalchin*** Modeling of compositional gas transport in shale as a deformable porous medium
14:35	***Usui Tomoya, Salimzadeh Saeed, Paluszny Adriana, Zimmerman Robert*** Effect of poroelasticity on hydraulic hracture interactions
14:55	***Vahab Mohammad, Khoei Amir, Khalili Nasser*** An X-FEM implementation of hydro-fracture growth in naturally fractured saturated porous media
15:15	***Wang Yingnan, Bui Ha, Nguyen Giang, Ranjith Gamage*** A mesh-free continuum based computational approach to modelling rock fracture
15:35	***Huynen Alexandre, Detournay Emmanuel*** Self-similar propagation of a plastic zone due to fluid injection in a porous medium
16:00-17:45	**Poster session. Carnot, Nadir room.**
>17:45	**Wine & cheese. IFSTTAR, restaurant.**

TUESDAY, JULY 11, 2017

9:00-10:40 **Plenary session. Coriolis, amphitheater. Chair: Dangla Patrick**

9:00 ***Bažant Zdeněk, Chau Viet, Rahimi-Aghdam Saeed***
Three-phase cracked porous medium: Shale fracking and ASR damage

9:25 ***Fortin Jerome, Pimienta Lucas, Borgomano Jan, Guéguen Yves***
Dispersion and attenuation in saturated sandstone and limestone

9:50 ***Borja Ronaldo, Choo Jinhyun, Semnani Shabnam***
On the anisotropy, thermoplasticity, and multiscale poromechanics of shale

10:15 ***Neimark Alexander*** Reconciliation of Gibbs excess adsorption thermodynamics and poromechanics of nanoporous materials

10:40-11:10 ***Coffee break***

11:10-12:30

11:10-12:30 **Hydromechanical couplings in saturated materials (session 3/8). IFSTTAR, amphitheater. Chair: Shapiro Serge**

11:10 ***Nazarova Larisa, Nazarov Leonid***
Evolution of hydrodynamical and stress fields in near-well zone in fractured porous media

11:30 ***Tran Hieu T., Bui Ha, Nguyen Giang, Kodikara Jayantha, Sanchez Marcelo***
A continuum based approach to modelling tensile cracks in soils

11:50 ***Damsgaard Anders, Cabrales-Vargas Alejandro, Suckale Jenny, Goren Liran, Kasmalkar Indraneel***
The coupled dynamics of meltwater percolation and granular deformation in the sediment layer underlying parts of the big ice sheets

12:10 ***Prassetyo Simon Heru, Marte Gutierrez***
Explicit higher-order ade solution for fluid flow in the coupled Biot equations

11:10-12:30 **Partially saturated porous materials, surface effects and adsorption (session 1/7) Coriolis, amphitheater. Chair: Cheng Alex**

11:10 ***Chen Mingyang, Coasne Benoit, Guyer Robert, Derome Dominique, Carmeliet Jan***
Analysis of sorption and mechanical hysteresis of nano-porous materials: Upscaling molecular simulations by dependent domain theory

11:30 ***Gor Gennady*** Bulk modulus of not-so-bulk fluid

11:50 ***Mistura Giampaolo, Bruschi Lorenzo, Lee Woo*** Adsorption on porous anodized alumina

12:10 ***Puibasset Joel*** Adsorption-induced deformation in nanopores: Unexpected results obtained by molecular simulations

11:10-12:30 **Characterization of materials and properties (session 1/4) Carnot, amphitheater Cauchy. Chair: Makhnenko Roman**

11:10 ***Belmokhtar Malik, Delage Pierre, Ghabezloo Siavash, Conil Nathalie***
Thermal behaviour and creep of the Callovo-Oxfordian claystone

11:30 ***Ouellet-Plamondon Claudiane, Soro Nahouo, Nollet Marie-José*** Characterization, mix design, mechanical testing of earth materials, stabilized and unstabilized, for building construction

11:50 ***Katti Kalpana, Katti Dinesh, Molla Md Shahjahan, Kar Sumanta***
Evaluation of cancer tumors in 3D porous bone mimetic scaffolds

12:10 ***Vennat Elsa, Wang Wenlong, Genthial Rachel, David Bertrand, Dursun Elisabeth, Gourrier Aurélien*** Three dimensional characterization of the dentin porous network using confocal laser scanning microscopy (CLSM)

11:10-12:30 **Creep and plasticity (session 3/4). IFSTTAR, room B019. Chair: Arson Chloé**

11:10 ***Huang Shun, Sanahuja Julien, Dormieux Luc, Bary Benoit, Lemarchand Eric, Hervé Myriam***
Double scale model of the aging creep of low density hydrates of cement paste

11:30 ***Mac Thi Ngoc, Shahbodagh Babak, Khalili Nasser***
A bounding surface viscoplasticity constitutive model for unsaturated soils

11:50 ***Duc Pham Tho, Sorelli Luca, Fafard Mario, Grassl Peter*** Modeling nonlinear creep of steel fiber reinforced concrete by means of hydro-mechanical couplings

12:10 ***Alexandrov Sergei*** Steady planar ideal plastic flows for the double slip and rotation model

