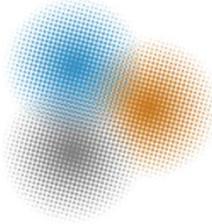


Anura3D

MPM Research Community Training Course



Date

Friday, 29 September 2017

Location

Institut für Geotechnik und Baubetrieb
Technische Universität Hamburg (TUHH)
Harburger Schloßstraße 20
D-21079 Hamburg

Speakers

Dr Francesca Ceccato Dr Alexander Rohe
Dr James Fern Dr Bruno Zuada Coelho
Mr Alexander Chmelnizkij

Registration Fee

150 € regular
75 € for students (PhD, MSc)
Includes: coffee, lunch and tutorials

Registration form

www.nmg2017.de/partner-events

Registration deadline

22 September 2017

Number of participants

Limited to 20

Additional information

alexander.chmelnizkij@tuhh.de

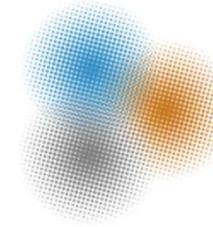
The Anura3D Training Course is especially intended for PhD students, researchers and engineers interested in modelling large deformations and soil–water–structure interaction problems using MPM.

The course includes lectures and hands-on computer sessions in which attendees will have the opportunity to have their first experience with the Anura3D Software.



This course is held in combination with
Workshop “Numerical Methods in Geotechnics”

www.NMG2017.de



Anura3D

MPM Research Community Training Course

Modelling large deformation and
soil–water–structure interaction using
the Material Point Method

29 September 2017, Hamburg, Germany



MPM Research Community
Modelling large deformation and soil–water–structure interaction



Modelling large deformation and soil–water–structure interaction

Large deformation and soil–water–structure interaction exists in many environmental and civil engineering problems, such as landslides and slope instabilities, installation of piles in saturated soils, settlement due to consolidation processes, fluidisation and sedimentation processes in submerged slopes, internal erosion in dykes, and scouring around offshore structures. Modelling these processes is challenging due to hydro-mechanical coupling, large deformation, and contact problems.

The material point method (MPM) is a numerical approach capable of modelling large deformations and recently, within the framework of the MPM Research Community, it has been extended to cope with soil–water–structure interaction.

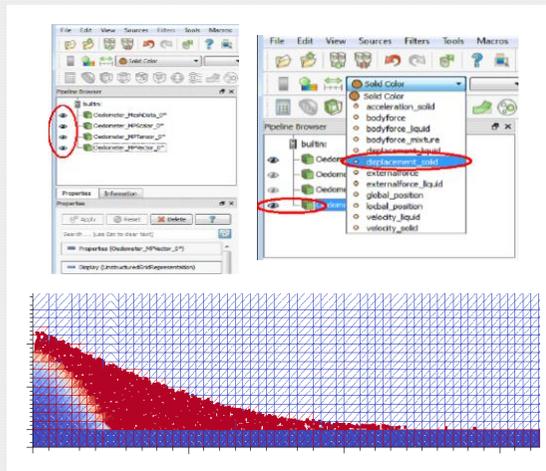
The Anura3D v2017.1 software uses a dynamic explicit MPM formulation based on a single set of material points. This is capable of simulating 1- and 2-phase materials and free surface water. A fully coupled hydro-mechanical approach is implemented to model the interaction between soil and water phases in saturated porous media, which is understood as a continuum mixture of solid skeleton and pore fluid. Additionally, contact problems can also be solved since a contact algorithm is available. Finally, a library of material constitutive laws is included as well as a *umat* style interface for external user defined soil models subroutines.



Tutorials

Course participants will gain experience as users of the Anura3D v2017.1 MPM software. During training lectures, the attendees will learn first-hand capabilities of MPM by means of a set of practical exercises that will be undertaken following a tutorial specially designed for the course. The tutorial will include the following exercises:

- Exercise 1: Oedometer problem
- Exercise 2: Column collapse
- Exercise 3: Contact problem
- Exercise 4: Footing problem



www.Anura3D.com



Friday, 29 September 2017

Location:
Classroom,
Institute of Geotechnical Engineering and
Construction Management,
Hamburg University of Technology (TUHH)

09:00	Opening and introduction
09:15	Theory and formulation Anura3D
10:30	Hands-on using Anura3D
11:00	Coffee break
11:30	Exercise 1: Oedometer problem
12:30	Lunch
13:30	Exercise 2: Column collapse
14:30	Coffee break
15:00	Exercise 3: Contact problem
15:45	Exercise 4: Footing problem
16:30	Final discussion and closure