



The International Conference of Building **A**nd **S**imulation

Theme: Climate neutral buildings and cities

Programme



June 11-13, 2026
Hong Kong SAR, China

Organizer



Sponsors



Contents

Committee Members	4
Conference Venue.....	8
Local Transportation.....	11
Shuttle Bus	13
Dining	15
Kindly Reminding.....	16
Programme Overview	18
Keynote Speaker (In order of time)	24
Session Codes.....	30
Detailed Parallel Session.....	32
Detailed Poster Session	53
Detailed Workshop Session	57
Social Activities.....	69

BAS 2026

Committee Members

Conference Chair

WANG Zhe	The Hong Kong University of Science and Technology	Hong Kong SAR, China
YAN Da	Tsinghua University	China
LIN Borong	Tsinghua University	China
ZHENG Siqi	Massachusetts Institute of Technology	USA
ZHU Yingxin	Tsinghua University	China

Scientific Committee Chair

XIAO Fu Linda	The Hong Kong Polytechnic University	Hong Kong SAR, China
TAN Gang	Zhejiang University	China

Workshop Committee Chair

MO Jinhan	Shenzhen University	China
HUANG Gongsheng	City University of Hong Kong	Hong Kong SAR, China

Organizing Committee

WU Si	The Hong Kong University of Science and Technology	Hong Kong SAR, China
LI Lunlong	The Hong Kong University of Science and Technology	Hong Kong SAR, China
HUANG Qiqi	The Hong Kong University of Science and Technology	Hong Kong SAR, China
ZHANG Shihong	The Hong Kong University of Science and Technology	Hong Kong SAR, China
Celine LAW	The Hong Kong University of Science and Technology	Hong Kong SAR, China
JIN Zhineng	The Hong Kong University of Science and Technology	Hong Kong SAR, China
JIANG Mengqi	The Hong Kong University of Science and Technology	Hong Kong SAR, China
LI Yanjie	The Hong Kong University of Science and Technology	Hong Kong SAR, China

WU Yi	Tsinghua University	China
LU Qinhui	The Hong Kong University of Science and Technology	Hong Kong SAR, China
Donald CHENG	The Hong Kong University of Science and Technology	Hong Kong SAR, China
JIANG Huayu	The Hong Kong University of Science and Technology	Hong Kong SAR, China
SUN Ke	The Hong Kong University of Science and Technology	Hong Kong SAR, China
Scientific Committee (In Alphabetical Order)		
CAO Bin	Tsinghua University	China
CHEN Chen	Xiamen University	China
CHEN Jianli	Tongji University	China
CHONG Zhun Min Adrian	National University of Singapore	Singapore
DONG Bing	Syracuse University	USA
DONG Lei	Peking University	China
FAN Cheng	Shenzhen University	China
FENG Chi	Chongqing University	China
GAO Yan	Beijing University of Civil Engineering and Architecture	China
GAO Yuan	Kyushu University	Japan
HAN Yunsong	Harbin Institute of Technology	China
HUANG Gongsheng	City University of Hong Kong	Hong Kong SAR, China
HUANG Shaodan	Peking University	China
HUI Hongxun	University of Macau	Macao SAR, China
LI Junjie	Beijing Jiaotong University	China
LIN Guanjing	Tsinghua University (Shenzhen)	China
LIU Cong	Southeast University	China
LIU Jianlin	Donghua University	China
LIU Lun	Peking University	China

