

INDO-UK Workshop on Recent advances in Wave-Structure interaction

Register online at
<http://www.icoe.co.in/ Indo-UK.php>

As this is part of pre-conference event for ICOE 2018, only limited seats are available.

Speakers

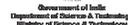
The leading research group from the following university will deliver the talk,

- Hydrodynamics group, City, University of London, UK
- SPH, Manchester University, UK.
- CMMFA Research Group, Manchester Metropolitan University, UK
- IIT Madras, India.
- IIT Kharagpur, India.

Jointly Organized by
Department of Ocean Engineering
IIT Madras, India
&
City, University of London,
United Kingdom



Supported by:



UKIERI
 UK-India Education
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REGISTRATION

The schedule of registration fee for the workshop is:
 General Participants INR 8000
 Student INR 5000

The above rates apply to **those who register before 10th January 2018**. A higher registration fee with an additional INR 3000 for each of the above category will apply for registrations after the deadline. To register, one may use the pre-registration form available in the website before the deadline. Registration can also be done online at the workshop website. **Limited fellowships are available for full waiver in student registration fee from developing countries***.

**based on the selection criteria.*

IMPORTANT DATES

Registration	:	10 Jan. 2018
Selection and Shortlisting	:	20 Jan. 2018
Workshop Date	:	18 Feb. 2018

ORGANIZERS

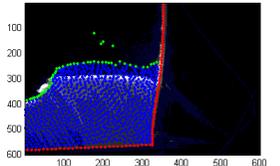
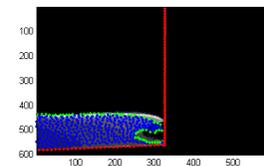
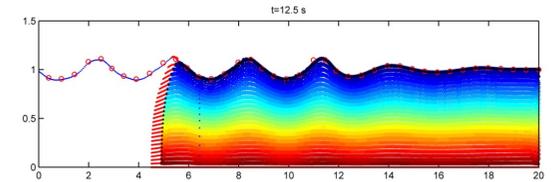
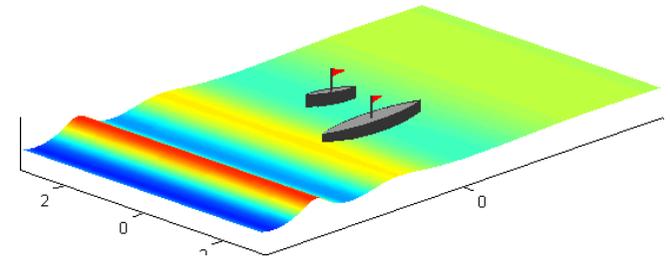
Dr. V. Sriram
Prof. K.Murali
Department of Ocean Engineering
IIT Madras Chennai

Dr. Shiqiang Yan
Prof. Qingwei Ma,
City, University of London, UK.

Workshop Secretariat
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18th Feb, 2018

Indo-UK Workshop on Recent Advances in Wave-Structure Interaction 18th February 2018



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Introduction

Hydrodynamic modelling forms the basis for many other modelling studies, viz., wave-structure interactions, sediment transport, morphology are being investigated. Wave-structure interaction plays a major role in the design of the marine and offshore structures, particularly during the extreme sea state. There has been advances in the general area of hydrodynamics worldwide in particular to improve the understanding of highly nonlinear wave-rigid or elastic structure interactions. Although, both physical and numerical modelling are employed, the later method had become more popular and handy in addressing a variety of problems, like slamming, green water, extreme roll response, etc.

The key is understand the issues related to the survivability and safe operation of these structures their behaviour in hostile marine environment experiencing extreme wave climate including that due to the sea level rise. This strongly relies on the reliability of hydrodynamic impact load predictions during the early design process to reliably quantify the expected loadings.

