
UK&CHN|CORE Summer School

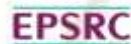
Physical Experimental Methods

Dalian University of Technology &
University of Exeter (State Key
Laboratory of Coastal and Offshore
Engineering, China)

1st – 5th July 2019

Building a better future through a shared **knowledge platform**

A combined UK and China government initiative, the ORE International Impact Platform is a space where industry leaders and educational institutions' shared knowledge is brought together from across the world.



UK&CHN|CORE Overview

Researchers from the UK and China will collaborate on five projects to develop the next generation of offshore renewable energy (ORE) technologies to enable the safe, secure, cheap and efficient provision of clean energy. The collaborative, multidisciplinary three-year-long projects will use environmental science, technology and engineering to tackle key challenges affecting the development of ORE systems, such as offshore wind, wave and tide facilities, and maximise their environmental and socio-economic benefits. The projects will determine where the best energy resource is available and where would be best to implement ORE technologies, and inform the development of technology so that structures are resilient to extreme events such as typhoons and earthquakes.

The summer school on Physical Experimental Methods is open to Early Career Researchers from the five ORE UK-CHINA projects. The course will be held at Dalian University of Technology between the 1st and 5th of July 2019. The UK-China ORE Research Fund will cover the costs related to the participation to the summer school, including: travel (both international and local), accommodation and meals. Costs for the visa, and travel insurance will be covered; however participants will be responsible for making all the necessary arrangements. An invitation letter for the visa will be prepared and forwarded to the delegates. The UK-China ORE Research Fund accepts no responsibility for any problems which may occur with travel or accommodation arrangements or any other issues participants might experience when the participants are away from their home.

A maximum of 16 places are available, eight from China and eight from UK. Places will be offered on a first come first serve basis, we will aim for an equal distribution of places between the five ORE UK-CHINA projects. To apply please email A.Zawalna-Geer@exeter.ac.uk with the with subject "UK-CHN DUT Summer School" by 5pm on Friday 3rd May, with the following information:

- Name and title
- Position and institution
- Name of UK-CHINA ORE project you are working on
- Nationality
- Postal address
- Email
- Phone number

Please note that the summer school will be delivered in English.

Dalian University of Technology:

Is a leading research institution in Ocean Engineering and is a multi-disciplinary university. DUT ranks amongst the best national universities in China and its State Key Laboratory of Coastal and Offshore Engineering (SKLCOE), is one of the leading offshore science research centers. DUT develops and implements advanced theories and technologies in coastal and offshore engineering.

University of Exeter:

Is ranked amongst the top 1% of Universities worldwide and is member of the Russell Group of research-intensive Universities. It is recognised for its Renewable Energy research and has an internationally leading offshore renewable energy (ORE) group. Exeter has an outstanding track-record of supporting international and industry-led research projects, delivering internationally outstanding research impacts. Exeter has successfully implemented a research-led approach, building capacity and expertise, training the next generation of engineers, researchers and innovators.

Summer School Sponsors:

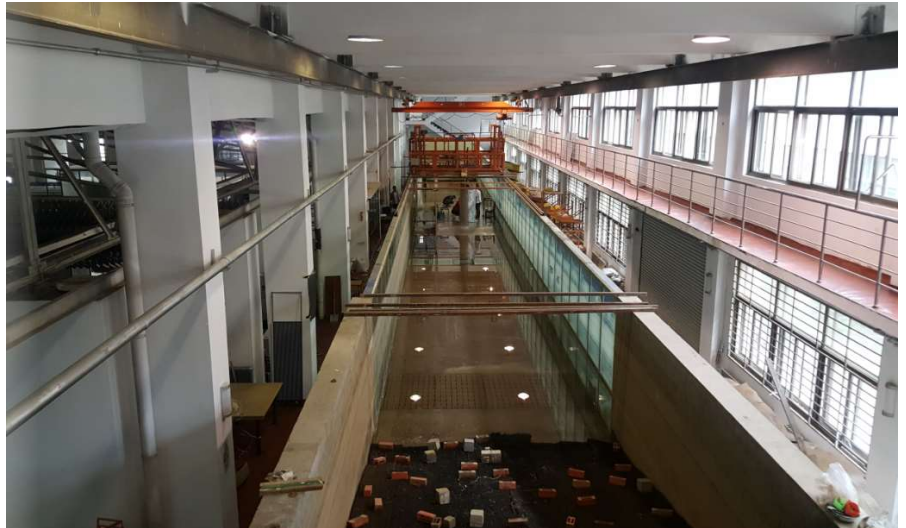
The Summer School is sponsored by the UK-China ORE Research Fund. Funding which has the economic support of the Engineering and Physical Sciences Research Council (EPSRC), the Natural Environment Research Council (NERC) and the Newton Fund.

