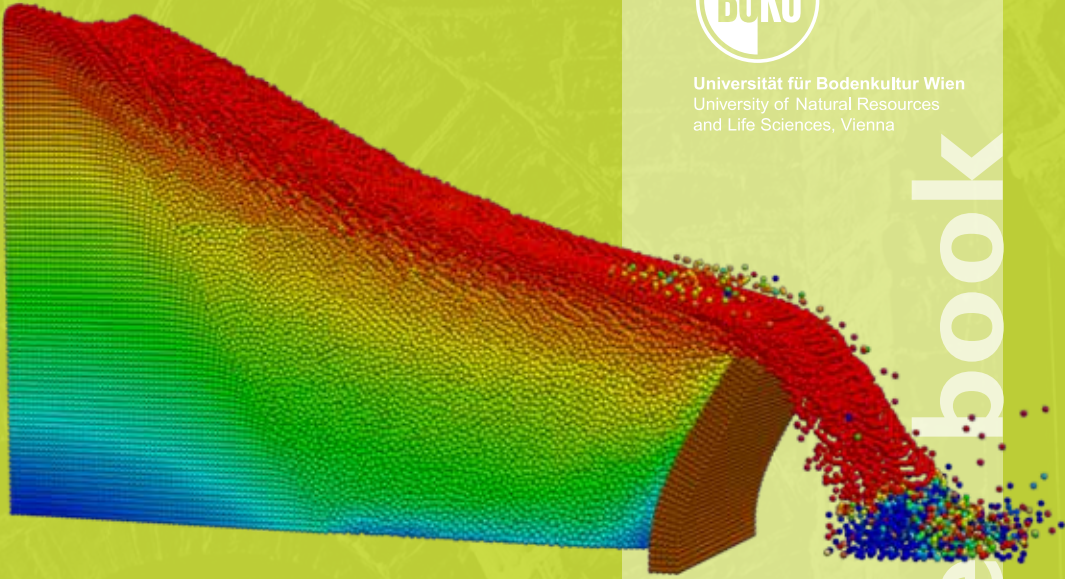




Universität für Bodenkultur Wien
University of Natural Resources
and Life Sciences, Vienna



