

THESIS-2022: The 5th symposium on two-phase modeling for sediment dynamics in geophysical flows

June 6-10, 2022 | Les Houches, France

Program

Monday June 6th (day 1)

8:55~9:00 Welcome. J. Chauchat

9:00~10:00 Keynote *Continuum description of granular flows: dry, wet, and cohesive grains...* O. Pouliquen

10:00~10:30 Coffee Break

10:30~12:30: Session Rheology and pore pressure coupling – chairman : N. Gray

10:30~10:50 Flow instabilities due to velocity-weakening rheology in shear thickening suspensions.

Francisco Rocha, Baptiste Darbois Texier, Henri Lhuissier, Yoël Forterre, and Bloen Metzger

10:50~11:10 Numerical analysis at the particle scale of granular flow hysteresis on an inclined plane.

Clovis Lambert, Raphael Maurin, Marcan Graffin, Laurent Lacaze, Sylvain Viroulet, and Pascal Fedé

11:10~11:30 Field and laboratory investigations into Flow slides.

Peter Nielsen, Xiamei Man & David P Callaghan

11:30~11:50 Progressive failure of submarine slopes.

G. H. Keetels & D. Weij

11:50~12:10 The effects of dilatancy on submerged granular avalanches and granular column collapses.

E. P. Montellà, B. Tsai, J. Chauchat, B. Chareyre, C. Bonamy, T. J. Hsu

12:10~12:30 Multi-phase simulations of underwater granular collapse in densely packed conditions.

Cheng-Hsien Lee and Yi-Hsuan Kuan (visio)

12:30~14:00 Lunch

14:00~15:30: Free time / Discussion

15:30~16:00 Coffee Break

16:00~17:20: Session Gravity driven flows – chairman : E. Meiburg

16:00~16:20 Shallow gravity-driven sediment-laden flows.

Darish Jeswin Dhas and Anubhab Roy

16:20~16:40 Three-dimensional process of laterally unconfined hyperpycnal current plunging.

H. Shi, M. E. Negretti, J. Chauchat, K. Blanckaert, U. Lemmin, D. A. Barry

16:40~17:00 Experimental lock-release turbidity currents: slope, volume fraction and settling velocity.

C. Gadal, M. Mercier, and L. Lacaze

17:00~17:20 Movement mechanism of boulders composing valley bank and beds by debris flows and development of debris flow front using the APM method.

Hiroki Kato and Shoji Fukuoka (visio)

Tuesday June 7th (day 2)

9:00~10:00 Keynote How diffusion of momentum and sediment keeps rivers close to the threshold of transport. E. Lajeunesse

10:00~10:30 Coffee Break

10:30~12:10: Session Sediment transport - Unidirectional flows – chairman : P. Frey

10:30~10:50 Experimental study of turbulent suspension processes in energetic open-channel flows.

Hélder Guta, David Hurther and Julien Chauchat

10:50~11:10 Modelling the vertical structure of turbulent flows over still rough sediment beds.

Gauthier Rousseau

11:10~11:30 Accounting for energy dissipation by particle motion in a suspension in sediment transport models at different scales.

Erik A. Toorman

11:30~11:50 An Available Porosity Concept for a Multiphase Eulerian Formulation on Mixed-Size Grain Sediment Problems.

Tatsuhiko Uchida

11:50~12:10 Effects of particle volume and shape on saltation motion of single particle in a turbulent flow over roughened bed.

Yuya Takakuwa and Shoji Fukuoka (visio)

12:30~14:00 Lunch

14:00~15:30: Free time / Discussion

15:30~16:00 Coffee Break

16:00~17:20: Session Scour – chairman : E. Toorman

16:00~16:20 Towards turbulence-resolving two-fluid simulation of scour process.

Alban Gilletta de Saint Joseph, Julien Chauchat, Cyrille Bonamy and Marie Robert

16:20~16:40 An Eulerian two-phase model investigation on wave-induced scour around a vertical circular cylinder.

Benjamin Tsai, Antoine Mathieu, Tian-Jian Hsu, Julien Chauchat

16:40~17:00 Modeling of the interactions between hydrokinetic turbines and bedforms using the two-phase Euler-Euler approach.

F. Khaled, S. Guillou, Y. Mear, F. Hadri

17:00~17:20 Scour patterns on the bed downstream of a vertical cylinder.

Florent Lachaussée, Yann Bertho, Cyprien Morize, Alban Sauret & Philippe Gondret

Wednesday June 8th (day 3)

9:00~10:00 Keynote *Investigating sediment dynamics with the aid of particle-resolved direct numerical simulation.* M. Uhlmann

10:00~10:30 Coffee Break

10:30~12:30: Session Advanced numerical techniques for multiphase flows – chairman : M. Uhlmann

10:30~10:50 Inertial effects in shear-driven immersed granular flows.

