Best thesis award 2017

24 November 2017

Sponsored by

Ingeokring

(Dutch Association of Engineering Geologists)

Best thesis award 2017 Committee

Gerrit de Vries (Marine Sampling Holland BV)

Oscar Mooijman (Royal HaskoningDHV)

Dominique Ngan-Tillard (secretary) (Delft University of Technology)

Robert Hack (chair) (University Twente)

Four nominations

All thesis:

- High standard, good layout, well written and well done
- Topics range from clay to bio-materials, mathematics, and computer code, applied to dikes, tunnels, cold regions, and many other applications
- Topics originating in Engineering Geology, Civil and Geotechnical Engineering

Cracking Up: The Influence of Water Availability on the 3D Desiccation Crack Pattern in Kaolin Clay

Alisha Shanti Pengel

Master of Science in Applied Earth Sciences, specialization: Geo-engineering, Delft University of Technology, 11 November 2016 (Supervisor: Prof dr Cristina. Jommi)

Desiccation fissures effects on the performance of flood defense clay embankments.

- Interesting subject, practical and important in the Netherlands
- Good layout, well written and well done

Contact modelling in the Material Point Method

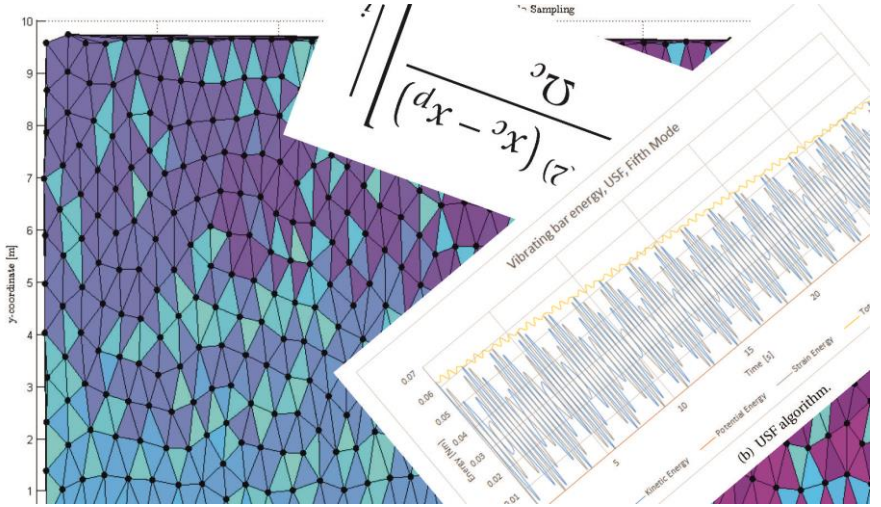
Ivaylo Pantev

Master of Science in Civil Engineering, Geo-Engineering specialization, Delft University of Technology, 27 October 2016 (Supervisor: Dr Phil Vardon)

Formulation of code and detail investigations on the Material Point Method as alternative to the Finite Element Method

- Theoretical, mathematical subject
- Good layout, well written also for

  the less mathematically gifted



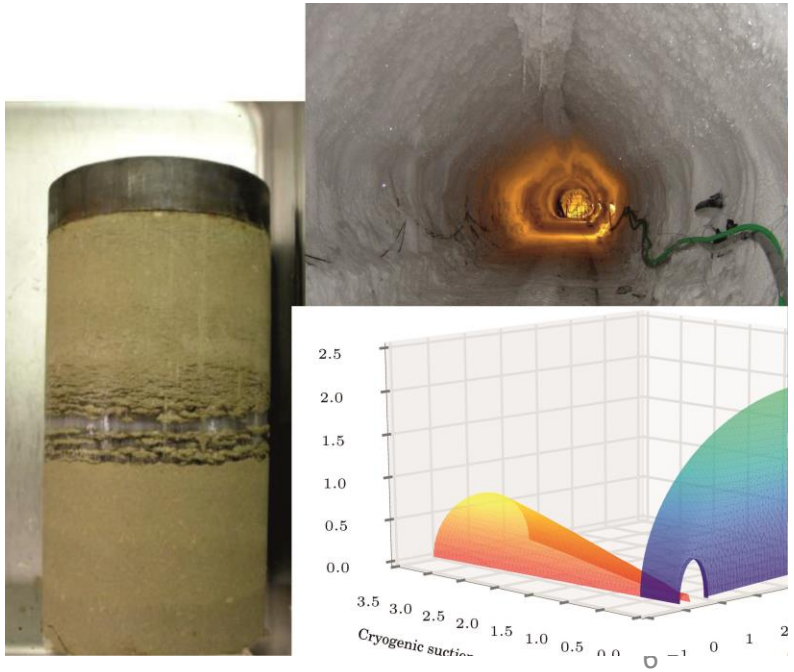
The Frozen & Unfrozen Barcelona Basic Model; A verification and validation of a new constitutive model