11:10-12:30 **Tom Plona memorial session (session 1/3) & Dynamic Phenomena (session 1/8). Carnot, amphitheater Navier. Chair: Gurevich Boris**

11:10 ***Johnson David***
Impact of T. J. Plona's observation and quantification of the Biot fast and slow waves

11:30 ***Santos Juan, Savioli Gabriela, Martínez Corredor Robiel***
Slow waves in a poroelastic solid saturated by multiphase fluids

11:50 ***Steeb Holger*** Dynamic permeability? Experimental investigations and numerical analysis in the low and high frequency regime

12:10 ***Boutin Claude, Venegas Rodolfo***
Unconventional mass transfer and sound propagation in permeo-elastic porous materials

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

14:00-15:40

14:00-15:40 **Hydromechanical couplings in saturated materials (session 4/8) IFSTTAR, amphitheater. Chair: Ling Hoe**

14:00 ***Nazarov Leonid, Nazarova Larisa, Vandamme Matthieu, Pereira Jean-Michel, Tahiri Iliass***
Elastic and filtration properties of coal by adsorption test data based on inverse problem solution

14:20 ***Shapiro Serge*** Stress and pore-pressure influence on elasticity of arbitrarily symmetric porous and fractured rocks

14:40 ***Plúa Carlos, Tamagnini Claudio, Bésuelle Pierre*** Isogeometric analysis of hydro-mechanical problems in saturated soils with second gradient regularization

15:00 ***Yang Jie, Yin Zhenyu, Hicher Pierre-Yves, Laouafa Farid***
A finite element modeling of the impact of internal erosion on the stability of a dike

TUESDAY, JULY 11, 2017

14:00-15:40	**Partially saturated porous materials, surface effects and adsorption (session 2/7). Coriolis, amphitheater. Chair: Gor Gennady**
14:00	***Chareyre Bruno, Nikooee Ehsan, Chalak Caroline, Yuan Chao*** Micromechanical insights into the effective stresses
14:20	***Duriez Jérôme, Wan Richard, Pouragha Mehdi*** Partially saturated granular materials: Insights from micro-mechanical modelling
14:40	***Derome Dominique, Zhang Chi, Chen Mingyang, Kulasinski Karol, Keten Sinan, Carmeliet Jan*** Understanding hygromechanically coupled behavior, using atomistic simulation of biopolymeric nano-composite material
15:00	***Wyrzykowski Mateusz, Di Bella Carmelo, Lura Pietro*** Prediction of drying shrinkage of cement-based mortars with poroelastic approaches? A critical review
15:20	***Casini Francesca, Sciarra Giulio, Vaunat Jean*** Modeling gravity-driven segregation in porous media by a phase field approach to unsaturated poromechanics
14:00-15:40	**Transport (session 3/3). IFSTTAR, room B015. Chair: David Christian**
14:00	***Li Weixin, Bousikhane Faysal, Carey J. William, Cusatis Gianluca*** Computational analysis of the fracture-permeability behavior of shale
14:20	***Amann-Hildenbrand Alexandra, Hoder Gabriel, Scheele Tilman, Hiller Thomas, Klitzsch Norbert, Schleifer Norbert, Krooss Bernhard*** Effective gas permeability measurements at different water saturations in tight sandstones ? Differentiation between slip flow and capillary controlled flow regimes
14:40	***Plyushchenkov Boris, Nikitin Anatoly*** On permeability estimation by electroacoustic logging with account for Joule heating
15:00	***Cassini Etienne, Laloui Lyesse*** Investigation of the intrinsic permeability of MX-80 bentonite through a 4-scale analysis of its fabric
15:20	***Kluge Christian, Blöcher Guido, Milsch Harald, Hofmann Hannes, Nicolas Aurélien, Li Zhi, Fortin Jerome*** Sustainability of fractured rock permeability under varying pressure
14:00-15:40	**Relation between microstructure and properties (session 3/6). IFSTTAR, room B019. Chair: Pichler Bernhard**
14:00	***Cosenza Philippe, Pret Dimitri, Giraud Albert, Hedan Stephen*** Geometric and elastic characterization of clay-rocks
14:20	***Zhang Lin, O'kelly Brendan, Nagel Thomas*** Tensile and compressive contributions of fibres in peat
14:40	***Farhat Faten, Shao Jian-Fu, Shen Wanqing*** Micromechanical modeling of elastoplastic behavior of a shale gas reservoir
15:00	***Nguyen Viet, Pineda Jubert, Sheng Daichao*** Effects on air permeability of the initial fabric in compacted clay
15:20	***Markov Anatoly, Kanaun Sergei*** An efficient numerical method for the solution of the problem of elasticity and poroelasticity for 3D-homogeneous elastic medium with cracks and inclusions

14:00-15:40 **Tom Plona memorial session (session 2/3) & Dynamic phenomena (session 2/8). Carnot, amphitheater Navier. Chair: Johnson David**

14:00 ***Laurent Jérôme, Jia Xiaoping***
Observation of Biot's compressional waves in air-filled granular materials

14:20 ***Salusti Ettore, Droghei Riccardo, Garra Roberto*** On the two-rocks boundary perturbation on the propagation of nonlinear thermoelastic waves in porous rocks

