



Università deVigo



University of Salerno

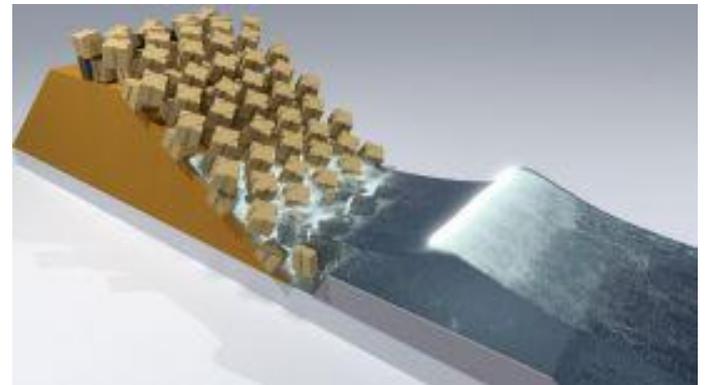
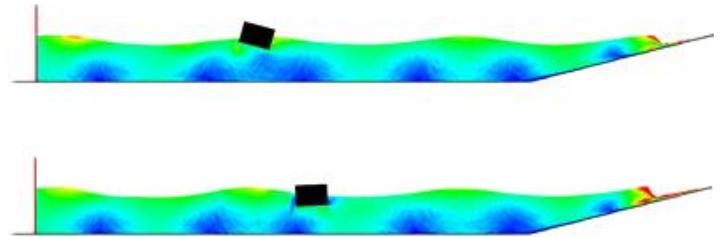
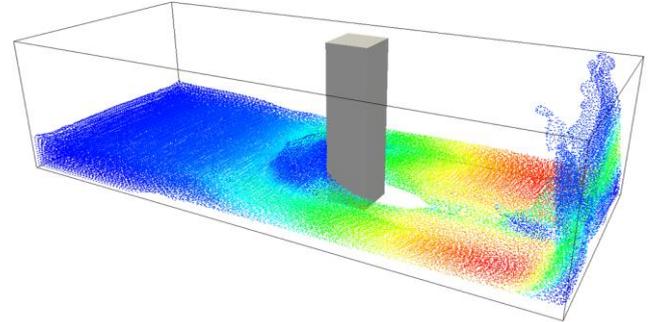


Conference Venue and Dates

University of Salerno - CAMPUS of FISCIANO
Via Giovanni Paolo II, 132 - 84084 - Fisciano (SA)
Blue Building E1 – Room O – 5th-6th September, 2019



DualSPHysics: a SPH-based method for engineering



University of Salerno, Italy
5th-6th September, 2019



Presentation

The numerical modelling can represent a useful and complementary tool to physical model tests. Sophisticated tools are now at a formative stage and here we are actively developing the novel, flexible numerical technique Smoothed Particle Hydrodynamics (SPH). As a meshless and Lagrangian technique, SPH is ideally suited to fluid and solid mechanics with highly nonlinear deformation and is opening new avenues of activity in several areas, notably fluid-structure interaction, multi-phase flows and importantly, engineering application and design. SPH describes a fluid by replacing its continuum properties with locally smoothed quantities at discrete Lagrangian locations. SPH has become increasingly popular in recent years as a novel technique to model the violent hydrodynamics in wave breaking, wave-structure interaction, floating objects, etc.

The DualSPHysics code has been developed to use SPH for real engineering problems. DualSPHysics is open source and can be freely downloaded from the website www.dual.sphysics.org. The code comes with dedicated pre-processing software which can use a whole range of different input files for the geometries including CAD, STL, PLY files, etc., making setting up simulations straightforward. Advanced post-processing tools enable users to measure physical magnitudes of any flow property at arbitrary locations in the domain.

DualSPHysics code can be proposed as complementary tool to physical model experiments for the preliminary design of structures exposed to the action of violent flows

Contents of the course

The first part of the course will be focused on the general description of the SPH methodology, functionalities implemented in the DualSPHysics code and examples of application in coastal engineering and marine energies.

The second part includes a hands-on session with examples of dam-breaks, sloshing tanks and floating objects. This practical session includes pre-processing, execution and post-processing of the results (and validation with experimental data).

Organized by

Dr. Giacomo Viccione (University of Salerno, Italy)

Prof. Moncho Gómez Gesteira (Universidad de Vigo, Spain)

Dr. Alejandro J. C. Crespo (Universidade de Vigo, Spain)

Dr. José M. Domínguez (Universidade de Vigo, Spain)

Dr. Corrado Altomare (Universitat Politècnica de Catalunya, Spain)

Bonaventura Tagliafierro (University of Salerno, Italy)

Registration

If you are interested in attending the conference, please contact Giacomo Viccione: gviccion@unisa.it

Accommodation

Note that accommodation near the campus is free of charge. If interested please notify @ gviccion@unisa.it while registering.

Programme

5th September 2019

- **Presentation of the course** **09.00 – 09.15**
Giacomo Viccione, Moncho Gómez Gesteira
- **Introduction to SPH** **09.15 – 09.55**
Moncho Gómez Gesteira
- **The DualSPHysics code** **09.55 – 10.35**
José M. Domínguez
- **Coffee break** **10.35 – 11.00**
- **Applications in engineering** **11.00 – 11.40**
Corrado Altomare, Alejandro Crespo
- **Introduction to Practical Session** **11.40 – 12.00**
José M. Domínguez, Alejandro Crespo
- **Lunch** **12.00 – 13.30**
- **Practical Session 1** **13.30 – 16.30**
José M. Domínguez, Alejandro Crespo,
Corrado Altomare, Bonaventura Tagliafierro

6th September 2019 (morning)

- **Practical Session 2** **09.30 – 12.00**
José M. Domínguez, Alejandro Crespo,
Corrado Altomare, Bonaventura Tagliafierro
- **Closure**

This activity is funded by the Ministry of Education of the Government of Italy through the cultural activities granted by the University of Salerno (InC_Vic19)