

**23<sup>rd</sup> ALERT Workshop Program**  
**Aussois, October the 3<sup>rd</sup> 2012**

**Session III: Geomechanics for Energy Production**

*Coordinators: Lyesse Laloui (EPFL) & Helen Lewis (Heriot – Watt University)*

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<b>08:30 - 08:40</b>	<b>Morning Session Opening</b>
	<i>Experimental Testing</i>
<b>08:40 - 09:00</b>	Analysis and investigation of the hydro-mechanical response of deformable fractures to high pressure fluid injection <i>Vinci Carlo<sup>1</sup>, Jörg Renner<sup>2</sup>, Holger Steeb<sup>1</sup> (1 Institute of Mechanics, Ruhr-University Bochum, 2 Institute of Geology, Mineralogy and Geophysics, Ruhr-University Bochum)</i>
<b>09:00 - 09:20</b>	Testing shales in Thermo-Hydro-Mechanical conditions <i>Lyesse Laloui, Alessio Ferrari, Simon Salager (Swiss Federal Institute of Technology, EPFL)</i>
<b>09:20 - 09:40</b>	Thermo-mechanical effects of a rapid depressurization in a gas cavern <i>Hippolyte Djakeun-Djizanne<sup>1</sup>, Pierre Bérest<sup>2</sup>, Benoit Brouard<sup>3</sup> (1 LMS - Ecole Polytechnique, 2 Palaiseau, France, 3 Brouard Consulting, France)</i>
	<i>Theoretical and Numerical Analysis</i>
<b>09:40 - 10:00</b>	Numerical study of the influence of pre-existing features on the hydraulic fracturing process using FEM/DEM <i>Giovanni Grasselli, Andrea Lisjak, Bryan S.A. Tatone, Omid K. Mahabadi (Department of Civil Engineering, University of Toronto)</i>
<b>10:00 - 10:20</b>	Contact mechanics problems arising in energy resources recovery endeavours <i>A.P.S. Selvadurai (McGill University, Montréal)</i>
<b>10:20 - 10:40</b>	<b>Coffee Break</b>
<b>10:40 - 11:00</b>	Thermo-Elasto-Plastic consolidation analysis with water phase change <i>Lorenzo Sanavia<sup>1</sup>, Lyesse Laloui<sup>2</sup>, Loris Luison<sup>1</sup>. (1 University of Padua, 2 Swiss Federal Institute of Technology, Lausanne - EPFL)</i>
<b>11:00 - 11:20</b>	Simultaneous determination of adsorption isotherms and heats of adsorption by a calorimetric-manometric device. Application to microporous carbon <i>David Pino, Frédéric Plantier, David Bessières (Université de Pau et des Pays de l'Adour, France)</i>
<b>11:20 - 11:40</b>	FEM numerical simulation of compaction band propagation

	<i>Dattola Giuseppe<sup>1</sup>, Di Prisco Claudio<sup>1</sup>, Eleni Gerolymatou<sup>2</sup> ( 1 Politecnico di Milano, 2 Karlsruhe Institute for Technology)</i>
	<b>Energy Piles</b>
<b>11:40 - 12:00</b>	Advances for the design of seasonal energy storage in building foundations <i>Fabrice Duprey, Albin Kazangba, Lyesse Laloui (Swiss Federal Institute of Technology, EPFL)</i>
<b>12:00 - 12:20</b>	A physical model for studying the mechanical behaviour of a heat exchanger pile <i>Neda Yavari, Anh Minh Tang, Jean-Michel Pereira, Ghazi Hassen (Ecole des Ponts ParisTech)</i>
<b>12:20 - 14:00</b>	<b>Lunch</b>
<b>14:00 - 14:30</b>	Keynote lecture given by Euripedes Vargas (PUC Rio, Brasil)
<b>14:30 - 14:50</b>	Sand production simulation coupling DEM with CFD <i>Climent Natalia<sup>1</sup>, O'Sullivan Catherine<sup>2</sup>, Arroyo Marcos<sup>1</sup>, Gens Antonio<sup>1</sup> (1 Universitat Politècnica de Catalunya, 2 Imperial College London)Scale effect of volumetric sand production</i>
<b>14:50 - 15:10</b>	Reactivation of pre-existing fractures by fluid injection experiments at the laboratory scale <i>Charalampidou Elli-Maria<sup>1</sup>, Reinicke Andreas<sup>2</sup>, Stanchits Sergei<sup>3</sup>, Dresen Georg<sup>1</sup> (1 GFZ German Research Centre for Geosciences, 2 Shell Netherlands, 3 TerraTek, Schlumberger)</i>
<b>15:10 - 15:40</b>	Characterizing the state of geomaterials at great depth. Part I: estimation of in situ stress from borehole data <i>Gabriele Della Vecchia, Anna Pandolfi, Guido Musso (Politecnico di Milano)</i>
	Characterizing the state of geomaterials at great depth. Part II: estimation of the representativeness of laboratory samples by comparison of in situ and laboratory elastic wave velocities <i>Guido Musso<sup>1</sup>, Renato Maria Cosentini<sup>1</sup>, Sebastiano Foti<sup>1</sup>, Cesare Comina<sup>2</sup> (1 DISEG, Politecnico di Torino, 2 Università degli Studi di Torino)</i>
<b>15:40 - 16:00</b>	<b>Coffee Break</b>
<b>16:00 - 16:20</b>	Evaluation of a fault zone in a carbonate hydrocarbon reservoir <i>Emmanuel Lecomte, Caroline Chalak (Heriot-Watt University)</i>
<b>16:20 - 16:40</b>	Coupling between adsorption and mechanical stress in fractured microporous geomaterials <i>D. Nicolas Espinoza, Jean-Michel Pereira, Matthieu Vandamme, Patrick Dangla (Ecole des Ponts ParisTech/IFSTTAR/CNRS)</i>
<b>16:40 - 17:00</b>	Micro-hydromechanical analysis of sand production problems in small oil

	<p>perforations.</p> <p><i>AN. Berntsen<sup>1</sup>, E. Papamichos<sup>2</sup> (1 SINTEF Petroleum Research, 2 Aristotle Univ of Thessaloniki and SINTEF Petroleum Research)</i></p>
<b>17:00</b>	<b>Posters</b>
	<p>Elliptical shear-band subsidence models above a trapdoor</p> <p><i>Vairaktaris Emmanouil<sup>1</sup>, Stavropoulou Maria<sup>2</sup> (1 NTUA, 2 UOA)</i></p>
	<p>Conditions for localized failure during uniaxial compression of saturated viscoplastic geomaterials</p> <p><i>Manolis Veveakis (CSIRO Earth Science and Resource Engineering)</i></p>
	<p>Micro-hydromechanical analysis of sand production problem in small oil perforations</p> <p><i>Garolera, Daniel, Carol Ignacio, López, Carlos Maria (UPC, Barcelona)</i></p>
	<p>Energy pile performance at One New Change London after 2 years of operation</p> <p><i>Tony Amis<sup>1</sup>, Peter Smith<sup>2</sup>, Alessandro Di Domenico<sup>1</sup> (1 Geothermal InternationalLtd, 2 Cementation Skanska)</i></p>