



**Call for abstracts: Minisymposium at EMI 2015,**

**Stanford University, June 16-19, 2015**

**Mechanics of unsaturated porous materials: From geo-materials and building materials, to food and beyond**

Unsaturated porous media span from unsaturated soil, rock and concrete to food, diapers and so forth. Unsaturated poromechanics has thus gained much attention in recent years. It is based on the pioneering works of giants such as Biot, Bowen, Coussy, and De Boer who developed a systematic approach to multiphase multi-scale problems based on the principles of continuum mechanics and thermodynamics.

Presence of many coupled phenomena and complex and intricate interactions of different phases in multiphase multiphysic processes occurring in saturated and unsaturated porous media makes poromechanics an emerging science and a promising approach to address a diverse range of problems. Modeling mechanical behavior of unsaturated porous media, such as swelling clays, concrete, and food, requires various coupled processes to be considered. These include hydro-mechanical, chemo-mechanical, and electro-hydro-mechanical processes. Moreover, mechanical behavior at high temperature depends on thermo-hydro-mechanical coupling, and in biological interaction with unsaturated porous media in self-healing concrete or biologically stabilized soils, bio-chemo-hydro-mechanical coupling is a major part of the poromechanical model.

This mini-symposium provides a platform to discuss different aspects of unsaturated poromechanics including (but not limited to):

- General topics in mechanics and hydraulics of unsaturated porous media: hysteresis phenomena, net stress effects on hydraulic properties, mechanics of rainfall induced landslides, mechanics of foods as deformable multiphase media, etc
- Coupled processes in multiphase porous media
- Multi-scale approaches: from pore- and grain-scale simulations to macro-scale studies
- Damage mechanics of unsaturated porous material
- Emerging poromechanics research topics: gas hydrates, CO<sub>2</sub> sequestration, crystallization in multiphase porous materials, etc.

**Co-conveners:**

S. Majid Hassanizadeh, and Ehsan Nikooee (Utrecht University, the Netherlands)

[s.m.hassanizadeh@uu.nl](mailto:s.m.hassanizadeh@uu.nl)

## **Abstract submission: a quick guide**

To submit your abstract, please refer to the EMI website and select this minisymposium (MS82):  
<http://www.emi2015.info/abstract-submission>

### **What you need to submit:**

- Abstract title not exceeding 130 characters including spaces
- Author information including complete name, organization, country, and email will be required.
- Please name/identify contact author, who is also the presenting author

**Important note:** When you are submitting your abstract through the conference website, please do not forget to select this minisymposium from list of topics (otherwise, we will not receive your abstract):

### **MS 82: Mechanics of Unsaturated Porous Materials: From Geo-materials and Building Materials, to Food and Beyond (in order to submit to this minisymposium)**

- 3 – 5 Keywords will also be required.
- Please limit your abstract to 300 words, and do not include any equation.

### **Important dates:**

- **Abstract Submission:** November 15, 2014
- Abstract Acceptance: December 15, 2014
- Early Bird Registration: March 15, 2015
- Online Registration: May 15, 2015