GDRI GEOMECH
Multi-Physics and Multiscale Couplings in Geo-environmental Mechanics

Workshop
"Deformation and cracking in granular and heterogeneous materials: multi-scale experiment and modeling"

Monday 27 and Tuesday 28 January 2020
Organized by GDRI GeoMech, IMT Lille Douai and LamCube

Program

IMT Lille Douai
École Mines-Télécom
IMT-Université de Lille

Université de Lille

cnrs

GC LgE Laboratoire Génie Civil et géo-Environnement Lille Nord de France

LaM CU3E Laboratoire de mécanique, multiphysique, multiéchelle

GdRI GeoMech

GdRI Multi-Physics and Multi-scale Couplings in Geo-environmental Mechanics

The main lines of research concerned by the GDRI Multi-Physics and Multiscale Couplings in Geo-environmental Mechanics are as follows:

- Catastrophic failures and triggering mechanisms
- Safety of storage reservoirs
- Energetic geomechanics

Coordination of GdRI

Olivier MILLET , Professor
LaSIE, UMR CNRS 7356, Université de La Rochelle, Coordinator
François NICOT , Directeur de Recherche
IRSTEA Grenoble, co-Coordinator

Scientific Committee

Félix DARVE, Professor, INP Grenoble, L3S-R
Bernard CAMBOU, Professor, Ecole centrale de Lyon, LTDS
Pierre-Yves HICHER, Professor, Ecole centrale de Nantes, GEM
Djimédo KONDO, Professor, IJLRDA, Université Paris 6
Christian MOYNE, Directeur de Recherche, LEMTA, UMR CNRS 7563
Karim AÏT-MOKHTAR, Professor, Université de La Rochelle, LaSIE, UMR CNRS 7356
Mehdi GHOREYCHI, Professor, Scientific Director of INERIS
Niels KRUYT, Professor, Department of Mechanical Engineering, University of Twente
Patrick SELVADURAI, Professor, McGill University, Montréal

Workshop Theme

The annual GDRI GeoMech Workshop will be on "Deformation and cracking in granular and heterogeneous materials: multi-scale experiment and modeling". This workshop will be held in Lille, France, January 27-28, 2020. The meeting, hosted by IMT Lille-Douai, will be organized in collaboration with Université de Lille (LaMcube).

Workshop Organizing Committee

Patrick PIZETTE (IMT Lille Douai - LGCgE)
Jianfu SHAO (LaMcube)
Olivier MILLET (Université de la Rochelle)
François NICOT (INRAE Grenoble)

Local GeoMech Team (IMT Lille Douai- LGCgE)

Patrick PIZETTE (Coordinator of GeoMech IMT Lille Douai local team, Associate Professor)
Nor-Edine ABRIAK (Professor)
Nicolin GOVENDER (Visiting Researcher)
Salma BEN TURKIA (PhD Student)
Johannes JOUBERT (PhD Student)
François NADER (PostDoc)

Local LaMcube Team

Jianfu SHAO (Professor)

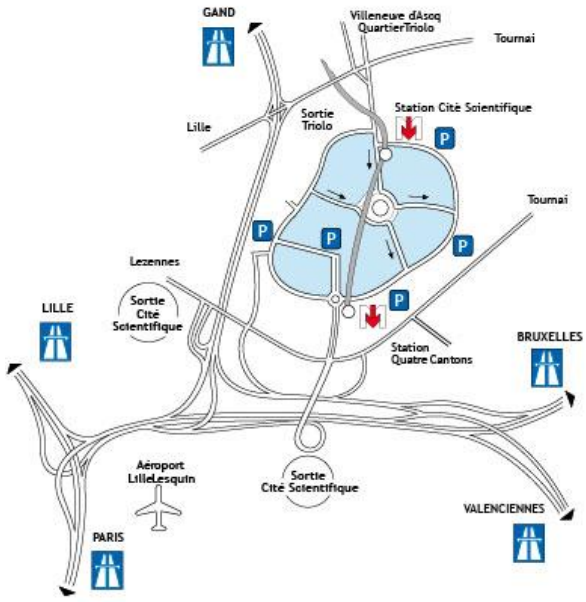
Workshop Venue

IMT Lille Douai
(Campus of Lille), Cité scientifique, **Amphi Morse**
Rue Guglielmo Marconi,
59650 Villeneuve-d'Ascq - France
https://goo.gl/maps/6TgxPT7zGExwCUSe6

