Osaka University
Graduate School of Engineering
Department of Naval Architecture & Ocean Engineering

Hydro-Seminar

by Lab. of Floating-Body Dynamics in Waves

The speaker in the 63rd Hydro-Seminar is

Professor Decheng Wan

Computational Marine Hydrodynamics Laboratory (CMHL)
Shanghai Jiao Tong University, Shanghai, China

Date:	**March 23 (Tuesday), 2021**
Time:	**16:00 – 17:00 (Japan time)**
Venue:	**Using Zoom**
	Meeting ID: 969 2379 7801, Passcode: 306313

https://zoom.us/j/96923797801?pwd=bVJ4bENXT2VsKzc5Z1g3THFlMFFIdz09

Efficient CFD Solver for Coupled Aero-Hydro Dynamic Flows around Floating Offshore Wind Turbine

Abstract

In this presentation, an in-house FOWT-UALM-SJTU solver is introduced to achieve fully coupled aero-hydrodynamic simulations of floating offshore wind turbines (FOWTs) based on the unsteady actuator line model (UALM). The performance of wind turbine-floating platform-mooring system can be also predicted. FOWT-UALM-SJTU solver can also simulate two wind turbines with in-line and offset layouts, and predict the aerodynamic loads, wake characteristics, vortex structure and the complex wake interaction phenomenon, and analyze the wake development and wake interaction among wind turbines in yaw condition. With FOWT-UALM-SJTU solver, a numerical investigation has been executed based on the Lillgrund wind farm layout to discuss the aerodynamic loads, complex wake effects and significant wake interactions. By combining overset grid technique and in-house CFD hydrodynamic solver, naoe-FOAM-SJTU, the fully coupled aero-hydrodynamic simulations of floating offshore wind turbines are also presented.

The Speaker: Professor Decheng Wan

Prof. Decheng Wan received his Ph.D. from Shanghai Jiao Tong University (SJTU), China in 1994. He was promoted to a full professor of SJTU in 2006. He was selected as a distinguished professor of Shanghai Eastern Scholar in 2008, and a chair professor of Chang Jiang Scholar of China in 2014, as well as a distinguished professor of SJTU in 2015. Currently, he is Head of Computational Marine Hydrodynamics Laboratory (CMHL) at SJTU. His research interest is mainly on computational marine hydrodynamics, simulation based design for offshore and polar structures, renewable energy in deep sea, nonlinear wave theory, wave loads on structures, etc. In these areas, he has published over 530 papers and carried out more than 30 projects on marine hydrodynamics and computational hydrodynamics, received many awards, such as Moan-Faltinsen Best Paper, CH Kim Award, ISOPE Award, etc. He is Board of Directors and Chair of International Hydrodynamic Committee (IHC) of ISOPE, Member of Advisor Committee of International Towing Tank Conference (ITTC), Member of Steering Committee of CFD Workshops in Ship Hydrodynamics, Standing Council Member of Association of Global Chinese Computational Mechanics, Standing Council Member of International Workshop of Ship and Ocean Hydrodynamics, etc.

Contact Person: Prof. Masashi Kashiwagi, Tel:7572, Email: kashi@naoe.eng.osaka-u.ac.jp