**International Symposium
on SPH and other
particle-based continuum
methods and their
applications in geomechanics**

11.-13. September 2019, Vienna, Austria

Programme book


Workshop venue Türkenschanze BOKU




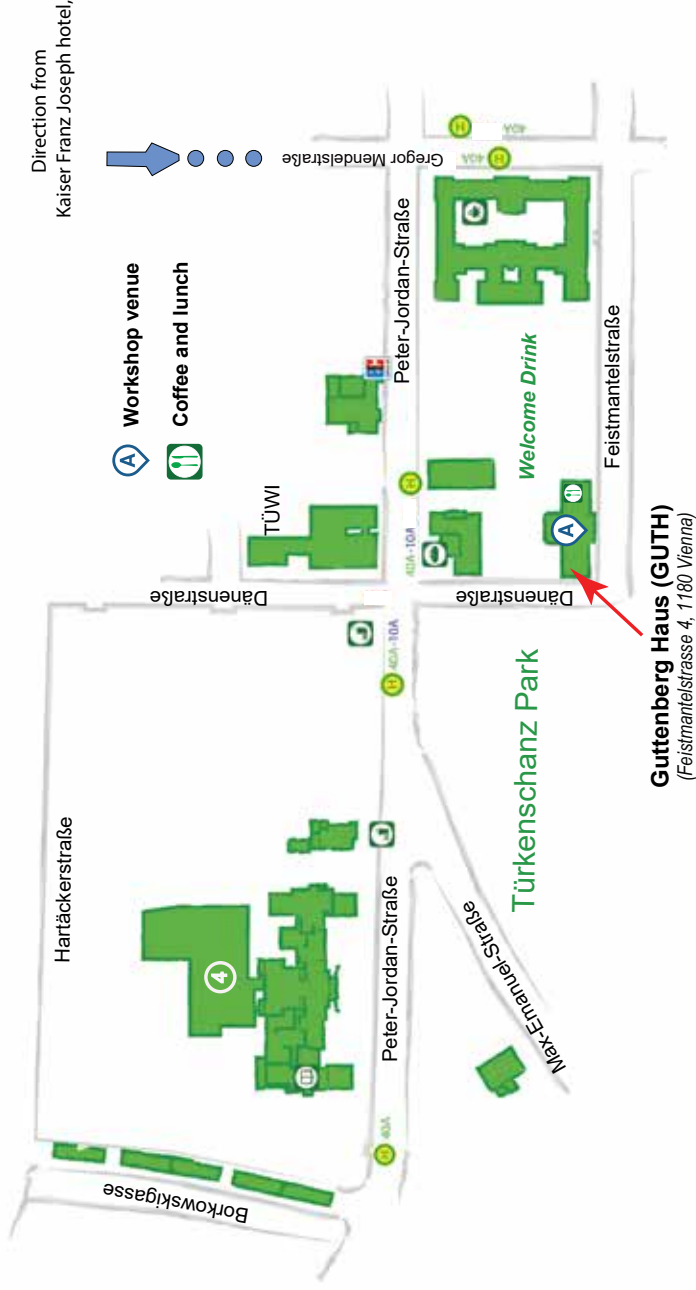
September 11-13, 2019

Universität für Bodenkultur Wien

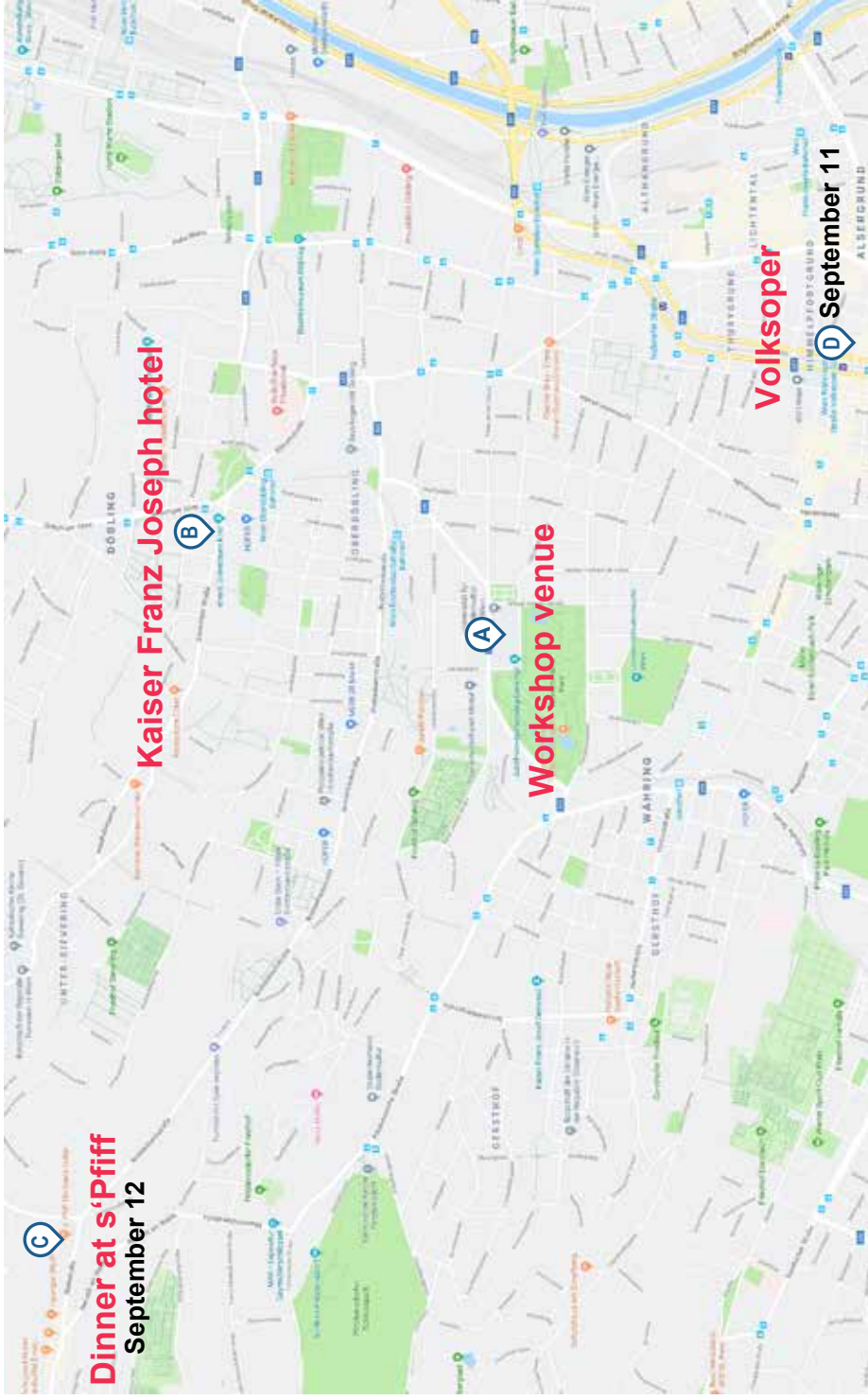
Registration Address: Feistmantelstrasse 4 1180 Vienna