Manuel Aukenthaler

Master of Science, Delft University of Technology, 15 July 2016 (Supervisors: Dr Ir Ronald Brinkgreve & Dr. Adrien Haxaire) (sponsor Plaxis)

Features of the mechanical behavior of frozen and unfrozen soil in a new constitutive model.

- Theoretical (mathematical) and practical thesis
- Highly relevant in tunnel excavation with ground freezing and for construction in cold regions
- Good layout, well written, well done



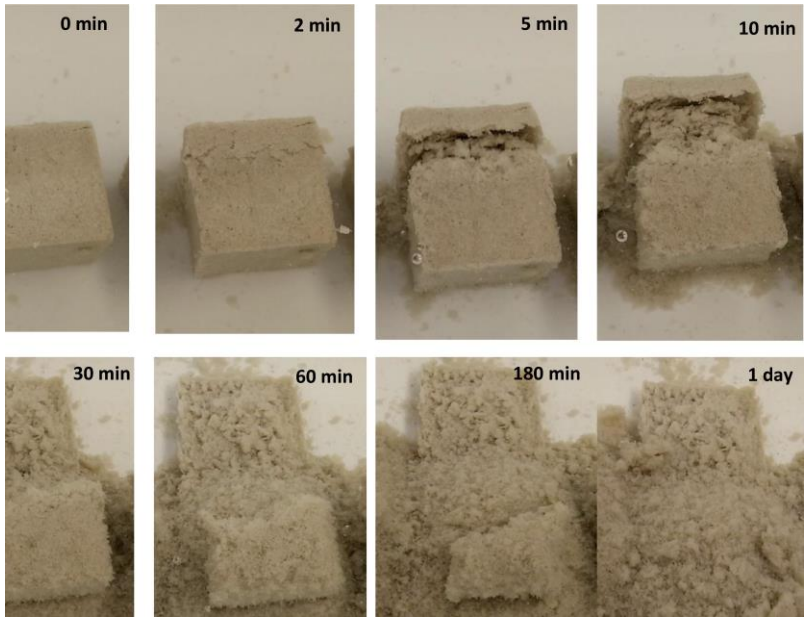
CoRncrete
A bio-based construction material

Yask Kulshreshtha

Master of Science in Civil Engineering, Delft University of Technology, 30 July 2015 (Supervisors: Prof Erik Schlangen, Dr Henk Jonkers, Dr Phil Vardon & Dr Leon van Paassen)

Durability and other tests on CoRncrete; which is corn starch based bio-material of corn starch with water and sand,

- Practical, civil & biology engineering, with possible implementation and testing
- Good layout, well written
- Very original idea



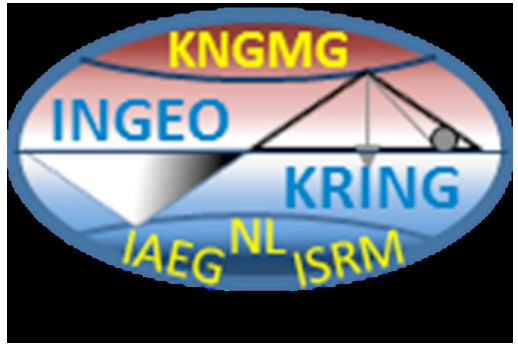
Winner

The Frozen & Unfrozen Barcelona Basic Model; A verification and validation of a new constitutive model

by

Manuel Aukenthaler

The Frozen & Unfrozen Barcelona Basic Model; A verification and validation of a new constitutive model



Well written: starting with basic principles, the reader is introduced to more complex concepts, illustrated with examples.

Very well embedded in the state-of-the-art research with an extensive literature review, theoretical and mathematical analyses.

Relevant topic: ground freezing, construction in cold regions (e.g. new Silk Route), and common freeze/thaw damage to infrastructure.

The thesis provides solutions (with verification).