NUS National University of Singapore | Department of Civil & Environmental Engineering
Faculty of Engineering

You are cordially invited to a Seminar organized by Centre for Advanced Materials and Structures (CAMS) and Department of Civil and Environmental Engineering

Seminar on
Challenges & Solutions of Large Marine Projects

Date: Thursday, 23 May, 2019

Time: 1.30 pm to 5.00 pm

Venue: NUS Faculty of Engineering,
Lecture Theatre (LT7A)

PDU's Pending

To register, please **Click HERE**
https://mysurvey.nus.edu.sg/EFM/se/543BE5C201910998
SCAN CODE WITH YOUR SMARTPHONE TO REGISTER by 23rd May 2019 or when all seats taken.

CHEC 中国港湾

Supported by: China Harbour (Singapore) Engineering Company Pte. Ltd.

Organizer:

CENTRE FOR ADVANCED MATERIALS AND STRUCTURES

NUS National University of Singapore

Program

1:30pm - Registration
2:00pm - Opening address
2:10pm - "Challenges & Solutions of Hong Kong-Zhuhai-Macao Bridge (HZMB)" by Mr. Heng Liang, China Harbour Engineering Co., Ltd.
3:00pm - "Design and Potential Applications of Floating Structures in Singapore" by Assoc. Professor Ang Kok Keng, CEE Dept, NUS
3:50pm - Tea break
4:10pm - "Ecological Protection Measurements for Dredging and Land Reclamation" by Dr. Chen Songgui, Tianjin Research Institute for Water Transport Engineering, Ministry of Transport, China.
5:00pm - End of Program

Talk will be chaired by: Assoc. Professor Qian Xudong, Department of Civil & Environmental Engineering, NUS.

Challenges & Solutions of Hong Kong-Zhuhai-Macao Bridge (HZMB)

By

Mr. Heng Liang

China Harbour Engineering Co., Ltd.

Abstract

The HZMB is a 55km-long bridge-island-tunnel complex. The bridge consists of a 6.7km immersed tunnel (IMT) and two artificial islands of approximately 100,000 m2 each. This speech will share the challenges and solutions during the whole design-construction process, including strong typhoon, busy marine traffic, the habitation of white dolphins, irregular wave and ground improvement. Consequently, 102 special studies concentrate on 6 key technologies are carried out. Those specialised areas include rapid land reclamation with large-diameter deep inserted steel cylinders, composite foundation with combined gravel layer, Innovative semi-rigid structure for IMT, tunnel elements prefabrication, IMT installation in the open sea, integral active-waterstop closure joint.

Speaker Biography

Mr. Heng Liang, Professorate Senior Engineer, is the Vice President of China Harbour Engineering Co., Ltd. He is also the Project Director of the Hong Kong International Airport Third Runway Project (Contract 3206) and the winner of the National "May 1st Labor Medal".

Mr. Heng Liang participated in the design of the HZMB project since 2009. He took the lead in the design work of the artificial island reclamation and tunnel project, including the deep-grooved steel cylinder rapid island construction, the Guishan immersed tunnel prefabrication factory, the deep immersed tunnel compacted sand pile composite foundation and the semi-rigid immersed tunnel structure. The design adopted world leading technology and won many awards including the first prize of excellent design of the China Water Transportation Construction Association, and the first prize of science and technology of the China Institute of Navigation.

Design and potential applications of floating structures in Singapore

By

Professor Ang Kok Keng

Civil and Environmental Engineering
National University of Singapore

Abstract

As an island city-state with about 710 km2 of land, Singapore treats land as a precious and limited resource. In order to sustain the development growth, Singapore continues to reclaim land from the sea and excavate underground space. In addition, Singapore has also started creating space on the sea by using large floating structure technology. This paper focuses on a multi-purpose floating structure (MPFS) research and development project funded by Land and Liveability National Innovation Challenge (L2 NIC) Directorate and JTC Corporation. The objective of the project is to develop innovative design concepts, optimal structural, and foundation solutions, as well as construction and installation methods for multi-purpose floating structures in Singapore coastal waters. This paper covers three specific applications, namely a floating hydrocarbon storage facility, a floating bridge and a modular multi-purpose floating structure. The technical challenges, conceptual designs, research innovation and key findings will be discussed. The outcomes of this research project may be used as a reference for other potential applications including floating offshore bunker supply bases, LNG regasification facilities, solar plants, desalination plants, piers, shipyards, container port terminals, golf courses, parks and towns/cities.

Speaker Biography

K.K. Ang is an Associate Professor in the Department of Civil and Environmental Engineering at the National University of Singapore. He received his B.Eng degree from the University of Singapore, M.Eng from the National University of Singapore and PhD from the University of New South Wales, Australia. He has been a staff member of the Department of Civil Engineering at the National University of Singapore since March 1987.

Professor Ang is actively involved in the use of IT for enhanced teaching and learning, and is presently the Director of the Centre for IT and Applications (CITA Engineering). He was the first recipient of the inaugural NUS Teaching Excellence Award for Use of IT in Teaching and the Faculty Teaching Excellence Award for Innovative Teaching in 1998. His research interests include structural stability and vibration, shape and vibration control of smart adaptive structures, analysis and design of very large floating structures, computational mechanics, finite element method and meshless methods, and have published about 60 technical papers in international journals and conferences. He won the IES/IStructE Best Structural Paper Award in 1994.

Professor Ang is a registered professional engineer since 1991 and has been involved in consulting jobs for the local industries. He is also a member of the Institution of Engineers, Singapore, and is currently serving as an elected council member of the Singapore Structural Steel Society.