Websites:

- <https://www.ukchn-core.com/>
- <http://en.dlut.edu.cn/>
- <http://emps.exeter.ac.uk/renewable-energy/research/offshore/>
- https://www.tripadvisor.co.uk/Attractions-g297452-Activities-Dalian_Liaoning.html
- <http://www.dlzoo.com/>

Dalian Venue:

State Key Laboratory
of Coastal and
Offshore Engineering
Dalian University of
Technology, Dalian,
116024, China



Summer School Schedule

Monday 1st July 2019

START	END	SESSION	VENUE
08:30	09:00	Arrival, registration and briefing	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
09:00	10:30	Key note speeches: Dr. Wei Shi: Offshore Floating Wind Experimental Modelling Dr. Ed Mackay: Porous structures in offshore wind applications	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
10:30	10:45	Break	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
10:45	11:45	Dr. Wei Shi: Experimental processes (scaling, instrumentation, set-up, error & repeatability, data acquisition):	Nonlinear wave flume at State Key Laboratory of Coastal and Offshore Engineering
11:45	13:00	Lunch	Restaurant
13:00	14:00	Dr. Ed Mackay: Experiments and validation processes; system identification tests (Facility characterization, Systems properties)	Nonlinear wave flume at State Key Laboratory of Coastal and Offshore Engineering
14:00	15:00	Prof. Lars Johanning: Introduction to Summer school tasks & objectives	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
15:00	15:30	Break	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
15:30	16:15	Dr. Dongsheng Qiao: Experimental generation of load and motion RAO's	Nonlinear wave flume at State Key Laboratory of Coastal and Offshore Engineering

16:15	16:45	Dr. Ed Mackay: Processes for test plan preparation	Nonlinear wave flume at State Key Laboratory of Coastal and Offshore Engineering
16:45	17:30	Dr. Wei Shi: Experimental set-up and instrumentations	Nonlinear wave flume at State Key Laboratory of Coastal and Offshore Engineering

Tuesday 2nd July 2019

START	END	SESSION	VENUE
8:30	10:00	Prof. Dezhi Ning: Introduction to lab facility and experimental set-up	State Key Laboratory of Coastal and Offshore Engineering
10:00	10:30	Planning of group member tasks	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
10:30	10:45	Break	State Key Laboratory of Coastal and Offshore Engineering
10:45	11:30	Group work: Test Plan preparation	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
11:30	13:00	Lunch	Restaurant
13:00	15:00	Group work: Test Plan preparation	State Key Laboratory of Coastal and Offshore Engineering
15:00	15:30	Break	State Key Laboratory of Coastal and Offshore Engineering
15:30	16:45	Test plan presentation and feedback	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
16:45	17:30	Group work: Final Test Plan preparation	State Key Laboratory of Coastal and Offshore Engineering

Wednesday 3rd July 2019

START	END	SESSION	VENUE
8:30	11:30	Experimental tests without model: - Wave calibration (Dr.Ying Gou and student support)	Nonlinear wave flume at State Key Laboratory of Coastal and Offshore Engineering
11:30	13:00	Lunch Break (model installation: support team)	
13:00	17:30	Experimental tests with model: - System identification tests (Dr. Hai Du and student support)	Nonlinear wave flume at State Key Laboratory of Coastal and Offshore Engineering

Thursday 4th July 2018

START	END	SESSION	VENUE
8:30	11:30	Data processing and preparation of results. (Student support)	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
11:30	13:00	Lunch	Restaurant
13:00	15:00	Preparation of presentations (Student support)	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
15:00	15:30	Break	Room A301 at State Key Laboratory of Coastal and Offshore Engineering
15:30	17:30	Presentation of results to Visitors & Supervisors	Room A301 at State Key Laboratory of Coastal and Offshore Engineering

Friday 5th July 2019

START	END	SESSION	VENUE
9:30	16:30	Visit to Dalian Zoo: Students	No.60 Yingchun Road, Nanshidao Street, Xigang District, Dalian 116031, China
16:30	-	Free time	

Saturday 6th July 2019

START	END	SESSION	VENUE
		Travel to Qingdao	
		Free time in Qingdao	

Keynote Speakers

Offshore Floating Wind Experimental Modelling

Associate Professor Wei Shi, Dalian University of Technology



Dr. Wei Shi, an associate professor of Deepwater Engineering Research Centre at Dalian University of Technology (DUT), received PhD from POSTECH in Korea in 2013. Afterwards, he worked as an assistant professor in Konkuk University in 2013 and postdoc at Department of Marine Technology at NTNU in Norway from 2014 to 2017.

His research interests include numerical modelling of both fixed-bottom and floating offshore wind turbine, wind turbine drivetrain dynamics, ice-structure interaction for offshore wind turbine. Meanwhile he has a good experience in dynamic analysis of mechanical system. He is serving as an international advisory committee in Asia-Pacific Forum on Renewable Energy 2017.

Porous structures in offshore wind applications

Dr Ed Mackay, University of Exeter



Dr Ed Mackay is a senior research fellow in the Offshore Renewable Energy Group, working on the design and modelling of floating offshore wind turbines. Prior to joining the University of Exeter, Ed worked in the wave and tidal energy industry for 12 years, most recently for Wavepower Technologies, where he led the work on physical testing and numerical modelling of wave energy converters (WECs). He spent 6 years working for in the wave and tidal energy group at DNV GL (formerly Garrad Hassan), where he worked on the development of the WaveDyn and WaveFarmer software tools for modelling WECs and WEC arrays. During this time he worked on the numerical modelling and physical testing of over 20 WEC concepts. Ed completed his PhD whilst working for the technology developer Pelamis Wave Power, where he developed software tools for wave resource assessment, including a global database of satellite wave measurements.

List of Speakers

Speakers at Dalian UK&CHN Summer School:

Prof Lars Johanning: Professor of Ocean Technology

Prof Dezhi Ning: Head of Offshore Renewable Energy Research Center

Dr Wei Shi: Associate Professor of Deepwater Engineering

Dr Ed Mackay: Senior Research Fellow in Offshore Renewable Energy

Dr Ying Gou: Associate Professor of Ocean Engineering

Dr Dongsheng Qiao: Associate Professor of Deepwater Engineering

Dr Philipp Thies: Senior Lecturer in Offshore Reliability

Dr Hai Du: Senior Engineer of Ocean Engineering