LIU Sai	Southeast University	China
LIU Shuli	Beijing Institute of Technology	China
LIU Zhijian	North China Electric Power University	China
LUO Zhixing	Xi'an University of Architecture and Technology	China
LV Shilei	Tianjin University	China
LV Shuai	Tsinghua University (Shenzhen)	China
PENG Jinqing	Hunan University	China
SUN Hongli	Sichuan University	China
SUN Yongjun	City University of Hong Kong	Hong Kong SAR, China
TANG Hao	Southwest Jiaotong University	China
TANG Rui	University College London	UK
TIAN Zhe	Tianjin University	China
WANG Dengjia	Xi'an University of Architecture and Technology	China
WANG Liangzhu Leon	Concordia University	Canada
WANG Wei	Southeast University	China
WU Wei	City University of Hong Kong	Hong Kong SAR, China
WU Zhibin	South China University of Technology	China
ZENG Zhaoyun	University of Macau	Macao SAR, China
ZHANG Fan	Griffith University	Australia
ZHANG Tengfei	Dalian University of Technology	China
ZHANG Weirong	Beijing University of Technology	China
ZHANG Rongpeng	Hunan University	China
ZHANG Xiang Jason	Arizona State University	USA
ZHENG Siqi	Massachusetts Institute of Technology	USA
ZHENG Xing	City University of Hong Kong	Hong Kong SAR, China

ZHOU Hao	Tsinghua University	China
Workshop Committee (In Alphabetical Order)		
AN Jingjing	Beijing University of Civil Engineering and Architecture	China
CHEN Yixing	Hunan University	China
GENG Yang	Tsinghua University	China
LIU Meng	Chongqing University	China
LIU Xiaochen	Tsinghua University	China
LIU Yan	Xi'an University of Architecture and Technology	China
MO Jinhan	Shenzhen University	China
QIAN Mingyang	Donghua University	China
SHI Shanshan	Nanjing University	China
TAN Gang	Zhejiang University	China
WANG Dan	Beijing University of Civil Engineering and Architecture	China
YU Juan	Tsinghua University	China
ZHAO Tianyi	Dalian University of Technology	China
ZHANG Nan	Beijing University of Technology	China
ZHANG Xingxing	Dalarna University	Sweden
ZHAO Bingyu	Vienna University of Technology (TU Wien)	Austria
ZHOU Xin	Southeast University	China

Conference Venue



■ The Hong Kong University of Science and Technology (HKUST)

HKUST occupies a stunning 150-acre site overlooking the pristine Clearwater Bay, located on the Sai Kung Peninsula. The area is often considered as one of Hong Kong's havens for outdoor lovers.

HKUST is a publicly funded university that opened in 1991. It is a leading international research university dedicated to the pursuit of knowledge in science, medicine, engineering, business, humanities and social science. As a young university – just stepping into its third decade – HKUST's achievements are remarkable. It has consistently gained top international rankings, a demonstration of the university's high academic quality and the global recognition it has achieved.

■ Map of session rooms

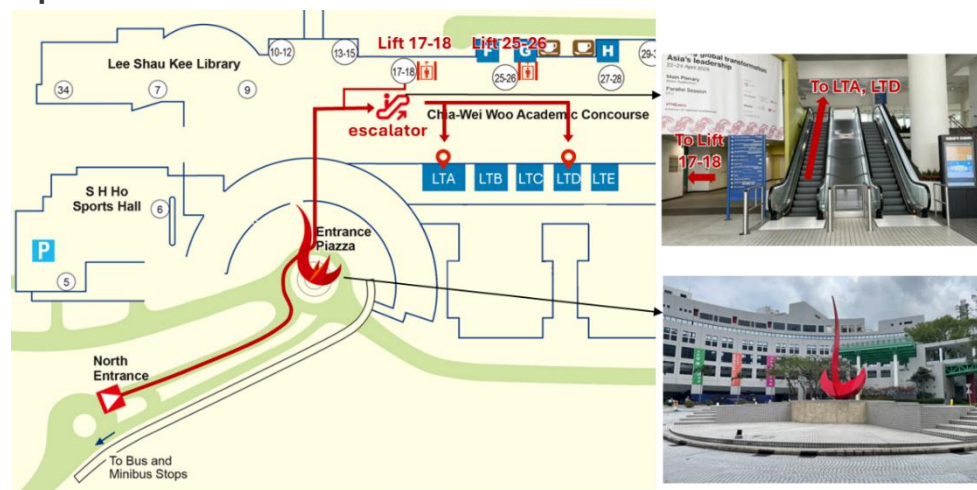


Fig. 1 From North Entrance to Chia-Wei Woo Academic Concourse and Lift 17-18



Fig. 2 From Lift 17-18 or Lift 25-26 to Room 2302, Room 2404, Room 2464, Room 2502 ect.

