



Micro Soil II:

Novel technologies, modelling, and macroscopic impacts.

Provisional Programme

(note that times and order may be subject to changes)

Tuesday June 14th, day 1

8.45 – 9.20 Arrival, registration and coffee

9.20 – 9.30 Welcome.

9.30-10.15 KEYNOTE: Prof. Clare Chenu (Bioemco, France)

Soil structure, soil microorganisms interactions: decomposing organic matter in a structured world

10.15-10.45 Morning coffee/tea

Session 1: Physical chemical properties and microhabitats

10.45 - 11.05 **Thilo Eickhorst** Perspectives for the identification and visualization of microorganisms in situ

11.05 - 11.25 **Alexandra Wolf** Influence of pore size and moisture on microbial interactions in soil

11.25 - 11.45 **Veronica Morales** Empirical correlation for predicting attachment coefficient of organic matter-colloid complexes in unsaturated porous media.

11.45 - 12.30 KEYNOTE: Prof. Gabriele Schaumann (University of Koblenz-Landau, Germany)

Swelling and physicochemical aging of organic matter in soils and peats: Potential of ¹H-NMR-Relaxometry and thermal analysis for process analysis

12.30 - 13.30 LUNCH

Session 2: Quantifying and characterizing the physical environment

13.30 - 14.15 **KEYNOTE: Dr Stephan Peth (University of Kiel, Germany)**

Soil Structure Dynamics and X-ray Tomography

14.15 - 14.35 **Denis van Loo** A flexible and modular multi-resolution X-ray CT setup for multi-scale imaging from macro to sub-micron scale

14.35 - 14.55 **Andre Egbert/ Dirk Neuber** High-Resolution μ CT and nanoCT for 3D Analysis of Soils and Minerals

14.55 - 15.15 **Sonja Schmidt** Root-soil contact determined from 3D X-ray microtomographs

15.15- 15.45 Tea/coffee.

15.45 - 16.05 **Helen Downie** Transparent soils for optical imaging of root soil interactions

16.05 - 16.25 **Alasdair Houston** Comparison of segmentation techniques

16.25 - 16.45 **Ana Tarquis** 3D Soil Images Structure Quantification using Relative Entropy

16.45 - 17.05 **Bernhard Illerhaus** Effect of lake sediment application on soil structure assessed by means of X-ray computer micro-tomography.

17.05 - 17.25 t.b.c.

17.30 depart to HMC Centre for opening of art exhibition on soil

19.30 Conference Dinner, APEX Hotel

Wednesday June 15th, day 2

8.30 - 9.00 Arrival, morning coffee/tea

Session 3: Chemical Characterisation of Soil Heterogeneity

9.00 - 9.45 **KEYNOTE Prof. Fred Mosselman (Diamond Light Source, UK)**
The use of synchrotron radiation in the microscopic examination of soil

9.45 - 10.05 **Soren Munch Kristiansen** Speciation of Copper in polluted and non-polluted soil from a Danish site: Synchrotron-based X-ray Absorption Spectroscopy evidence

10.05 - 10.25 **Audrey Wayolle** Using cyclical sampling methods to map soil microscopic properties

10.25 - 11.00 coffee **Denis van Loo** The use of contrast agents to visualize soil organic matter with X-ray Computed Tomography

11.00 - 11.20 **Jiang Zeyun** Stochastic multi-scale pore-network generation from 3D rock images

Session 4: Modelling Complex Soil Systems and Up-scaling

11.20 - 11.40 **Rink van Dijke** Pore-network models for water flooding of mixed-wet reservoir rocks

11.40 - 12.00 **Paco Perez-Reche** An epidemiological network model for biological invasion in soil

12.00 - 13.00 Lunch

13.00 - 13.45 **KEYNOTE: Dr Tiina Roose (University of Southampton, UK)**
Multiscale Plant Soil Modelling

13.45 - 14.05 **Martin Luc Rosinberg** A theoretical study of spontaneous imbibition in nanopores and disordered porous solids.

14.05 - 14.25 **Adam Sampson** Computational methods for upscaling

14.25 - 14.45 **Patricia Garnier** Modelling organic substrat degradation in sand: from a compartmental model to a 3D spatial approach

14.45 - 15.05 **Ruth Falconer** Understanding the Fungal-Soil Complex

15.05 - 15.45 Poster highlights (sale-pitch session)

15.45 – 16.45 Poster viewing with Whiskey tasting Tea and Coffee

16.45 Depart

