



Department of
Mechanical Engineering
The University of Hong Kong



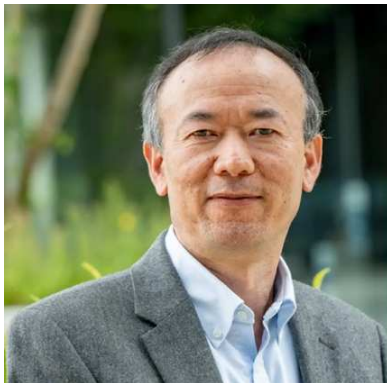
SEMINAR

Slenderness Effects on an Array of Tall Buildings

Date: 6 March 2025 (Thursday)
Time: 3:30 p.m. to 5:00 p.m.
Venue: HW 7-34/7-35, 7/F Haking Wong Building
The University of Hong Kong, Pokfulam Road, Hong Kong

Speaker: Prof. Z Tong Xie, PhD, FRMetS, FRAeS
Professor, Aeronautics and Astronautics
University of Southampton
SO16 7QF, UK
Tel: +44(0)23 8059 4493
<https://www.southampton.ac.uk/people/5x22sl>

Abstract: The talk reports our latest research on the slenderness effects on the flow over a staggered array of random height buildings with various height-width aspect ratio. Large-eddy simulations were carried out to produce and gather data using both cyclic inlet-outlet and synthetic turbulence generation inflow boundary conditions. The data shows that (1) the slenderer buildings are less sensitive to the approaching wind direction, (2) the integral length scales of the turbulence generated by the slenderer buildings are significantly larger than for low-rise buildings, and (3) the flow pattern changes from a wake interference regime over low-rise buildings to a skimming region over slenderer buildings.



Biography: Dr Zheng-Tong Xie (ZX) is a full Professor of Aeronautics and Astronautics at the University of Southampton (UoS), leading research in environmental and urban fluid dynamics. ZX received his academic degrees at Shanghai Jiao Tong University (1986-1995). ZX worked at the Institute of Mechanics, CAS from 1995-2000. Since 2000, he worked in the University of Surrey, and then the University of Southampton. His research interests include turbulent flow around bluff bodies, computational fluid dynamics, and fast computation in large-scale problems. ZX is the PI of several projects funded by the research councils. Currently, ZX is the PI of EPSRC funded-project FUTURE (EP/V010514/1, Jun 2021 - Jun 2025), and the PI of NERC funded-project ASSURE (NE/W002841/1, Dec 2021 - Nov 2025). ZX has published more than 50 papers. The synthetic turbulence generation method developed by ZX and his team has been implemented in the releases of several widely used CFD packages and many in-house codes worldwide, demonstrating its excellent performance for high-fidelity simulations. He is a Fellow of the Royal Meteorology Society and a Fellow of the Royal Aeronautical Society.

ALL INTERESTED ARE WELCOME

For further information, please contact Prof. C-H Liu at 3917 7901 or chliu@hku.hk