14:40 ***Venegas Rodolfo, Boutin Claude, Umnova Olga***
Influence of diffusion and sorption on sound propagation in multiscale porous materials

15:00 ***Novikov Mikhail, Caspari Eva, Lisitsa Vadim, Quintal Beatriz, Rubino J. Germán, Holliger Klaus***
Attenuation in fluid-saturated fractured porous media? Quasi-static numerical upscaling and wave propagation modeling

15:20 ***Duan Yunda, Hu Hengshan***
Effect of turbulent flow in pores on elastic wave dispersion and attenuation in porous media

14:00-15:40 **Fracture propagation and petroleum engineering (session 3/4). Carnot, amphitheater Cauchy. Chair: Espinoza D. Nicolas**

14:00 ***Izvekov Oleg, Galybin Alexander*** Numerical investigation of the stationary pore pressure field influence on the hydraulic fracture path

14:20 ***Shovkun Igor, Espinoza D. Nicolas***
Shale acid fracturing: Geomechanical effects and fracture propagation

14:40 ***Saurabh Suman, Harpalani Satya*** Effective stress law for microporous media - comparative case study on San Juan coal and Barnett shale

15:00 ***Katti Dinesh, Katti Kalpana, Thapa Keshab, Faisal H. M. Nasrullah***
Modeling the nanoscale kerogen inclusions in Green River oil shale

15:20 ***Golovin Sergey, Baykin Alexey, Valov Alexander*** Poroelastic effects in the hydraulic fracturing

15:40-16:10 ***Coffee break***

16:10-17:50

16:10-17:50 **Hydromechanical couplings in saturated materials (session 5/8). IFSTTAR, amphitheater. Chair: Nazarov Leonid**

16:10 ***Mueller Tobias, Sahay Pratap*** On elastic energy potential for deformable porous media

16:30 ***Braun Philipp, Ghabezloo Siavash, Delage Pierre, Sulem Jean, Conil Nathalie***
Pore pressure diffusion in some rock mechanics experiments

16:50 ***Johnson Daniel, Vahedifard Farshid, Jelinek Bohumir, Peters John*** Using DEM-LBM for micro-scale modeling of coupled hydro-mechanical processes in geomechanics

17:10 ***Guayacán-Carrillo Lina-María, Ghabezloo Siavash, Sulem Jean, Seyedi Darius, Armand Gilles***
Tunnel excavation in low-permeability anisotropic ground: Effect of anisotropy and hydro-mechanical couplings on pore pressure evolution

17:30 ***Mehrabian Amin, Abousleiman Younane*** Multiple-porosity and multiple-permeability poroelasticity: Theory and benchmark analytical solution

TUESDAY, JULY 11, 2017

16:10-17:50	**Partially saturated porous materials, surface effects and adsorption (session 3/7). Coriolis, amphitheater. Chair: Derome Dominique**
16:10	***Rolley Etienne, Grosman Annie*** Anisotropic poroelasticity of mesoporous silicon
16:30	***Hulin Claudie, Mercury Lionel, Simon Patrick, Shmulovich Kirill*** Mechanical weakening of massive quartz due to in-pore water tension
16:50	***Le Tien Dung, Moyne Christian, Murad Marcio A., Panfilova Irina*** Multiscale model of poromechanics and transport problems in coalbed-methane including adsorption gas effects
17:10	***Hubert Julien, Plougonven Erwan, Léonard Angélique, Collin Frédéric*** Study of the drying behavior of resorcinol formaldehyde hydrogels: Experimental investigation and numerical framework
16:10-17:50	**Multiphysical couplings (session 1/6). IFSTTAR, room B015. Chair: Brochard Laurent**
16:10	***Ding Jingqian, Remmers J. J. C., Malakpoor Kamyar, Huyghe J. M.*** Swelling driven cracking in large deformation in porous media
16:30	***Wang Hui, Mang Herbert, Yuan Yong, Pichler Bernhard*** Microporomechanical modeling of thermal expansion of cement paste
16:50	***Zhang Chi, Kulasinski Karol, Derome Dominique, Carmeliet Jan*** Coupled hygro-thermo-mechanical behavior of amorphous biopolymers: Molecular dynamic study of softwood lignin
17:10	***Parol Viswanath, Das Arghya*** Effects of particle dissolution on the constitutive response of granular materials
16:10-17:50	**Creep and plasticity (session 4/4). IFSTTAR, room B019. Chair: Sorelli Luca**
16:10	***Wautier Antoine, Geindreau Christian, Flin Frederic*** From X-ray tomography images to a numerical homogenized formulation of snow viscoplasticity
16:30	***Moghaddasi Hamed, Alipour Esgandani Golnaz, Khoshghalb Arman, Shahbodaghkhan Babak, Khalili Nasser*** A bounding surface plasticity model for unsaturated soils accounting for the void ratio dependency of the water retention curve
16:50	***Liu Zaobao, Shao Jian-Fu, Xie Shouyi, Conil Natalie*** Triaxial creep induced gas permeability change and elastic modulus variation in Callovo-Oxfordian argillite
17:10	***Ghoreishian Amiri Seyed Ali, Grimstad Gustav*** Constitutive model for long-term behavior of saturated frozen soil
17:30	***Shen Xianda, Zhu Cheng, Arson Chloe*** Analysis of microstructure, deformation and permeability of salt/sand mixtures during creep