Capturing all of the physical processes involved in such extreme wave interaction with a freely floating deformable body requires an extremely computing-intensive simulation of high CFD (Computational Fluid Dynamics) resolution that is currently prohibitive for routine design purposes. Current research works like, coupling the efficient fully nonlinear potential theory (FNPT) with time-consuming mesh-based CFD model to accelerate the simulation by minimizing the computational domain that have been developed by IITM and City university, UK will be discussed in the workshop. Recent development of software by IITM to handle a number of complicated hydrodynamic problems including non-linear waves and their interaction with rigid, flexible fixed and floating structures will be presented and discussed.

INDIAN INSTITUTE OF TECHNOLOGY MADRAS

Indian Institute of Technology Madras (IITM) established in 1959 by is one among the foremost institutes of national importance in higher technological education and placed at number one in the country over the last two years.

Set in verdant wooded surroundings, the campus of IIT Madras (IITM) offers an ideal environment for the most stimulating research activities. The campus is fully equipped modern village spreaded in the small protected forest.

City, University of London (CU), United Kingdom

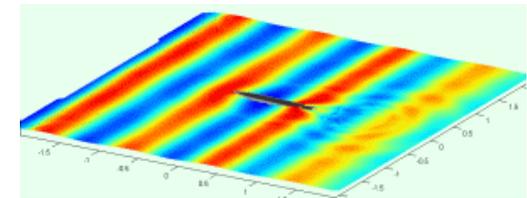
CU's tradition of providing high quality education relevant to business and the professions dates back 160 years. It is a leading global university committed to academic excellence, focused on business and the professions and located in the heart of London.

The Research Centre for Fluid-Structure Interaction led by Prof Qingwei Ma has established an international reputation in the community of numerical simulation of fully nonlinear interaction between steep waves and floating structures. The Centre has been and currently supported by several ESPRC grants studying nonlinear response of floating structures in extreme waves and other grants from the Leverhulme Trust and a Newton International Fellowship. It has developed wide industrial partnerships and collaborations with UK and oversea universities.

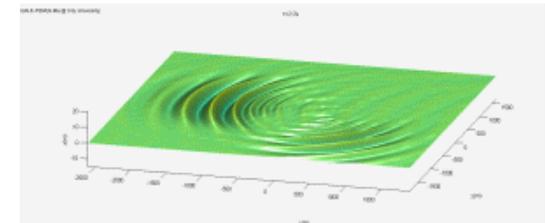
CONTENTS

- Experimental and Numerical modelling– Recent Advances
- Developments in FNPT based on FEM and BEM.
- Developments in NS using Particle methods, such as SPH, MLPG
- LBM
- Developments in Openfoam
- Developments in coastal models such as storm surge, Tsunamis
- Developments in Hybrid Modelling

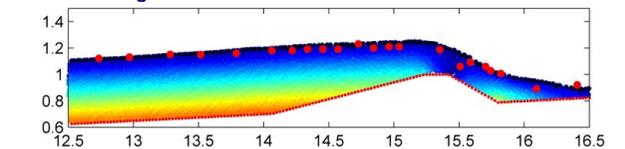
Models from IITM and CU



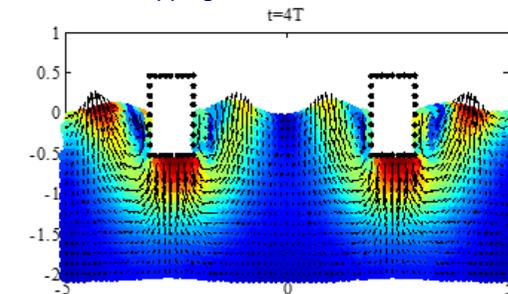
Forwarding ships in waves



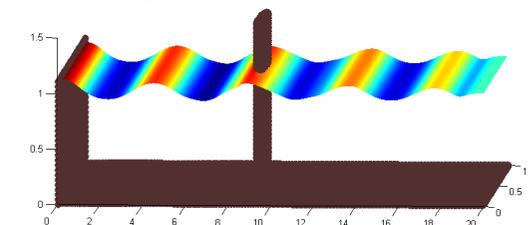
3D crossing-sea



Wave overtopping



Twin floating body motions



Wave Cylinder interactions