

## CUS-CHEC Seminar on Design and Construction of Coastal Infrastructure

**Date:** 11 October 2024 (Friday)

**Time:** 1330 to 1700

**Venue:** Sky Ballroom, Level 1, PARKROYAL on Beach Road, 7500 Beach Rd, Singapore 199591

**Co-Hosted By:** Centre for Urban Solutions (CUS), Nanyang Technological University, Singapore  
China Harbour (Singapore) Engineering Company Pte. Ltd. (CHEC)

**Registration:** Please click [here](#) to register. Admission is free.

**PDUs:** Pending from Professional Engineers Board Singapore

### About the Seminar

This seminar, themed “**Design and Construction of Coastal Infrastructure**”, is aimed at providing an in-depth examination of the design and construction processes associated with major coastal infrastructure projects. The agenda will encompass a range of topics, including the challenges presented by complex marine environments, the role of materials science in enhancing corrosion resistance and durability, the application of structural mechanics in stability analysis, and the integration of innovative engineering technologies and optimized construction methodologies. Furthermore, the seminar will address environmental impact assessment and management strategies to improve infrastructure sustainability and adaptability. Additionally, it will explore the practical application of emerging technologies within the realm of coastal engineering.

## CUS-CHEC Seminar on

# Design and Construction of Coastal Infrastructure

### About CUS and CHEC

#### CENTRE FOR URBAN SOLUTIONS (CUS) | NTU SINGAPORE

CUS aims to provide leadership in research and development in innovative solutions for sustainable living and infrastructures for future cities. The research directions of CUS include (1) Waste for Urban Infrastructure; (2) Novel Construction Materials; (3) BIM and Construction Digitalization; (4) Underground Engineering; (5) Infrastructure System; and (6) Coastal and Usable Space.

#### CHINA HARBOUR (SINGAPORE) ENGINEERING COMPANY PTE. LTD. (CHEC)

CHEC is leading a research project on key technologies for the construction of large-scale artificial islands along Belt and Road. Members of the research team include specialists and researchers from Department of Infrastructure Engineering, University of Melbourne, and Tianjin Research Institute for Water Transport Engineering, Ministry of Transport, China. CHEC Singapore has been in operation in Singapore since 1986.

### Seminar Programme | 11 October 2024 (Friday)

Time	Speaker	Title of Presentation
1330 – 1335	Professor <u>Chu Jian</u> Director, CUS, NTU	Welcome Address by NTU
1335 – 1340	Mr. <u>Feng Liangji</u> Director, CHEC	Opening Address by CHEC
1340 – 1400	Professor <u>Chu Jian</u> Director, CUS, NTU	1. Update of R&D Works on Coastal Protection at NTU
1400 – 1450	Professor <u>Huang QingFei</u> Professor Level Senior Engineer, CHEC	2. Overall Design and Key Technological Innovations of the Shenzhen-Zhongshan Link Tunnel
1450 – 1530	Mr. <u>Ning Jinjin</u> Senior Engineer, CHEC	3. Key Technologies and Applications in the Construction of the Shenzhen-Zhongshan Link Island Tunnel Project
1530 – 1550	Dr. <u>Adrian Lai</u> Principal Engineer (Coastal), Surbana Jurong	4. Enhancing Flood Resilience through Advanced Modelling and Interactive Visualization Dashboards
1550 – 1610	Q&A Session	
1610 – 1700	Networking Session	
1700	End of Seminar	

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## About the Presentations and Speakers

### **1. UPDATE OF R&D WORKS ON COASTAL PROTECTION AT NTU**

Professor Chu Jian, Chair, School of CEE; Director of CUS, NTU

#### **Speaker's Biography**

**Professor Chu Jian** is President's Chair in Civil Engineering, Fellow of Academy of Engineering Singapore, Chair of the School of Civil and Environmental Engineering and founding Director of the Centre for Urban Solutions at Nanyang Technological University. He worked for Iowa State University, USA, from 2011 to 2014, as Professor and James M. Hoover Chair in Geotechnical Engineering. He is Editor for a high impact journal, Acta Geotechnica, and Associate Editor for ASCE Journal of Materials in Civil Engineering. Prof Chu also chairs the ISSMGE Technical Committee TC217 on Land Reclamation and was a past president of GeoSS and the past Chair of ISSMGE Technical Committee TC39 on Geotechnical Engineering for Coastal Disaster Mitigation and Rehabilitation. He received several awards including the R. M. Quigley Award from the Canadian Geotechnical Society in 2004 and the Outstanding Geotechnical Engineer Award from the Geotechnical Society of Singapore in 2018.

