

KYT workshop on bentonite modelling

8th November 2017

10:00 – 15:00

Design Factory, The Stage

Betonimiehenkuja 5 C, 02150 Espoo, Finland

Attendance is free of charge!

To ensure the right quantities of coffee & cakes, please confirm your attendance via email to wojciech.solowski@aalto.fi

The seminar will give an overview of research financed by the KYT2018 Finnish Research Programme on Nuclear Waste Management in the 2017. The seminar participants' research is funded by the subtask related to the buffer and backfill performance. Therefore the focus of the seminar is bentonite and swelling clay behaviour and constitutive modelling.

More information on THEBES project can be found at:

<http://civileng.aalto.fi/en/research/projects/thebes/>

while more information on the other participants can be found at:

<http://www.uef.fi/en/web/kemia/physical-chemistry-molecular-modelling> (Prof. Pakkanen) [https://tuhat.helsinki.fi/portal/fi/persons/pirkko-hoeltta\(70bd3285-8568-4174-bccd-51f7891fd053\).html](https://tuhat.helsinki.fi/portal/fi/persons/pirkko-hoeltta(70bd3285-8568-4174-bccd-51f7891fd053).html) (Dr Pirkko Hölttä)

Program highlight:

10:30 Academy Professor Olli Ikkala (Aalto University)

Academy Professor Olli Ikkala authored and co-authored more than 267 scientific papers which attracted at least 14760 citations. His work covers a number of disciplines - his talk will concentrate on artificial bentonite, its uses and frontiers in bentonite research.

Workshop program:

10:00 Welcome coffee

10:30 Welcome & short introduction to THEBES network (*W.T. Sołowski, Aalto University*)

10:45 **Keynote Lecture (Academy Professor Olli Ikkala, Aalto)**

11:30 Lunch

12:30 Technical Session 1 (*chair: Ayman Abed*)

Presentations:

European Joint Programme on Radioactive Waste Management and Disposal -
Bentonite and radionuclide interaction processes
(by Pirkko Hölttä, *University of Helsinki*)

Bentonite swelling pressure – atomistic simulations
(by Tapani Pakkanen, *University of Eastern Finland*)

Shape and size of montmorillonite platelets exposed to microbial activity - before
and after one year of the experiment.
(by Michał Matuszewicz, *VTT*)

Mechanical experiments on bentonite in THEBES
(by Veli-Matti Pulkkanen, *VTT*)

13:30 Coffee Break

14:00 Technical Session 2: (*chair: Veli-Matti Pulkkanen*)

Influence of temperature on clay-based material behaviour: Work Package
description
(by Markus Olin, *VTT*, Jiří Svoboda, *CTU* & Gilles Armand, *Andra*)

Wetting and swelling of small-scale bentonite samples measured using X-ray
imaging technique
(by Tero Harjupatana, *University of Jyväskylä*)

Inclusion of microstructure and chemical effects in the coupled THM Aalto Code
(by Ayman Abed, *Aalto University*)

Hydromechanical Modelling of Bentonite: Simulating Wetting and Swelling
Experiments
(by Mika Laitinen, *Numerola Oy*)

15:00 Closure