 15 minutes walk from hotels nearby

 Bus 40A, 10A to Dänenstraße or Linneplatz bus station



Overview – workshop venue and social events



Dear Colleagues,

Welcome to the workshop **SPH Vienna 2019**
dedicated to the recent development of meshfree methods
and their applications. We are grateful to you and wish
you to have some good time in Vienna.

Wei Wu

Conference chairman

General Information

Workshop venue

The workshop will be located in Guttenberghaus, Feistmantelstrasse 4, 1180 Vienna.

All presentations will be held in Seminarroom 01 (SR-01).

Registration and Information Desk

The registration and information Desk for SPH Vienna 2019 will be located in Guttenberghaus, room EG/21, Feistmantelstrasse 4, 1180 Vienna.

Shuttle Bus from Kaiser Franz Joseph hotel

A BOKU shuttle bus will wait for you at the entrance of the Kaiser Franz Joseph hotel every morning. Departure times: 8:10 am and 8:20 am.

The workshop venue can also conveniently be reached on foot in 20 minutes: immediately opposite to the entrance of Kaiser Franz Joseph hotel, walk along the Friedlgasse to the end of the street. Turn right and walk 350 m along Krottenbachstraße until you reach Hugo-Wolf-Park on your left hand. Walk straight uphill through the park, and continue straight on Dänenstraße/Feistmantelstraße until you reach the workshop venue, Guttenberghaus.

Internet

Wireless internet connection is available at the BOKU Türkenschanze Campus. The name of the network is **BOKU-Public-Event**.

User name: **geotech**, Password: **SPH_Vienna2019**

Lunch and coffee breaks

Lunch and refreshments will be served in seminarroom 03 (SR-03).

Oral Presentation

Authors are kindly asked to provide the secretariat with their presentation slides. You may wish to use your own notebook if your presentation contains animations. A laser pointer will be provided.

Questions

If you have any questions or require assistance, please come to the registration desk or contact us:

Landline: 0043 1 47654 87300 Email: geotech@boku.ac.at

Programme overview

International Symposium on SPH and other particle-based continuum methods and their applications in geomechanics

11.-13. September 2019, Vienna, Austria



Tuesday 10th Sept	Wednesday 11th Sept	Thursday 12th Sept	Friday 13th Sept
	Registration 08:30-17:00	Registration 08:30-17:00	Registration 08:30-10:00
	08:30-08:40 Opening words	08:30-10:00 Constitutive models	08:30-10:30 Applications in geomechanics
	08:40-10:00 Point-based continuum methods		
	10:00-10:30 Coffee break	10:00-10:30 Coffee break	10:30-11:00 Coffee break
	10:30-12:30 Point-based continuum methods	10:30-12:00 Constitutive models	11:00-12:30 Discrete element methods
	12:30-14:00 Lunch	12:00-13:30 Lunch	12:30-14:00 Lunch
15:00-21:00 Registration	14:00-16:30 Point-based continuum methods	13:30-15:30 Applications in geomechanics	14:00-15:30 Discrete element methods
		15:30-16:00 Coffee Break	
	16:30-17:00 High Tea	16:00-18:00 Applications in geomechanics	15:30-16:00 Closing words
18:00 -22:00 Welcome Reception	19:00-22:00 Opera	19:30-22:00 Conference Dinner	

Social events

Admission to all social events is included in your conference registration fee. The opera tickets are included only for registered participants but can be purchased separately. Your name badge is required for admission to all events.