16:10-17:50 **Tom Plona memorial session (session 3/3) & Dynamic phenomena (session 3/8). Carnot, amphitheater Navier. Chair: Boutin Claude**

16:10 ***Holzhauer Julia, Brito Daniel, Bordes Clarisse*** Experimental evidence of Biot's dynamic compatibility using seismoelectric measurements under varying saturation

16:30 ***Guan Wei, Yang Yufeng, Yao Zexin, Hu Hengshan***
Finite-difference modeling of the seismoelectric logging in fluid-saturated porous formations

16:50 ***Fomenko Sergey, Glushkov Evgeny, Glushkova Natalia***
Guided and leaky waves in poroelastic structures

17:10 ***Markov Mikhail, Anatoly Markov***
Propagation of elastic waves in a gas-filled poroelastic medium in the slip-flow regime

16:10-17:50 **Fracture propagation and petroleum engineering (session 4/4) Carnot, amphitheater Cauchy. Chair: Katti Dinesh**

16:10 ***Fink Reinhard, Gaus Garri, Krooss Bernhard, Gensterblum Yves, Amann-Hildenbrand Alexandra***
Apparent permeability of gas shales? Separation of fluid-dynamic and poro-elastic effects

16:30 ***Miao Xing-Yuan, Kolditz Olaf, Nagel Thomas***
Phase-field modeling of fracture in poroelastic solids for thermal energy storage

16:50 ***Yamamoto Koji, Konno Yoshihiro, Wang Xiaoxing, Wang Xiaowei, Kanno Takayuki***
Thermal data analysis to investigate mass and heat transport during methane hydrate dissociation processes

WEDNESDAY, JULY 12, 2017

9:00-10:40 **Plenary session. Coriolis, amphitheater. Chair: Pereira Jean-Michel**

9:00 ***Santamarina Juan Carlos, Sun Zhonghao*** Mixed fluid conditions: Capillary phenomena

9:25 ***Barbarulo Remi, Begaud Fabienne, Dalas Florent, Delaplace Arnaud, Horgnies Matthieu, Huet Bruno, Meulenyzer Samuel, Pham Gabriel, Rinaldi David, Termkhajornkit Pipat, Vu Quochuy*** Contribution of poromechanics to the development of cementitious materials in an industrial context

9:50 ***Levitz Pierre***
Multiscale porous material: Interplay between structure, adsorption and diffusion processes

10:15 ***Murad Marcio A., Pereira Patricia, Rocha Aline, Lopes Tuane, Garcia Eduardo, Obregon Jesus, Castro Eduardo, Cazarin Caroline, Falcão Flavia***
Hydro-mechanical modeling of reservoirs containing complex geological structures

10:40-11:10 ***Coffee break***

11:10-12:30

11:10-12:30 **Partially saturated porous materials, surface effects and adsorption (session 4/7) Carnot, amphitheater Navier. Chair: Pel Leo**

11:10 ***Arends Thomas, Pel Leo, Huinink Henk, Schellen Henk, Smeulders David***
Dynamic bending of an oak board due to a moisture content gradient

11:30 ***Both Jakub, Kumar Kundan, Nordbotten Jan, Radu Florin***
Iterative methods for coupled flow and geomechanics in unsaturated porous media

11:50 ***Kurzeja Patrick*** Improving constitutive relationships in multiscale modeling by the concept of sufficiency - illustrated by saturation, interfacial areas and capillary rise

12:10 ***Mainka Julia, Moyne Christian*** A multi-scale approach to analyze the role of the disjoining pressure in the overall stiffness of expansive clays

11:10-12:30 **Multiphysical couplings (session 2/6). IFSTTAR, amphitheater. Chair: Prévost Jean**

11:10 ***Maghoul Pooneh*** Numerical simulation for foundations energy efficiency in cold region

11:30 ***Seyedi Darius, Armand Gilles, Conil Nathalie, Vitel Manon, Vu Minh-Ngoc*** On the thermo-hydro-mechanical pressurization in Callovo-Oxfordian claystone under thermal loading

11:50 ***Brochard Laurent, Honorio Tulio, Vandamme Matthieu, Stefanou Ioannis, Ghabezloo Siavash, Bornert Michel*** A possible nano-scale origin of the surprising thermal expansion of clays

12:10 ***Fabbri Antonin, Champiré Florian, Soudani Lucile, Mcgregor Fionn, Wong Henry***
Poromechanics of compacted earth for building applications

11:10-12:30 **Characterization of materials and properties (session 2/4) Carnot, amphitheater Cauchy. Chair: Chalaturnyk Rick**

11:10 ***Makhnenko Roman, Tarokh Ali, Podladchikov Yury***
On the unjacketed moduli of sedimentary rock

11:30 ***El-Nabouch Ranime, Bui Quoc-Bao, Perrotin Pascal, Plé Olivier***
Experimental and numerical studies on cohesion and friction angle of rammed earth material

11:50 ***Belmokhtar Malik, Delage Pierre, Ghabezloo Siavash, Conil Nathalie***
Poroelastic investigation of the callovo-oxfordian claystone