B. Fry, L. Lacaze, T. Bonometti and F. Charru

10:50~11:10 Grain-resolving simulations of submerged cohesive granular collapse. *Rui Zhu, Zhiguo He, Kunpeng Zhao, Bernhard Vowinckel, and Eckart Meiburg*

11:10~11:30 Direct numerical simulations reveal the effect of bedload on turbulence dynamics in an oscillatory flow.

M. Mazzuoli

11:30~11:50 Two-phase modelling of sediment transport by incompressible SPH.

Yan Zhou and Ping Dong

11:50~12:10 Investigation of small scale processes in wave driven sediment transport using Eulerian two-phase large-eddy simulation.

Antoine Mathieu, Zhen Cheng, Julien Chauchat, Cyrille Bonamy, Ali Salimi Tarazouj, Tian-Jian Hsu

12:10~12:30 Three-dimensional unstructured finite-volume two-phase model for sediment release.

Miguel Uh Zapata, Wei Zhang, Damien Pham Van Bang, Kim Dan Nguyen

12:30~14:00 Lunch

14:00~19:30: Free time / Discussion

Thursday June 9th (day 4)

9:00~10:00 Keynote *Using Unmanned Survey Vehicles to Measure Coastal Morphodynamic Processes.*

P. Traykovski

10:00~10:30 Coffee Break

10:30~12:30: Session Sediment transport - Wave-driven flows – chairman : P. Nielsen

10:30~10:50 Particle dynamics due the interaction between a breaking-induced and a nearbed vortex.

M. Brocchini, M. Postacchini, F. Marini, G. Zitti, Z. Xie and M. Falchi

10:50~11:10 A numerical study of swash and beach groundwater interactions.

Marie-Pierre Delisle, Yeulwoo Kim and Timu Gallien

11:10~11:30 Wave boundary layer and sheet-flow properties under large-scale breaking waves.

G. Fromant, D. Hurther, J. van der Zanden, J.S. Ribberink, D. van der A, T. O'Donoghue, I. Cáceres

11:30~11:50 Near-bed sediment transport during bar migration in large-scale experiments.

Florian Grossmann, David Hurther and Jose Alsina

11:50~12:10 Erosion of a model cohesive seabed in wave-current flume.

Pierre Lecostey, Michael Preioni, Guillaume Gomit, Sébastien Jarny, Lionel Thomas, Damien Pham Van Bang

12:10~12:30 Erosion by an oscillating disc in the vicinity of a granular bed.

Joanne Steiner, Cyprien Morize, Alban Sauret and Philippe Gondret

12:30~14:00 Lunch

14:00~15:30: Free time / Discussion

15:30~16:00 Coffee Break

16:00~17:20: Session Bedforms under waves - Flow instrumentation – chairman : D. Hurther

16:00~16:20 An investigation of wave-shape effect on sand ripple dynamics using sedFOAM.

Ali Salimi-Tarazouj, Tian Jian Hsu, Peter Traykovski, Julien Chauchat

16:20~16:40 A numerical study on wave-driven ripple migration and benthic flux.

Jiaye Zhang, Ali Salimi Tarazouj, Antoine Mathieu, Tian-Jian Hsu, Holly Michael

16:40~17:00 Coarse and fine sand transport processes in the ripple vortex regime under asymmetric nearshore waves.

Noémie Fritsch, Guillaume Fromant, David Hurther, Ivan Cáceres

17:00~17:20 Suspended sediment concentration and sediment transport measurements with a two components ultrasonic profiler.

Helder Guta, Marie Burckbuchler, Stéphane Fischer

Friday June 10th (day 5)

9:00~10:00 Keynote *Coupling rheology and segregation in granular flows*. N. Gray

10:00~10:30 Coffee Break

10:30~12:30: Session Polydispersity and size Segregation – chairman : O. Pouliquen

10:30~10:50 Grain-size segregation in bed-load transport on steep slopes.

Philippe Frey, Rémi Chassagne, Hugo Rousseau, and Julien Chauchat

10:50~11:10 Experiments on a large intruder rising in bedload sediment transport.

Benjamin Dedieu, Hugo Rousseau, Philippe Frey, and Julien Chauchat

11:10~11:30 Particle saltation over rigid, bumpy beds in viscous shearing flows.

Diego Berzi and Alexandre Valance

11:30~11:50 A study on vertical sorting mechanism in gravel bed rivers with graded sediment using the APM method.

Takatoshi ATSUMI and Shoji FUKUOKA (visio)

11:50~12:30 Round table

12:30~14:00 Lunch