1. Welcome Reception in the garden of Guttenberghaus

Tuesday, September 10, 18:00-22:00

Address: Feistmantelstrasse 4, 1180 Vienna

Public transport: bus station: Dänenstraße (40A/10A)

For bad weather, the welcome reception will be in Seminarrom 03 (SR-03), Feistmantelstrasse 4, 1180 Vienna.

Get to know the workshop venue and meet the SPH Vienna 2019 participants, collect your registration package and enjoy the casual drink and light snacks.

2. Opera: The Magic Flute

by Wolfgang Amadeus Mozart

Wednesday, September 11, 19:00-22:00

Venue: Volksoper

Address: Währinger Strasse 78, 1090 Wien

Public transport: Bus 40A, station:

Wien Währinger Strasse-Volksoper



3. Conference Dinner at s'Pfiff

Thursday, September 12, 19:30-22:00

Address: „s'Pfiff“, Rathstrasse 4, 1190 Vienna

Public transport: 35A bus station: Agnesgasse.

Join us in a convivial atmosphere with SPH Vienna 2019 participants and organizers.

Point-based continuum methods

11th Sept 08:30-12:30

Session chairman: Manuel Pastor (Madrid, Spain)

08:30-08:40 **Opening words**

08:40-09:05 **Experiences developing the implicit Material Point Method**

Charles E. Augarde

09:05-09:30 **An updated Lagrangian continuum particle approach for simulation of debris flow on an instrumented test slope**

Alomir H. Favero Neto, Ronaldo I. Borja

09:30-09:55 **Large deformation and failure modelling of geomaterials: Coupled hydro-mechanical modelling approaches in SPH**

Ha H. Bui, Giang D. Nguyen

10:00-10:30 Coffee break

10:30-10:55 **RKPM modeling of fluid-induced fracture and damage in fracking and landslide processes**

J. S. Chen, Haoyan Wei

11:00-11:25 **Comparative Study of Discrete and Continuum-Based Particle Methods in Simulating Slope Failure Evolution**

Zhen Chen, Yu-Chen Su

11:30-11:55 **A multi-resolution smoothed particle hydrodynamics method for FSI**

Chi Zhang, Massoud Rezavand, Xiangyu Hu

12:00-12:25 **Implicit MPM-FEM coupled model for the simulation of large mass movements and their interaction with protection structures**

Antonia Larese, Bodhinanda Chandra, Riccardo Rossi, Roland Wuechner

12:30-14:00 Lunch

11th Sept 14:00-16:30

Session chairman: Antonia Larese (Padua, Italy)

14:00-14:25 **Fast, accurate techniques for integrating SPH dissipative equations**

J. J. Monaghan

14:30-14:55 **A GPU-accelerated multilayer SPH method for generic water-soil coupling problems**

Chong Peng

15:00-15:25	Computational modelling of desiccation cracks in variably saturated porous media with the phase-field approach <i>Lorenzo Sanavia, Claudio Gavagnin, Tuanny Cajuhi, Laura de Lorenzis</i>
15:30-15:55	The role of fluid-fluid interfaces during primary drainage of two-phase flow in 2dim micromodels: SPH modelling and experiments <i>Holger Steeb, Rakulan Sivanapillai, Nikolaos Karadimitriou, Samaneh Vahid Dastjerdi</i>
16:00-16:25	Computational Multiscale Modeling of Large Deformation in Geomechanics by Coupled MPM/DEM <i>Jidong Zhao</i>
16:30-17:00	High Tea
19:00-22:00	Opera: The Magic Flute by Wolfgang Amadeus Mozart

Constitutive models

12th Sept 08:30-12:00

Session chairman: Ronaldo I. Borja (Stanford, USA)