12:10 ***Petlitckaia Svetlana, Marchal Antoine, Poulesquen Arnaud***
Synthesis of geopolymer foam for the decontamination of liquid nuclear waste

11:10-12:30 **Relation between microstructure and properties (session 4/6). Coriolis, amphitheater. Chair: Vaunat Jean**

11:10 ***Trinh Van Hai, Hoang Minh Tan, Perrot Camille, Langlois Vincent, Khidas Yacine, Pitois Olivier***
A systematic link between microstructure and acoustic properties of foams: A detailed study on the effect of membranes

11:30 ***Nguyen Thang, Bui Ha, Ngo Tuan, Nguyen Giang***
Discrete element modelling of the mechanical behaviour of a highly porous foamed concrete

11:50 ***Cheng Alex*** Concept behind intrinsic micromechanics modeling of poroelasticity

12:10 ***Saxena Nishank, Hofmann Ronny, Dolan Sean***
Modeling the effects of change in mineralogy and texture on seismic velocities

11:10-12:30 **Dynamic phenomena (session 4/8). IFSTTAR, room B019. Chair: Hu Hengshan**

11:10 ***Schanz Martin*** Fast multipole accelerated boundary element method for poroelastodynamics

11:30 ***Guo Junxin, Rubino J., Gurevich Boris, Glubokovskikh Stanislav***
Effect of finite fracture thickness on seismic dispersion and attenuation in saturated rocks with aligned penny-shaped cracks: Theory versus numerical simulation

11:50 ***Scala Ilaria, Rosi Giuseppe, Nguyen Vu-Hieu, Naili Salah*** Closed-form and finite element solutions of wave propagation in strain gradient poroelastic medium with micro inertia

12:10 ***De Anirban, Zimmie Thomas*** Response of tunnel in saturated soil to an underwater explosion

14:00-15:40

14:00-15:40 **Hydromechanical couplings in saturated materials (session 6/8) IFSTTAR, room B015. Chair: Seyedi Darius**

14:00 ***Prévost Jean, Rubin Allan, Sukumar N.***
Intersecting faults simulation for three-dimensional reservoir-geomechanical models

14:20 ***Depina Ivan*** Wave-induced response of seabed around a buried pipeline in silty soil

14:40 ***Favino Marco, Hunziker Jürg, Holliger Klaus, Krause Rolf***
An accuracy condition for the finite element discretization of Biot's equations on triangular meshes

15:00 ***Kaczmarek Mariusz, Nowak Joanna, Olszewski Waldemar***
Modelling mobilization of interstitial fluid and residual deformations in lymphedematous tissues

15:20 ***Rutqvist Jonny, Rinaldi Antonio, Cappa Fréderic*** Fault reactivation and seismicity associated with shale-gas fracturing and geologic carbon storage? A comparison from recent modeling studies

WEDNESDAY, JULY 12, 2017

14:00-15:40 **Multiphysical couplings (session 3/6). IFSTTAR, amphitheater. Chair: Maghoul Pooneh**

14:00 ***Korsnes Reidar Inge, Madland Merete*** The effect on compaction rates by divalent anion and cations on outcrop chalk tested at reservoir temperature and effective stress conditions

14:20 ***Yarushina Viktoriya, Podladchikov Yury, Minakov Alexander, Raess Ludovic***
On the mechanisms of stress-triggered seismic events during fluid injection

14:40 ***Champenois Jean-Baptiste, Blinder Remi, Guillermo Armel, Bardet Michel, Poulesquen Arnaud***
Influence of mineral salts content on bituminous waste products water uptake

15:00 ***Babadopulos Lucas, Sauzeat Cédric, Di Benedetto Hervé***
Thermomechanical coupling in bituminous mixtures considered as bonded granular media

15:20 ***Siad Larbi, Dubus Marie, Kerdjoudj Halima, Vernerey Franck, Elkolli-Merbah Meriem, Laurent-Maquin Dominique, Gangloff Sophie***
Micromechanics analysis of void growth in polymer gel-based structures

14:00-15:40 **Characterization of materials and properties (session 3/4)**
Carnot, amphitheater Cauchy. Chair: Katti Kalpana

14:00 ***Payan Meghdad, Senetakis Kostas, Khoshghalb Arman, Khalili Nasser***
Characterization of small-strain shear modulus of sands subjected to anisotropic states of stress

14:20 ***Yadav Shwetabh, Sagapuram Dinakar, Murthy Tejas***
A comparative study of indentation deformation fields in porous ductile and brittle solids

14:40 ***Delavoipière Jessica, Tran Yvette, Verneuil Emilie, Chateauminois Antoine***
Poroelastic indentation of mechanically confined hydrogel layers

15:00 ***Gomez Juan, Ardila Nathalia, Chalaturnyk Rick, Zambranonarvaez Gonzalo***
Reservoir geomechanical properties characterization of 3D printed sandstone

15:20 ***Bensalem Mohamed, Mindeguia Jean-Christophe, Sommier Alain, Batsale Jean-Christophe, Pradere Christophe*** Measurement of water content in a wood sample by terahertz imaging

14:00-15:40 **Relation between microstructure and properties (session 5/6)**
Coriolis, amphitheater. Chair: Giraud Albert