Airports : Lille Lequin Airport , Roissy- Charles de Gaulle (Trains link hourly) or Bruxelle Zaventem (Trains link hourly)

Direct trains (TGV or Eurostar)

By car :
From Paris : take A1 motorway for Lille / Villeneuve d'Ascq
From Belgium : take A14 or A27 motorway for Kortrijk - Rijsel (Lille)



Monday January 27th

10h30 11h00	Registration	
11h00 11h10	Opening speech GDRI Geomech	F. Nicot , O. Millet
11h10 11h20	Presentation of the Workshop program, organization and social event	P. Pizette, J. Shao, N-E. Abriak
11h20 12h00	Keynote 1 : A roadmap for polyhedral shaped DEM	D. Wilke
12h00 14h00	***Lunch (restaurant U Barrois)***	
14h00 14h40	Keynote 2 : Discrete element modeling of damage and failure processes in argillaceous rocks	L. Scholtès
14h40 15h05	Multi-scale experiments on granular media: what we can learn from x-ray tomography	E. Ando
15h05 15h30	Halo approach to better simulate cracks initiation and propagation in homogeneous and heterogeneous materials using DEM	W. Leclerc
15h30 15h55	Recent developments and advances in distinct-element modeling of brittle materials	S. Enam
15h55 16h20	Coffee Break	
16h20 16h45	The interplay between slip lines and shear bands in granular materials by DEM	F. Darve
16h45 17h10	From slip lines to shear bands in the light of the shear chain concept	A. Wautier
17h10 17h35	Particle shape effects using polyhedra based DEM on the GPU	N. Govender
17h35 18h00	Thematic discussion	F. Nicot, O. Millet
19h30 23h00	Gala Dinner	

Tuesday January 28th

09h00 09h40	Keynote 3 : Multi-scale modeling of cracking in brittle materials with enriched finite element method	J-B. Colliat
09h40 10h05	Sur l'adéquation des modèles à gradient d'endommagement et de leur cadre variationnel pour la description de la fissuration des géomatériaux quasi fragiles	D. Kondo
10h05 10h30	Discrete element approach for modelling mechanical behavior and damage of PA6/GF30	A. Ammar
10h30 10h55	Coffee Break	
10h55 11h20	Fluid-solid transitions in granular matter	S. Luding
11h20 11h45	Coupling strategies between DEM and meshless Lagrangian methods	J. Joubert
11h45 12h10	On the attractive power of the critical state	N. Deng
12h10 14h00	Lunch ***(restaurant U Barrois)***	
14h00 14h25	Local instabilities in granular material : burst of kinetic energy and meso deformations	A. Clerc
14h25 14h55	Temperature effects in the cohesion-decohesion process: applications to biophysics and material science	G. Stefano
14h55 15h20	On the modeling of transition from diffuse damage to localized cracking	A. Tong Y or J. Shao
15h20 15h45	Final discussion	F. Nicot, O. Olivier

List of Participants

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Gala Dinner 19h30 – 27/01/2020

Hôtel**** Restaurant

Couvent des Minimes

Alliance Lille

https://www.alliance-lille.com/fr/page/restaurant-vieux-lille.4.html

Itinéraire 36 min

Départ : **Rue Guglielmo Marconi (Villeneuve-d\'Ascq)**

Marcher 708 mètres jusqu'à Cte Scientifique (Villeneuve-d'Ascq)
Durée estimée : 11 min
Afficher le plan

Voir les tarifs

ilévia M1

Prendre le Métro M1 à la station Cte Scientifique (Villeneuve-d'Ascq) en direction de Chu-Eurasante (Lille)
Descendre à la station Rihour (Lille)
Durée : 13 min
Voir les stations intermédiaires

Marcher 813 mètres jusqu'à Quai du Wault (Lille)
Durée estimée : 12 min
Afficher le plan

Arrivée : **17 Quai du Wault (Lille)**