08:30-08:55	Predictive capacity of DEM for 3D complex loading paths <i>Felix Darve, Luc Sibille</i>
09:00-09:25	An investigation of strength of sandstone based on experiment and numerical analysis <i>Junjie Shan, Lei Wang, Minqiang Meng, Yang Xiao, Xiang Jiang</i>
09:30-09:55	Kinematically enriched constitutive models for particle-based methods <i>Giang D. Nguyen, Ha H. Bui</i>
10:00-10:30	Coffee break
10:30-10:55	Numerical modeling of damage and cracking in rock-like materials by phase field method with THM coupling <i>Zhan Yu, Jianfu Shao, Minh-Ngoc Vu, Gilles Armand</i>
11:00-11:25	Second-gradient poro-plasticity: constitutive modeling and isogeometric finite element implementation <i>Claudio Tamagnini, Carlos Plua, Pierre Besuelle</i>
11:30-11:55	On constitutive models for debris flow <i>Wei Wu</i>
12:00-13:30	Lunch

Applications in geomechanics

12th Sept 13:30-18:00

Session chairman: Ha H. Bui (Melbourne, Australia)

13:30-13:55 **Mud pumping in high speed railway embankments and coupled CFD-DEM modelling**

Daichao Sheng

14:00-14:25 **Development of infinite elements for simulation of saturated unbounded media**

Vlatko Sheshov, Kemal Edip, Julijana Bojadjieva

14:30-14:55 **An MPM Model for Granular Flow Impact on Retaining Structures**

Xinpo Li, Marte Gutierrez

15:00-15:25 **Continuum modeling of fast landslides with the Lattice-Boltzmann Method**

Alessandro Leonardi, Marina Pirulli

15:30-16:00 Coffee break

16:00-16:25 **Two phase modelling of fast landslides: a SPH, depth integrated approach**

Manuel Pastor

16:30-16:55 **Numerical Simulation of fluidisation and sedimentation of soil in SPH Framework**

Rahul Somasundaram, Jürgen Grabe

17:00-17:25 **Solitary Wave Runup on Porous Beaches**

Chiaki Tsurudome, Dongfang Liang, Yuma Shimizu, Abbas Khayyer, Hitoshi Gotoh

17:30-17:55 **Capturing the arching mechanism in the trapdoor problem using SPH**

Edward Yang, Ha H. Bui, Abdelmalek Bouazza, Giang D. Nguyen

19:30-22:00 **Workshop Dinner**

13th Sept 08:30-10:30

Session chairman: Claudio Tamagnini (Perugia, Italy)

08:30-08:55 **Simulation of granular flow impact on rigid and deformable structures**

Ling Zhan

- 09:00-09:25 **Simulation of sand column collapse with SPH**
Chengwei Zhu
- 09:30-09:55 **Interpretation of cone penetration in clay with smoothed particle
finite element method**
Wei Zhang
- 10:00-10:25 **Centrifuge model tests on geosynthetic reinforced slopes**
Pelin Aklik, Wei Wu
- 10:30-11:00 Coffee Break**

Discrete element methods

13th Sept 11:00-15:30

Session chairman: Jidong Zhao (Hongkong, China)

- 11:00-11:25 **Multiscale constitutive modeling of particulate geomaterials
Applications to soil failure**
F. Nicot, F. Darve
- 11:30-11:55 **DEM Modeling of Transversely Anisotropic Rock Under Brazilian
Test and Applied to Borehole Stability**
Marte Gutierrez, Guowen Xu
- 12:00-12:25 **Particle-Fluid coupling by SPH and other means**
Stefan Luding
- 12:30-14:00 Lunch**
- 14:00-14:25 **Simulations of large-scale triaxial tests on aggregates using
sensing mechanism and real-time (SMART) computing**
Tong Qiu
- 14:30-14:55 **Nitsche's method for frictional contacts in an immersed material
point model**
Chuanqi Liu, WaiChing Sun
- 15:00-15:25 **DEM modelling of grain crushing in element tests**
Jia Lin
- 15:30-16:00 **Closing words**



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