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Ecological Protection Measurements for Dredging and Land Reclamation

By

Dr. Chen Songgui

Tianjin Research Institute for Water Transport Engineering,
Ministry of Transport, China

Abstract

Dredging and land reclamation are major activities during port construction. However, suspended fine particles can't be avoided due to strong disturbance of sediment. Such contaminant will have harmful effect on marine organisms, especially benthic corals, which can't migrate even if environment around them is unsuitable to live on. New measurements are required to deal with such challenges. In this presentation, some measurements used in port construction of Dubai Hasyyan power plant are introduced. Firstly, corals within project site are relocated to a new receipt site. 95% of corals are survival after 3 months. Secondly some settling basins are set to deposit muddy water from reclamation land. The suspended sediment concentration of outflow water is reduced to 300mg/L. Finally silt curtains are laid around dredging and reclamation area to ensure the suspended sediment concentration is less than 25mg/L. By adopting above measurements, marine ecosystems could be well-preserved during port construction.

Speaker Biography

Dr. Chen Songgui is Associated Professor at the Ocean Hydrodynamic Research Center of Tianjin Research Institute for Water and Transport Engineering, Ministry of Transport, China. He has been engaged in hydrodynamics research of port and coastal engineering for 9 years, and was involved in more than 40 projects engineering research such as port, channel, power plant, and so on at home and abroad. He presided over hydrodynamics sediment research for 10 coastal engineering projects in Dubai UAE, Hong Kong, Italy, Indonesia, Malaysia, Vietnam, Philippines. As the first director of the largest wave flume in the world, he has finished 15 research projects, and developed wave measurement technology by image and active wave absorption by force feedback. Achievements such as simulation of typhoon or storm, and port construction technology under condition of long period wave were identified as advanced technology in the world.

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General Enquiry: Ms. Norela Buang: 6516 4314, Email: nor@nus.edu.sg

*****Seats are limited. Please register early. All are welcome and admission is free*****

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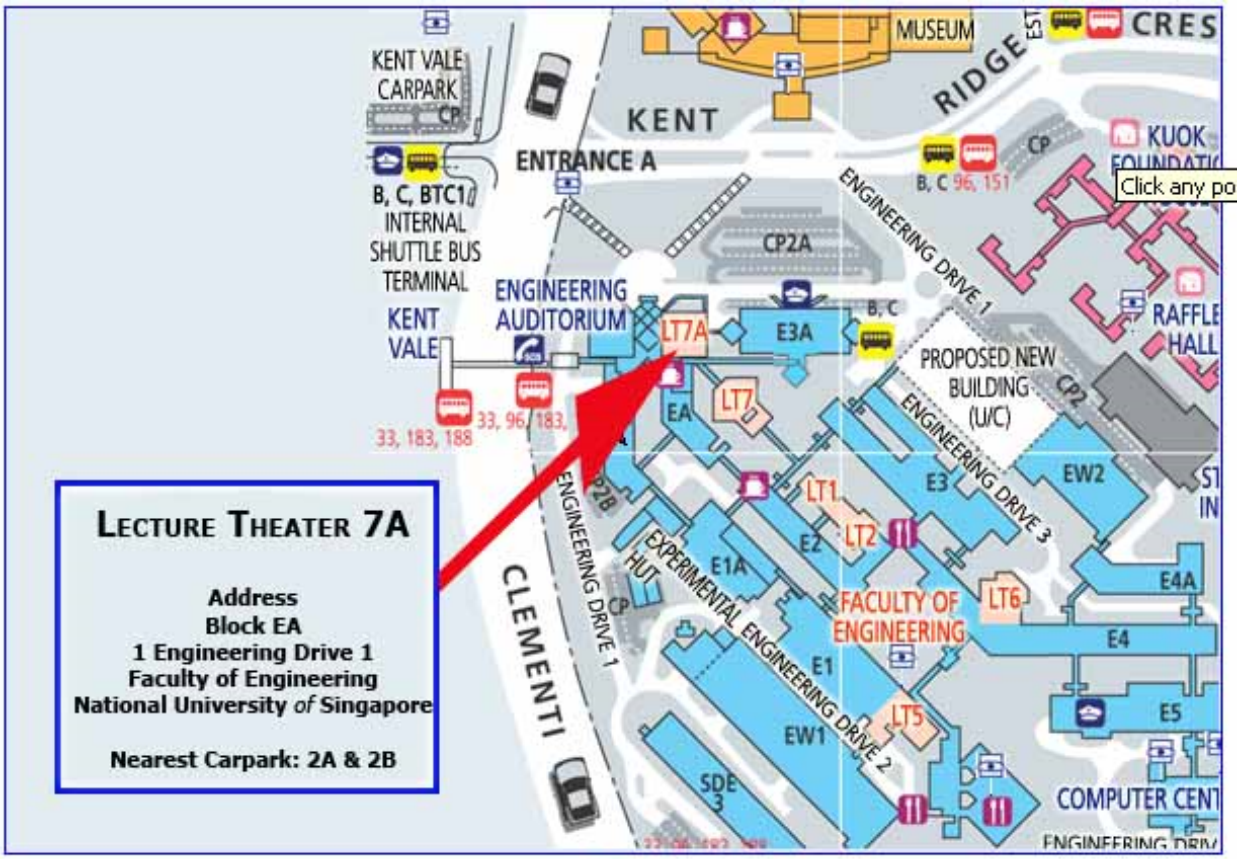
Location



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