14:00 ***Cañamón Valera Israel, Ababou Rachid, Poutrel Adrien***
Coupled hydro-mechanical upscaling for a deformable fractured porous medium: The Biot coefficients & moduli related to the matrix-cracks system

14:20 ***Brisard Sébastien, Ghabezloo Siavash*** Variational estimates of the poroelastic coefficients

14:40 ***Vaunat Jean, Casini Francesca*** A poromechanical framework to model soil fabric evolution and its effect on material hydromechanical response

15:00 ***Chen Fengjuan, Sevostianov Igor, Giraud Albert, Grgic Dragan*** Effective poroelastic properties of materials containing pores of superspherical or superspheroidal shapes

15:20 ***Lusso Christelle, Chateau Xavier***
Numerical modeling of disordered foam in 3D: Effective properties by homogeneization

14:00-15:40 **Dynamic phenomena (session 5/8). IFSTTAR, room B019. Chair: Pimienta Lucas**

14:00 ***Rohan Eduard, Nguyen Vu-Hieu, Naili Salah*** Homogenization-based modelling of wave propagation in the Biot medium with large contrasts in the permeability and poroelastic coefficients

14:20 ***Hu Hengshan, Song Yongjia***
Solutions for effective shear properties in a three phase poroelastic sphere model

14:40 ***Glubokovskikh Stanislav, Lebedev Maxim, Mikhaltsevitch Vassily, Gurevich Boris***
Seismic effects of viscoelastic pore fill on double-porosity rocks

15:00 ***Ba Jing, Xu Wenhao*** A double double-porosity theoretical model for patchy-saturation and structure heterogeneity in muddy siltstone

15:20 ***Jänicke Ralf, Larsson Fredrik, Runesson Kenneth***
Computational homogenization of seismic attenuation in fractured rock

14:00-15:40 **Instabilities and strain localization (session 1/3)**
Carnot, amphitheater Navier. Chairs: Manzari Majid & Sanavia Lorenzo

14:00 ***Manzari Majid, Yonten Karma***
On suitability of element tests to represent constitutive response of liquefiable soils

14:20 ***Zhao Shaohan, Bui Ha Hong, Lemiale Vincent, Nguyen Giang***
SPH simulation of strain localisation in geomaterials using a visco-plastic constitutive model

14:40 ***Ozbay Aydin, Cabalar Ali*** An investigation on stick-slip behaviour of dry spherical glass beads

15:00 ***Sanavia Lorenzo, Cao Toan*** Modelling multiphase geomaterials at high temperatures in dynamics with application to strain localization and rapid catastrophic landslides

15:40-16:10 ***Coffee break***

16:10-17:30

16:10-17:30 **Partially saturated porous materials, surface effects and adsorption (session 5/7)**
Carnot, amphitheater Navier. Chair: Chareyre Bruno

16:10 ***Eghbalian Mahdad, Wan Richard***
A three-scale description of partially-saturated swelling clays based on micro-poro-elasticity

16:30 ***Pankratov Leonid, Konyukhov Andrey, Voloshin Anton***
General non-equilibrium matrix imbibition equation for Kondaurov's double porosity model

16:50 ***Beurroies Isabelle, Presle Damien, Rodriguez Julien, Denoyel Renaud***
The use of nanoporous materials for mechanical energy dissipation

16:10-17:30 **Multiphysical couplings (session 4/6). IFSTTAR, amphitheater. Chair: Wong Henry**

16:10 ***Donkers Pim, Adan Olaf, Smeulders David, Pel Leo*** Hydration/dehydration processes in stabilized CaCl2

16:30 ***Hassanzadegan Alireza, Rühaak Wolfram, Tischner Torsten, Steuer Stephan, Meneses Rioseco Ernesto*** Poroelastic effects in an enhanced geothermal reservoir, Horstberg Germany

16:50 ***Ahmadi Milad, Dahi Taleghani Arash***
Thermoporoelastic analysis of a single-well closed-loop geothermal system

16:10-17:30 **Characterization of materials and properties (session 4/4)**
Carnot, amphitheater Cauchy. Chair: Delage Pierre

16:10 ***Pimienta Lucas, Fortin Jérôme, Guéguen Yves***
A new method to measure compressibility and poroelasticity coefficients in porous and permeable rocks: Low amplitude and low frequency pressure oscillations

16:30 ***Bemer Elisabeth, Hamon Youri, Adelinet Mathilde***
Integrated characterization workflow to assess diagenesis impact on the petrophysical and petroacoustic properties of carbonate reservoirs

16:50 ***Andreassen Katrine*** Induration and Biot's coefficient of palaeogene limestone

17:10 ***Bui Quoc-Bao, El-Nabouch Ranime, Perrotin Pascal, Plé Olivier***
Assessing a nondestructive method to determine the Young's modulus of rammed earth material

