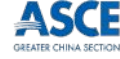


Organised by

ARUP



Supported by



In cooperation with: Wind Engineering Group, China Civil Engineering Society

Hong Kong Wind Engineering Society Workshop 5

Advancement in Wind Engineering for a Sustainable Urban Environment



[Register now!](#)

13-14 July 2023

Studio 1 & 2, InnoCentre,
Kowloon Tong, Hong Kong



Introduction

Hong Kong Wind Engineering Society (HKWES) aims to promote the education, science and practice of wind engineering in Hong Kong. The HKWES Workshop series is a biennial event held by HKWES to foster communications and collaborations among scholars, practising engineers and research students in Asia.

Background and theme

We are in a rapidly evolving world full of challenges related to wind: wind hazards, extreme weather (including wind) due to climate change, new challenges associated with super tall buildings and long-span infrastructures in urban areas, rising demand for wind related actions to strengthen urban resilience, contributing to low carbon emission, and increased safety and serviceability performance in today's metropolitans.

Fortunately, substantial advancement in wind engineering has been observed in the past decade, including engineering applications of ever taller and ever longer buildings and infrastructures, availability of more advanced wind tunnel testing facilities, progress on computational wind engineering, application of AI and big data, as well as vast adoption of wind energy. Those advancements reflect constant efforts of researchers and practising engineers in the field to pursue a better and more sustainable urban environment.

In this light, the 5th HKWES Workshop '**Advancement in Wind Engineering for a Sustainable Urban Environment**' is organised to provide a platform for scholars, practising engineers and research students in Asia to share the latest progress on wind engineering, explore opportunities for further discussion and collaborations, and develop solutions for a sustainable urban environment in this fast-evolving, challenging world.

Target audience

- Research scholars and students in universities or academic institutes
- Professional engineers from structural, civil, MEP and building physic disciplines (consultants, contractors, engineers or technical officers in governments)
- Other professionals interested in wind engineering

Programme

A comprehensive programme has been designed in this two-day workshop (9:00am – 6:00pm, Hong Kong Time), with the below highlights:

- **Top-class keynote/invited speeches contributed by eight reputational research scholars and wind experts**
- 20+ high quality oral presentations from academia and industry professionals in the region
- An inspiring cross-disciplinary lunch sharing session from industry experts (13 July lunch)
- A half-day training course, focusing on the detailed application of 2019 Hong Kong Wind Code, for industry professionals and practitioners (14 July afternoon)
- Attendance certificate will be issued after the workshop

See next pages for the detailed programme.

13 July 2023, Thursday

Time	Programme
08:30 – 09:00	Registration
09:00 – 09:20	Welcome remarks
09:20 – 09:55	Keynote speech: Wind effects on buildings and their environment: codification and standardisation – what lies ahead? Prof Ted Stathopoulos <i>Concordia University, Canada</i>
	Session 1: STR wind – buildings
09:55 – 10:10	P1: Wind loads and responses of tall building structures by storm passage method with simulated typhoon data of Hong Kong Adan van Duijneveldt, Isaac Shum, Max Lee and Peter A. Bourke <i>Cermak Peterka Petersen Pty, Ltd, Australia</i>
10:10 – 10:25	P2: Estimation of nonlinear wind-induced responses of membrane structures under fluid-structure interaction effect Tengfei Wang, Qingshan Yang and Kunpeng Guo <i>Chongqing University, China</i>
10:25 – 10:40	Coffee break
10:40 – 11:15	Keynote speech: Technical issues for developing an early warning system for wind-related disaster risk reduction Prof Shuyang Cao <i>Tongji University, China</i>
11:15 – 11:45	Invited speech: Tropical cyclone induced extreme winds and storm surge in Hong Kong – past and future Chun-Ming Choy <i>Hong Kong Observatory (HKO), China</i>
	Session 2: Wind risk
11:45 – 12:00	Study on statistical dynamic full track typhoon Monte Carlo simulation method Dengguo Wu and Neptune Yu <i>Arup, Hong Kong, China</i>
	Industry sharing session (lunch will be provided)
12:30 – 12:50	P1: Climate risks and opportunities on improving resilience of physical asset – case sharing of infrastructure and building in East Asia Dr Bruce Chong <i>Arup, Hong Kong, China</i>
12:50 – 13:10	P2: Façade design driver Nina Yiu <i>Arup, Hong Kong, China</i>
13:10 – 13:30	P3: Revisit the tropical cyclone induced glass damages – a probabilistic view Dr Neptune Yu <i>Arup, Hong Kong, China</i>
14:00 – 14:30	Invited speech: Aerodynamic optimisation of tall buildings while minimising architectural intervention Dr Nicholas Truong <i>Director, Windtech Consultants, Australia</i>
	Session 3: STR wind – special structures
14:30 – 14:45	P1: Experimental study on aeroelastic response of wind turbine blades under extreme wind conditions Xiangjun Wang ¹ , Rongzhen Gao ¹ , Hua Yang ¹ and Qiusheng Li ² ¹ Yangzhou University, China, ² City University of Hong Kong, China
14:45 – 15:00	P2: Numerical study on the fluid-structure interaction of OC4 semi-submersible platform subjected to focused waves

