

# **Training School**

## **"Hands-on course on experimental and numerical modelling of wave-structure interaction"**

**Florence, Italy 12/07/2021-16/07/2021**

The Training School aims at providing a basic introduction on experimental and numerical modelling approaches for simulating wave-structure interactions. The experimental modelling will be performed in a physical wave flume, while the numerical modelling will be performed in a virtual wave flume. The course has a duration of 5 days, with 6 hours of training per day, and it is going to be held in Florence (Italy) by using the LABIMA wave flume and the DualSPHysics Smoothed Particle Hydrodynamics (SPH) software package. The first two days will include lectures and practice on laboratory tests on selected small-scale models. After the physical modelling session, lectures and practice with SPH are planned. The last day will be dedicated to discussion between trainers and trainees and comparison between laboratory data and numerical results. The Training School is specifically designed for those interested in developing numerical and experimental modelling techniques of WECs.

### **Training School Content**

The Training School content will include:

Day 1 – 12/07/2021:

An introduction to wave energy and wave energy converters. Fundamental of experimental modelling: dimensional analysis and basics of similarity in maritime models. Introduction to the models to be tested in the laboratory and with numerical modelling.

Day 2 – 13/07/2021:

Laboratory experiments on small-scale models in the wave-current flume of LABIMA at Florence University. Set-up of the experiments, signal acquisition and data analysis.

Day 3 – 14/07/2021:

An introduction to Smoothed Particle Hydrodynamics models and to the open-source DualSPHysics code. Practice with the numerical model: simulation of the fixed structure tested in the laboratory.

Day 4 – 15/07/2021:

Validations and applications of DualSPHysics on coastal engineering and simulating different type of WECs. Practice with the numerical model: simulation of the floating moored structure tested in the laboratory.

Day 5 – 16/07/2021:

Experimental measurements vs numerical measurements, data analysis and follow-up.

## Training School Tutors

- Prof. Lorenzo Cappietti, University of Florence, Italy
- Dr. Irene Simonetti, University of Florence, Italy
- Eng. Andrea Esposito, University of Florence, Italy
- Dr. Matt Folley, Queen's University, Belfast, Northern Ireland
- Prof. Moncho Gomez Gesteira, Universidade de Vigo, Spain
- Prof. Alejandro J.C. Crespo, Universidade de Vigo, Spain
- Dr. José M. Domínguez, Universidade de Vigo, Spain
- Dr. Corrado Altomare, Universitat Politècnica de Catalunya, Spain

## Venue

Laboratory of Maritime Engineering – LABIMA – School of Engineering, Via di Santa Marta 3, 50139, Florence, Italy.

## Funding Application Details

Applicants are invited to apply for WECANet financial support towards travel expenses and subsistence cost incurred to attend this course. Early Stage Researchers and PhD students in wave energy are eligible to apply for a financial support as trainee in order to participate to the WECANet Training School.

Eligible Trainees are:

- Trainees from COST Full Members / COST Cooperating Member
- Action MC Observer from NNC
- Trainees from Approved European RTD Organizations.

More details for the COST Action support can be found in the [COST Action Vademecum](#). Trainees can claim their reimbursement after verified attendance at the course, in person. WECANet will provide financial support for attending this Training School to a total of 10 trainees.

# Applications for Training School Financial Support

Applications can be made to attend the WECANet Training School at the web address below:

<https://www.labima.unifi.it/vp-207-training-school-in-florence.html>

## Evaluation of Training School Applications and Selection for Financial Support

The evaluation of WECANet Training School applications and preselection of applicants for financial support will be performed by the Action's Training School Coordinator/Committee on behalf of the Management Committee of the WECANet COST Action, who will be invited to approve a list of preselected Grantees. The selection of applicants is based on the potential value of the course to the applicant and the applicant's institution. The selection also considers the COST policies on promoting gender balance, enabling Early Career Investigators and broadening geographical inclusiveness.

<b>EVALUATION CRITERIA FOR TRAINING SCHOOL FINANCIAL SUPPORT APPLICATIONS</b>	<b>WEIGHT</b>
Potential benefits to applicant	40 points
Potential benefits to applicant's institution	30 points
COST policies: promoting gender balance	10 points
COST policies: Early Career Investigators COST	10 points
COST policies: Broadening geographic inclusiveness (applicant based at ITC country)	10 points

Information on COST policies is available through <http://www.cost.eu/Vademecum>

## Key Dates

Deadline for applications to be submitted: 20<sup>th</sup> June 2021

Notification of funding application outcome: 22<sup>th</sup> June 2021

Training School: 12<sup>th</sup>-16<sup>th</sup> July 2021

## Further Information

Further information or clarifications can be obtained via the following e-mail address:

[info@labima.unifi.it](mailto:info@labima.unifi.it)