WEDNESDAY, JULY 12, 2017

16:10-17:30	**Relation between microstructure and properties (session 6/6)** **Coriolis, amphitheater. Chair: Brisard Sébastien**
16:10	***Pollmann Nele, Jänicke Ralf, Renner Jörg, Steeb Holger*** Numerical investigation of the effective Skempton coefficient in porous rock containing fluid-filled fracture networks
16:30	***Orlander Tobias, Pasquinelli Lisa, Asmussen Janus, Marczynski Adam, Adamopoulou Eirini, Milsch Harald, Fabricius Ida*** Thermal conductivity of sedimentary rocks as function of Biot's coefficient
16:50	***Bahafid Sara, Ghabezloo Siavash, Duc Myriam, Faure Pamela, Sulem Jean*** Microstructure characterization and micromechanical modelling of cement pastes hydrated at different temperatures
17:10	***Venton Jenny, Bouyagoub Samira, Harris Paul, Phillips Gary*** Deriving spinal cord permeability and porosity using diffusion weighted MRI data
16:10-17:30	**Dynamic phenomena (session 6/8). IFSTTAR, room B019. Chair: Fortin Jérome**
16:10	***Mesgouez Arnaud, Buis Samuel, Lefeuve-Mesgouez Gaëlle*** Global sensitivity analysis of poroelastic soil parameters
16:30	***Gomez Quriaky, Ionescu Ioan, Ciobanu Oana*** Discontinuous Galerkin in materials with micro-cracks
16:50	***Quintal Beatriz, Chapman Samuel, Tisato Nicola, Paffenholz Josef*** Numerical analysis of laboratory attenuation measurements

THURSDAY, JULY 13, 2017

9:30-10:30

9:30-10:30	**Hydromechanical couplings in saturated materials (session 7/8)** **IFSTTAR, amphitheater. Chair: Zeghal Mourad**
9:30	***Ferronato Massimiliano, Gazzola Laura, Castelletto Nicola, Teatini Pietro, Zhu Lin*** A coupled mixed finite element Biot model for land subsidence prediction in the Beijing area
9:50	***Barroso Josué, Lopes Tuane, Murad Marcio, Falcão Flávia, Boutin Claude*** A new sequential computational method for upscaling flow and geomechanics in nonlinear elastic jointed rocks
10:10	***Burlingame Michael*** Step-like and chaotic behavior of pore pressures in clay during loading
9:30-10:30	**Partially saturated porous materials, surface effects and adsorption (session 6/7)** **Coriolis, amphitheater. Chair: Mainka Julia**
9:30	***Zhao Chaofa, Salami Younes, Yin Zhenyu, Hicher Pierre-Yves*** A micromechanical model for unsaturated soils based on thermodynamics
9:50	***Bonnet Marie, Caré Sabine, Bornert Michel, Aimedieu Patrick, King Andrew*** Multi-scale investigation of the hygromechanical behavior of wood by X-ray microtomography and digital volume correlation
10:10	***Perrier Laurent, Plantier Frédéric, Pijaudier-Cabot Gilles, Grégoire David*** Swelling due to adsorption in porous media presenting different and distinct porosities: Model and experimental validation
9:30-10:30	**Multiphysical couplings (session 5/6).** **Carnot, amphitheater Cauchy. Chair: Fabbri Antonin**
9:30	***Ogawa Shimpei, Tanaka Yuichiro, Takahashi Yuya, Maekawa Koichi*** Effect of preceding cracks on ASR expansion of concrete and its poro-mechanical modeling
9:50	***Böttcher Norbert, Maßmann Jobst, Nagel Thomas*** Modelling CO2-trapping mechanisms for geological carbon capture and storage: Description of constitutive relations
10:10	***Honorio Tulio, Brochard Laurent, Vandamme Matthieu, Stefanou Ioannis, Ghabezloo Siavash, Bornert Michel*** Stability of hydrated clay layers from molecular simulations
9:30-10:30	**Dynamic phenomena (session 7/8). IFSTTAR, room B019. Chair: Jia Xiaoping**
9:30	***Hunziker Jürg, Favino Marco, Caspari Eva, Quintal Beatriz, Rubino J. Germán, Krause Rolf, Holliger Klaus*** Seismic attenuation in realistic fracture networks
9:50	***Boxberg Marc, Heuel Janis, Friederich Wolfgang*** A nodal discontinuous Galerkin solver for modeling seismic wave propagation in porous media
10:10	***Monachesi Leonardo, Zyserman Fabio, Jouniaux Laurence*** A simple model to analytically assess the SH seismoelectric response of the vadose zone
9:30-10:30	**Instabilities and strain localization (session 2/3).** **Carnot, amphitheater Navier. Chair: Rattez Hadrien**
9:50	***Baud Patrick, Hall Stephen, Ji Yuntao, Wong Teng-Fong, Heap Michael*** The brittle-ductile transition in porous limestone imaged by X-ray computed tomography and digital image correlation
10:10	***Medetbekova Maiya, Salimzadeh Saeed, Christensen Helle, Nick Hamid*** Stability analysis of radial jet drilling in chalk reservoirs
10:30-11:00	***Coffee break***

THURSDAY, JULY 13, 2017

11:00-12:00

11:00-12:00 **Hydromechanical couplings in saturated materials (session 8/8)**
IFSTTAR, amphitheater. Chair: Nikolinakou Maria Aikaterini

11:00 ***Fellerman Jack, Brown Donald, Vasilyeva Maria*** On two-scale convergence of fluid-structure interaction problems with applications to poroelasticity

11:20 ***Krabbenhoft Kristian*** Upper and lower bounds on numerical solutions to Biot consolidation