15:00 – 15:15	<p>Yuhao Zhang, Tian Li and Qingshan Yang <i>Chongqing University, China</i></p> <p>P3: Refined rigid rod method of wind-induced swing of transmission conductor Yi Gu, Wenjuan Lou and Yuelong Zhang <i>Zhejiang University, China</i></p>
Session 4: STR wind – bridges	
15:15 – 15:30	<p>P1: Investigation on vortex-induced vibration characteristics of two open girders Qingsong Duan¹ and Cunming Ma² ¹<i>Southwest University of Science and Technology, China</i>, ²<i>Southwest Jiaotong University, China</i></p>
15:30 – 15:45	<p>P2: Research on the influence of uneven wind field on the buffeting response of cable-stayed bridges Cheng Pei¹, Cunming Ma^{2,3} and Jiajie Li^{2,3} ¹<i>Civil Aviation Flight University of China</i>, ²<i>Key Laboratory for Wind Engineering of Sichuan Province, China</i>, ³<i>Southwest Jiaotong University, China</i></p>
15:45 – 16:00	<p>P3: Investigation on the unsteady aerodynamic force on a 3:2 rectangular section under accelerating airflow Xiuyu Chen, Ledong Zhu and Zhongxu Tan <i>Tongji University, China</i></p>
16:00 – 16:15	Coffee break
16:15 – 16:45	<p>Invited speech: Application of machine learning techniques to wind farm: layout optimisation and cooperative yaw control Dr Xiaowei Deng <i>Professor, Department of Civil Engineering, The University of Hong Kong, China</i></p>
Session 5: Wind energy	
16:45 – 17:00	<p>P1: Accurate numerical simulation of self-starting performance for a three-dimensional vertical axis wind turbine Xin Liu, Feng Xu, Fei Huang and Jinping Ou <i>Harbin Institute of Technology (Shenzhen), China</i></p>
17:00 – 17:15	<p>P2: Research on passive flow control of square cylinder wake based on vertical axis wind turbines Fei Huang, Feng Xu, Xin Liu and Jinping Ou <i>Harbin Institute of Technology (Shenzhen), China</i></p>
17:15 – 17:30	<p>P3: Assessment of urban wind energy resources based on lidar and microwave radiometer observations J.Y. He^{1,2}, P.W. Chan³ and Q.S. Li^{1,2} ¹<i>City University of Hong Kong, China</i>, ²<i>City University of Hong Kong Shenzhen Research Institute</i>, ³<i>Hong Kong Observatory, China</i></p>
17:30 – 17:45	<p>P4: Influence of building roof design and wind turbine arrangement on wind energy harvesting Xiulan Ye¹, Xuelin Zhang¹ and A.U. Weerasuriya² ¹<i>Sun Yat-sen University, China</i>, ²<i>Hong Kong Metropolitan University, China</i></p>
17:45 – 18:00	<p>P5: Reformulation of the atmospheric boundary layer velocity profile with the inclusion of wind–wave interaction for engineering simulations Jamie F. Townsend¹, Guoji Xu¹, Yuanjie Jin¹, Enbo Yu¹, Huan Wei¹ and Yan Han² ¹<i>Southwest Jiaotong University, China</i>, ²<i>Changsha University of Science and Technology, China</i></p>
18:00 – 18:15	<p>P6: Three-dimensional CFD simulation and validation of flow field of a single vertical axis wind turbine Lin Wen and Xuelin Zhang <i>Sun Yat-sen University, China</i></p>