1. Starting from the **University North Entrance**, walk approximately 100 meters to reach the **Piazza**. Then enter the Academic Building, take the escalator to 1/F, and enter the Chia-Wei Woo Academic Concourse. Please see Fig.1 for details.
2. Enter the Academic Building, take the **Lift 17-18** to 2/F, and turn left to Room 2302, 2303, 2304, 2306, or turn right to Room 2404, 2405 and Room 2464, 2465, 2502. You can also take the Lift 25-26 to these rooms. Please see Fig.1 and Fig.2 for details.

■ **Registration Fees (no budget)**

	Students	Non-students
Early bird	1500 HKD	2000 HKD
Standard	2000 HKD	2500 HKD

The registration allows you to participate in public activities of BAS 2026, including plenary and parallel sessions, workshops and seminars.

■ **Recommended Hotel**

Dorsett Kai Tak:

Located in the vibrant Kai Tak Sports Park in Kowloon, Dorsett Kai Tak Hotel is an ideal choice for your stay in Hong Kong. Guests can enjoy stunning views of Victoria Harbour and easily access the new 50,000-seat Kai Tak Stadium and nearby shopping hotspots. The hotel features a rooftop bar and infinity pool, a spacious fitness center, and a luxurious banquet hall, allowing you to relax, stay healthy, or host unforgettable events.



Harbour Plaza 8 Degrees:

Harbour Plaza 8 Degrees is an award-winning, 4-star boutique hotel located in Kowloon, Hong Kong. Known for its distinctive leaning architectural design and cozy lobby, it features 704 modern rooms, a signature restaurant, an outdoor swimming pool, and convenient complimentary shuttle services to major hubs.



Hotel COZi - Harbour View:

Hotel COZi - Harbour View is a modern, 4-star hotel located in Kwun Tong, Kowloon East, Hong Kong. It features 598 spacious rooms—many with stunning views of Victoria Harbour and the Kai Tak Cruise Terminal—and sits just a 5-minute walk from the Ngau Tau Kok MTR station.



Local Transportation

The following information shows how to reach the conference venue from airports and railway stations. Taxi fares can usually be paid in cash (HKD), Alipay, WeChat Pay, and credit cards, depending on the taxi's payment facilities. For public transportation, MTR and buses generally support payment by Alipay. However, please note that minibuses usually accept only cash (HKD) or Octopus Card.

■ Hong Kong International Airport

Taxi: Hong Kong International Airport is a **45 minute** ride by taxi to the conference venue (HKUST) and the taxi fare is **about 360-380 HKD. No extra tip is required.** One should pay the taxi fare according to the fare meter reading. You can show the Direction Note as followed to your taxi driver for reaching the conference venue.

司機師傅，您好！
請車我去香港科技大學北門，按咪錶收費。
唔該晒！

Hello!
Please drop me (us) off at The Hong Kong University of Science and Technology, Clear Water Bay Campus, North Entrance.
Please charge according to the meter.
Thank you for your hard work!

Public transportation: You can take **Citybus A29** from Hong Kong International Airport to **Ngau Chi Wan BBI - Ngau Chi Wan Village**, then take **Bus 91M** to North Bus Station (HKUST).

