

## Recent developments in Energy Geotechnics: Fundamentals to Applications

A half day seminar at Imperial College

1:00 – 4:30 pm 15<sup>th</sup> March 2017, followed by Rankine lecture at 5:30pm

**Chair:**

**Prof. Lidija Zdravković, Imperial College**

<b>Session 1: Fundamentals</b>		<b>1:00 – 2:30</b>
<i>Numerical modelling of coupled thermo-hydro-mechanical problems: challenges and pitfalls</i>	Prof. David Potts <i>Imperial College London, UK</i>	1:00 – 1:20
<i>The effects of temperature on soil behaviour</i>	Prof. Pierre Delage <i>Ecole des Ponts, ParisTech, France</i>	1:20 – 1:40
<i>Centrifuge modelling of floating geothermal piles</i>	Prof. Charles Ng <i>Hong Kong University of Science and Technology, Hong Kong</i>	1:40 – 2:00
<i>Discussion</i>	All	2:00 – 2:30
<b>Coffee break</b>		<b>2:30 – 3:00</b>
<b>Session 2: Applications</b>		<b>3:00 – 4:30</b>
<i>Application of ground-source heat pump systems to geostructures</i>	Duncan Nicholson <i>Arup, UK</i>	3:00 – 3:20
<i>Numerical modelling of thermo-active structures</i>	Dr. David M. G. Taborda <i>Imperial College London, UK</i>	3:20 – 3:40
<i>Thermo-hydro-mechanical interactions in nuclear waste repositories: lessons from large-scale tests</i>	Prof. Antonio Gens <i>Technical University of Catalonia, Spain</i>	3:40 – 4:00
<i>Discussion</i>	All	4:00 – 4:30

The field of Energy Geotechnics focusses on geotechnical issues associated with infrastructure designed to meet the rising energy demand. These problems typically subject geomaterials to complex loading conditions of mechanical, hydraulic, thermal and chemical origin, leading to the need to understand, characterise and model highly-coupled phenomena. In this half-day seminar, recent developments in the field of Energy Geotechnics will be presented focusing on both fundamental and applied research. The first part of the seminar will be dedicated to the development of numerical, experimental and physical modelling tools required for the characterisation and modelling of heat transfer in soils and its interaction with their hydro-mechanical behaviour. The second part will demonstrate practical applications of ground source energy and how this affects the design of geotechnical structures, concluding with an in-depth analysis of thermo-hydro-mechanical interactions in nuclear waste repositories

**Venue:**

Imperial College London, Department of Civil & Environmental Engineering  
Skempton Building, London SW7 2BU

**Main room:**

LT 164 – ground floor, Skempton Building

**Overflow room:**

LT 201 – first floor, Skempton Building