## **NTU-CHEC Seminar on Design and Construction of Coastal Infrastructure**

### **About the Presentations and Speakers**

#### **2. OVERALL DESIGN AND KEY TECHNOLOGICAL INNOVATIONS OF THE SHENZHEN-ZHONGSHAN LINK TUNNEL PROJECT**

**Mr. Huang QingFei, Professor Level Senior Engineer, CHEC**

#### **Speaker's Biography**

**Dr. Huang Qingfei** currently is the Chief Engineer of the Tunnel and Underground Engineering Department, CHEC.

Dr Huang is also the Chairman of the Immersed Tube Tunnel Design and Construction Technology Committee of the Structural Engineering Division at the World Transport Congress. He is actively in the survey, design, and research of tunnel and underground engineering. He has involved in and led the design and survey work for major projects including (1) the Nanjing Yangtze River Shield Tunnel, (2) the Hong Kong-Zhuhai-Macao Bridge Immersed Tunnel, and (3) the Shenzhen-Zhongshan link-Immersed Tunnel. Dr. Huang has completed several significant national research projects, such as the National Science and Technology Support Program project "Key Technologies Research and Demonstration for the Hong Kong-Zhuhai-Macao Bridge Marine Cluster Project" and the National Key R&D Program project "Research and Engineering Demonstration of Safety Assurance Technologies for Major Water-Involved Infrastructure". He has received over ten provincial and ministerial-level awards for scientific and technological progress and holds dozens of authorized patents in China.

## **NTU-CHEC Seminar on Design and Construction of Coastal Infrastructure**

### **About the Presentations and Speakers**

#### **3. KEY TECHNOLOGIES AND APPLICATIONS IN THE CONSTRUCTION OF THE SHENZHEN-ZHONGSHAN CORRIDOR ISLAND TUNNEL PROJECT**

**Mr. Ning Jinjin, Senior Engineer, CHEC**

#### **Speaker's Biography**

**Mr. Ning Jinjin** has dedicated a significant period to the research and construction of immersed tube tunnels, achieving remarkable success in areas such as immersed tube towing and installation, foundation treatment, rapid island formation, and tunnel risk management.

He has been honored with numerous prestigious awards, including the Tianjin May 1st Labor Medal, the Ministry of Transport's 'Most Beautiful Port and Shipping Person' award, the Tianjin Moral Model Nomination, the 'Most Beautiful Employee' and 'Brand Employee' awards from China Communications Construction Group, and the National Innovation and Excellence Award. Additionally, he has received over 10 provincial and ministerial-level accolades from organizations such as the Navigation Society and the Waterway Transportation Association. His innovative work has resulted in the authorization of more than 50 national patents, including 20 invention patents. Mr. Ning has also contributed to the academic community, having published over 30 papers in core domestic and international journals and serving as the chief editor for four group standards.

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## About the Presentations and Speakers

### 4. ENHANCING FLOOD RESILIENCE THROUGH ADVANCED MODELLING AND INTERACTIVE VISUALIZATION DASHBOARDS

Dr. Adrian Lai, Principal Engineer (Coastal), Surbana Jurong

#### Speaker's Biography

**Dr. Adrian Lai** has over 5 years of numerical coastal modelling experiences, including MetOcean and EIA modelling studies for various projects. He is familiar with various numerical coastal and inland modelling tools such as the MIKEs and Deltares' softwares. He is also proficient in programming languages MATLAB and Python and developed in-house pre- and post-processing tools for coastal modelling.

Before joining the industry, he has over 10 years of academic research experiences in environmental fluid mechanics such as subsea outfall and sediment plumes. Several original and novel numerical models of jets/plumes were developed during his research career. In particular, the modelling of a rosette buoyant jet group from an ocean outfall was awarded the Karl Emil Hilgard Hydraulic Prize in 2013 by the American Society of Civil Engineers. He is also experienced in computational fluid dynamics (CFD) simulation such as desalination brine and cooling water discharges.