11:40 ***Dicarlo Antonio, Naili Salah, Podio-Guidugli Paolo, Sansalone Vittorio*** Perfusion and absorption in a porous matrix

11:00-12:00 **Partially saturated porous materials, surface effects and adsorption (session 7/7)**
Coriolis, amphitheater. Chair: Wyrzykowski Mateusz

11:00 ***Lagorce Aurélie, Karbowiak Thomas, Champion Dominique, Gougeon Régis, Bellat Jean-Pierre*** Mechanical properties of cork: Effect of hydration

11:20 ***Adia Jean-Luc Delamonte, Yvonnet Julien, He Qi-Chang, Tran Nhu-Cuong, Sanahuja Julien*** Elastic shrinkage-swelling modeling in porous microstructures: A combined Finite Elements-Lattice Boltzmann-numerical approach

11:40 ***Shi Zhang, Gan Yixiang*** A grain-scale model for soil-water retention hysteresis

11:00-12:00 **Multiphysical couplings (session 6/6)**
Carnot, amphitheater Cauchy. Chair: Dahi Taleghani Arash

11:00 ***Nasedkin Andrey, Nasedkina Anna, Rybyanets Andrey*** Modeling and computer design of piezoceramic materials with stochastic microporous structure and local alloying pore surfaces

11:20 ***Taguchi Ryo, Takahashi Yuya, Maekawa Koichi*** Long-term load bearing capacity of reinforced concrete coupled with poromechanical model for alkali silica reaction

11:40 ***Xu Longfei, Champiré Florian, Fabbri Antonin, Wong Henry, Branque Denis*** Hydro-mechanical triaxial behavior of compacted earth at different temperatures

11:00-12:00 **Dynamic phenomena (session 8/8)**
IFSTTAR, room B019. Chair: Jouniaux Laurence

11:00 ***Soerensen Morten Kanne, Fabricius Ida*** How pore filling shale affects elastic wave velocities in fully and partially saturated sandstone. Characterization, measurement, and modelling

11:20 ***Aizikovich Sergey, Erofeyev Vladimir, Leonteva Anna*** Spatial localisation of nonlinear waves in a liquid saturated porous medium with cavities

11:40 ***Yan Zou, Huabei Liu*** A dynamic explicit algorithm for saturated porous media

11:00-12:00 **Instabilities and strain localization (session 3/3)**
Carnot, amphitheater Navier. Chair: Sulem Jean

11:00 ***Rattez Hadrien, Stefanou Ioannis, Sulem Jean*** Effect of thermo-poro-mechanical properties on the stability of faults

11:20 ***Nguyen Thi Thu Tra, Doanh Thiep, Le Bot Alain, Dalmas Davy*** Investigating the dynamic instabilities of model granular materials in isotropic consolidation and triaxial drained compression

11:40 ***Jacquey Antoine, Cacace Mauro, Blöcher Guido, Milsch Harald, Deon Fiorenza, Scheck-Wenderoth Magdalena*** Processes responsible for localized deformation within porous rocks? Insights from laboratory experiments and numerical modeling

12:00-13:30 ***Lunch break***

13:30-15:10 Plenary session. Coriolis, amphitheater. Chair: Ghabezloo Siavash

13:30 ***Hellmich Christian, Vass Viktoria, Köningsberger Markus, Shahidi Mehran, Godinho Pedro, Morin Claire, Pichler Bernhard*** Poro-micromechanics of materials with complex morphologies? A review, and recent results for concrete, bone, and paper

13:55 ***Weigel Coralie, Polian Alain, Kint Matthieu, Rouquette Jerome, Haines Julien, Foret Marie, Vacher René, Rufflé Benoit, Coasne Benoit***
Poroelastic theory applied to the adsorption-induced deformation of vitreous silica

14:20 ***Revil André*** Electromagnetic couplings of electrokinetic nature associated with hydromechanical disturbances in poroelastic media

14:45 ***Carmeliet Jan, Chen Mingyang, Derome Dominique***
Sorption induced deformation and hysteresis

15:10-15:30 Closing Ceremony. Coriolis, amphitheater. Vandamme Matthieu (Conference chairman)

POSTER SESSION

MONDAY, JULY 10, 2017, 16:00-17:45
CARNOT, NADIR ROOM

All poster contributions indicated in bold are accompanied by a full paper published in the proceedings

HYDROMECHANICAL COUPLINGS IN SATURATED MATERIALS

Hu Cong, Skoczylas Frédéric
Pore pressure coupling with stress inducing rock failure: An experimental investigation

Venton Jenny
A poroelastic model of the spinal cord to investigate syringomyelia

Yarushina Viktoriya, Podladchikov Yury
Constitutive modelling of shear-enhanced compaction in porous viscoelastoplastic rocks

PARTIALLY SATURATED POROUS MATERIALS, SURFACE EFFECTS AND ADSORPTION

Yuan Haifeng, Agostini Franck, Skoczylas Frédéric
On the adsorption-induced swelling effects to the petrophysical and poromechanical properties of COx argillite

Cieszko Mieczysław
Extended macroscopic description of a non-wetting liquid intrusion into a ball of porous material

Cieszko Mieczysław
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