UNIVERSITY OF CAMBRIDGE
Department of Engineering

GEOTECHNICAL SOCIETY

Molecular simulations to predict evolutions of clay properties with moisture: A comparison with experiments on thin clay films

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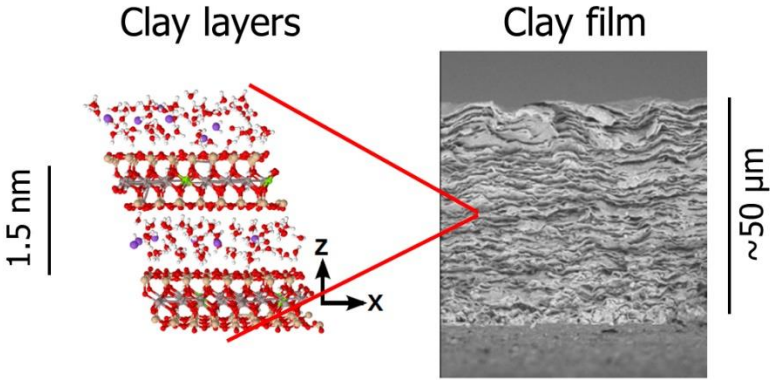
Seminar overview:

Molecular simulations are increasingly used to study materials of any kind, including materials relevant for civil engineering applications, such as cement or soils. But one important question is how results obtained at the atomistic scale by molecular simulations can be transferred to the macroscopic scale of the engineer.

Dr. Mattieu will compare molecular simulation results obtained at the nanometric scale of the clay layer with experiments on a clay system at a larger scale. He will focus on how moisture modifies the mechanical properties of clay at those two scales. The clay systems studied experimentally are self-standing clay films with a thickness of a few dozen microns, which are less heterogeneous than clay-based rocks but are sufficiently large to be mechanically tested with conventional techniques.

Biography:

Matthieu Vandamme is a Civil Engineer who has been working since 2008 at Laboratoire Navier (ENPC, CNRS, IFSTTAR) at École Nationale des Ponts et Chaussées. He is interested in materials relevant for Civil and Environmental Engineering. More precisely, his main focus lies in the mechanics and physics of porous solids. He received his PhD from MIT in 2008, for the study of creep properties of cementitious materials by nanoindentation. He is also an engineer from Ecole Polytechnique (France) and received an M.S. degree in solid mechanics from École Nationale des Ponts et Chaussées (France). Dr. Matthieu is a French Government By-Fellow at Churchill College and a visitor at the Department of Engineering, University of Cambridge.



When and where:

Wednesday, 2nd of May, 19:00

1 Newnham Terrace First Floor, Darwin College

Queries:
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