

Bilateral French-Italy Workshop

Going down to the microscale in multiphysics problems
From seismic driven risks to petroleum geomechanics

Organized by

GDR MeGe & MEMOCS

Arpino, Italy, 4-6 May 2015

Monday, 4 May 2015

15h00-15h30	**Buffet Lunch**	
15h30-16h00	**Welcome words**	
16h00-16h40	**KEYNOTE** **Generalized continua as approximated models for microscopically complex, multi scale physical systems. The need of getting rid of Cauchy's straightjacket**	Francesco dell'Isola
16h40-17h05	A quasi steady state method for solving transient Darcy flow in complex 3D fractured networks accounting for matrix to fracture flow	Benoit Noetinger
17h05-17h30	Pre-stressed solid–fluid mixtures and wave propagation	Luca Placidi
17h30-17h55	Porous Biphasic modeling of Salt Caves	Ivan Giorgio
17h55-18h30	***Coffee break***	
18h30-18h55	A model for internal friction in porous Geomaterials	Daria Scerrato
18h55-19h20	Adsorption-induced instantaneous deformation in double porosity media: modeling and experimental validations	David Grégoire
20h30-22h00	***Diner***	

Tuesday, 5 May 2015

08h30-08h55	Lode angle effects on strength properties of porous materials with Drucker-Prager or Mohr-Coulomb matrix	Djimedo Kondo
08h55-09h20	Void-size effects on strength properties of nanoporous materials: a Molecular Dynamics approach	S. Brach and Djimedo Kondo
09h20-09h45	Definition of a constitutive law for granular materials from a change of scale approach based on a meso-scale	Bernard Cambou
09h45-10h10	Macroscopic strains in granular materials accounting for grain rotations	Niels Kruyt
10h10-10h40	***Coffee break***	
10h40-11h20	**KEYNOTE** **Coulombian plastic friction, a world of bifurcations**	Félix Darve
11h20-11h45	Some considerations around the second-order work criterion	François Nicot
11h45-12h10	Modeling the mechanical behavior of very coarse granular materials	Pierre-Yves Hicher
12h10-12h35	Micromechanically-based models and microstructural enrichment: challenges and perspectives	Guillaume Veylon
12h35-14h00	***Lunch***	
14h00-14h25	Numerical models of porous media: the pore scale as a relevant (and tracktable) scale for multiphase couplings	Bruno Chareyre
14h25-14h50	Capillarity in granular materials from Young-Laplace equation	Olivier Millet
14h50-15h15	Modeling generalized continua with Swarm Robots. Part I: ideas and basic results	Alessandro Della Corte
15h15-15h40	Modeling generalized continua with Swarm Robots. Part II: crack formation and evolution	Antonio Battista
15h40-16h05	On the instability and critical state of silty sand: an unified approach	Nadia Benahmed
16h05-16h35	***Coffee break***	
16h35-17h00	Granular micromechanics model predicts loading path-dependent behavior of geomaterials	Anil Misra
17h00-17h25	Application of DEM to predict the effective properties of continuous materials	Mohamed Guesssasma
17h30-19h00	**Excursion and visit : Cyclopean' walls of Civitavecchia**	
20h00-22h00	***Banquet***	

Wednesday, 6 May 2015

09h00-09h25	An HM-XFEM model to simulate a fracture network in a porous rock	Bertrand Paul
09h25-09h50	Pore-scale modeling of two-phase flow in deformable porous media and how it examines the question of effective stress	Chao Yuan
09h50-10h15	A quasi steady state method for solving transient Darcy flow in complex 3D fractured networks accounting for matrix to fracture flow Experimental investigation of frequency effect on the elastic properties	Lucas Pimienta
10h15-10h40	Multiscale model for cementitious materials with random microstructure	Massimo Cuomo
10h40-11h10	***Coffee break***	
11h10-11h35	Stress tensors for granular materials as non-simple continua: an averaging procedure based on objectivity requirements	Francesco Froiio
11h35-12h00	Effective elastic properties of bi-nanoporous materials	Yann Monerie
12h00-12h25	Using A Multi–Scale Approach For Modeling The Mechanical Behavior of Historic Masonries Subjected to Environmental Attack	Emilio Turco
12h25-12h45	Closure discussions (International GDR Geo-Mech)	
12h45-14h00	***Lunch***	
14h00…	**Departure for Roma airport**	