W(H)YDOC 12

4th International Workshop of Young Doctors in Geomechanics

Programme

École des Ponts ParisTech
Champs-sur-Marne, France
November 21 – 23, 2012
Wednesday, 21st November, 2012

Session 1 – Damage effects
Discussion Leader: Leonardo Guimarães (UFPE, Brasil)
Secretary: Anna Ramon (UPC, Barcelona, Spain)

9h30 - 10h15
Keynote Lecture: Expansive degradation mechanisms in concretes links between chemical reactions and mechanical consequences - Alkali silica reaction and degradation by sulfate ions, similarities and differences.
Prof. Karen Scrivener (EPFL, Switzerland)

10h15 - 10h25 Discussion

10h25 - 10h45 Coffee break

10h45 - 11h20 Thermal effect characterisation in the excavation damaged zone around tunnels for nuclear waste disposal in argillaceous rocks
Arnaud Dizier
Université de Liège

11h20 - 11h55 Deformation of air-entrained cement paste saturated with Sodium Chloride solution under freeze-thaw action
Qiang Zeng
Tsinghua University

11h55 - 12h30
Modeling fracture behavior of cement paste based on its microstructure
Zhiwei Qian
Delft University of Technology

12h30 - 13h00 Discussion

13h00 - 14h30 Lunch

Session 2 – Multiscale analysis
Discussion Leader: Hervé Di Benedetto (ENTPE, France)
Secretary: Leila Brunet de Sá Beserra (UFPE, Brasil)

14h30 - 15h05
Microstructural Modeling of Alkali-Silica Reaction
Alain Giorla
Ecole Polytechnique Fédérale de Lausanne

15h05 - 15h40
On C-S-H building block properties as obtained from nanoindentation of cement paste
Denis Davydov
Czech Technical University in Prague

15h40 - 16h00 Coffee break

16h00 - 16h35 Characterising sand deformation at the micro-scale in three dimensions
Edward Andò
Grenoble-INP / UJF-Grenoble

16h35 - 17h10 Morphological analysis and numerical homogenization: application to cement paste
Sébastien Brisard
Ecole des Ponts ParisTech

17h10 – 17h40 Discussion

17h45 Cocktail
### Session 3 – Computational Geomechanics

**Discussion Leader:** Minna Karstunen (Chalmers University of Technology, Sweden)  
**Secretary:** Zhiwei Qian (Delft University, The Netherlands)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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| 9h30 - 10h15 | Reservoir Simulation with Geomechanical and Geochemical Couplings  
**Prof. Leonardo Guimarães (UFPE, Brasil)** |
| 10h15 - 10h25 | Discussion                                                                               |
| 10h25 - 10h45 | Coffee break                                                                             |
| 10h45 - 11h20 | An anisotropic bubble model for structured clays  
Nallathamby Sivasithamparam  
University of Strathclyde |
| 11h20 - 11h55 | Wave-induced non-linear seafloor dynamics around vertical breakwaters  
Miguel Martín Stickler  
Universidad Politécnica de Madrid |
| 11h55 - 12h30 | Hydro-geomechanical analysis using finite elements with strong discontinuities in displacement and pore pressure fields  
Leila Brunet de Sá Beserra  
UFPE, Recife |
| 12h30 - 13h00 | Discussion                                                                               |
| 13h00 - 14h30 | Lunch                                                                                     |

### Session 4 – Chemical couplings

**Discussion Leader:** Karen Scrivener (EPFL, Switzerland)  
**Secretary:** Denis Davydov (Czech Technical University, Prague)

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| 14h30 - 15h05 | Crystal growth under bridge foundations  
Anna Ramon  
Universitat Politècnica de Catalunya |
| 15h05 - 15h40 | Multiphase modeling of concrete: hydration and associated thermo-hygro-mechanical phenomena  
Giuseppe Sciumé  
University of Padua / ENS Cachan |
| 15h40 - 16h00 | Coffee break                                                                             |
| 16h00 - 16h35 | Insights into the behavior of clay and supercritical CO2  
Nicolas Espinoza  
Georgia Institute of Technology, Atlanta |
| 16h35 - 17h10 | Modelling internal curing in concrete  
Mateusz Wyrzykowski  
EMPA / Lodz University of Technology |
| 17h10 – 17h40 | Discussion                                                                               |

20h30 **Workshop Banquet (Restaurante "Le Petit Zinc", Paris 6ème)** *

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*Invited dinner for young doctors and discussion leaders  
Reservations in the same restaurant for external participants are possible (limited number of places)  
Please contact Organisation for further information
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>9h30 - 10h15</td>
<td>Keynote Lecture: The influence of geology/geological history on the mechanics of soils Prof. Matthew Coop (City University of Hong Kong, China)</td>
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<td>10h15 - 10h25</td>
<td>Discussion</td>
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<tr>
<td>10h25 - 10h45</td>
<td>Coffee break</td>
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<tr>
<td>10h45 - 11h20</td>
<td>Modelling compressibility of soft soils with anisotropic material models Mats Olsson Chalmers University of Technology</td>
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<td>11h20 - 11h55</td>
<td>Experimental investigation of the HM behaviour of a natural unsaturated loess José Munoz-Casteblanco Ecole des Ponts ParisTech</td>
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<td>11h55 - 12h30</td>
<td>An unsaturated soil model accounting for hydromechanical coupling based on bounding surface plasticity concept Mathilde Morvan Ecole Nationale des Travaux Publics de l'État</td>
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<td>W(H)YDOC 2012 Prize ceremony and Closing Remarks</td>
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