■ Hong Kong West Kowloon High Speed Rail Station

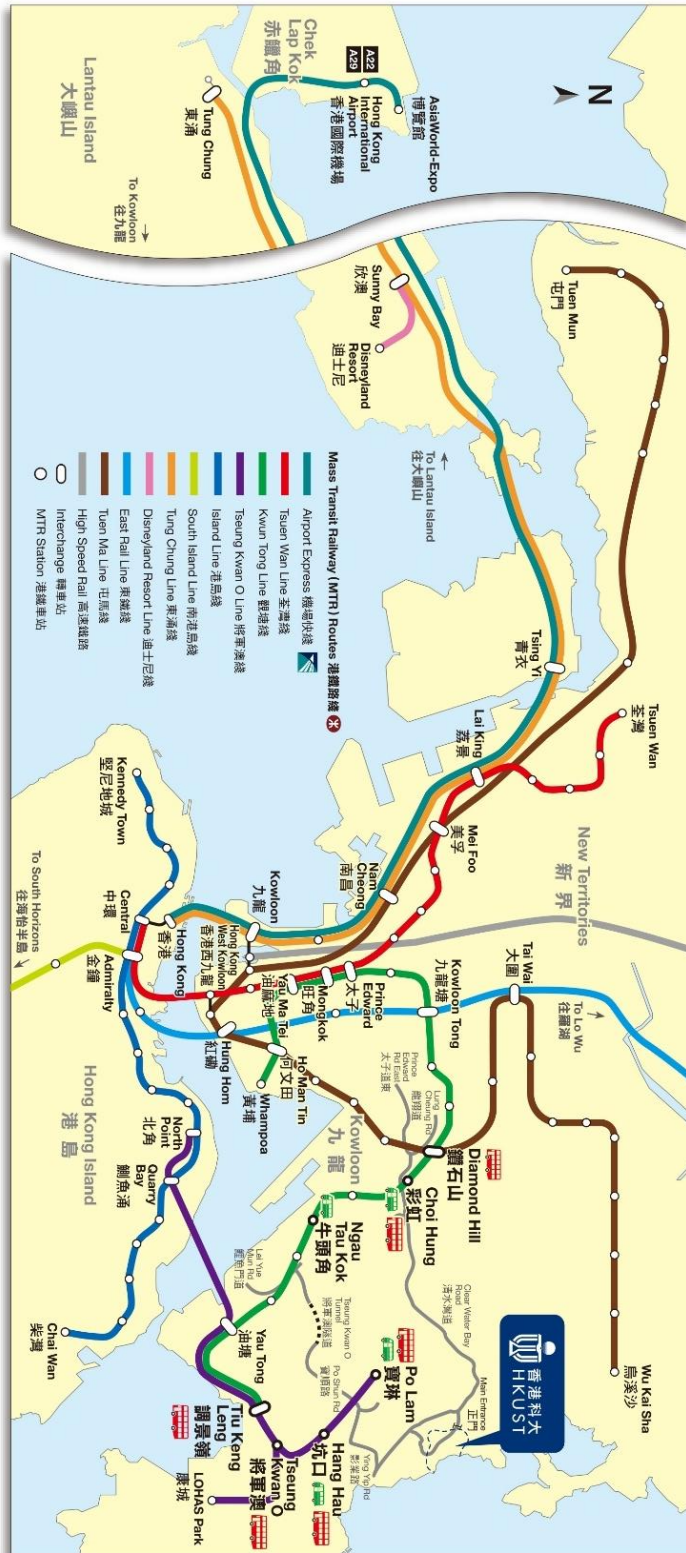
Taxi: Hong Kong West Kowloon High Speed Rail Station is a **35 minute** ride by taxi to the conference venue (HKUST) and the taxi fare is **about 165 HKD. No extra tip is required.** One should pay the taxi fare according to the fare meter reading. You can show the Direction Note as followed to your taxi driver for reaching the conference venue.

司機師傅，您好！
請車我去香港科技大學北門，按咪錶收費。
唔該晒！

Hello!
Please drop me (us) off at The Hong Kong University of Science and Technology, Clear Water Bay Campus, North Entrance.
Please charge according to the meter.
Thank you for your hard work!

Public transportation: You can take **MTR Tuen Ma Line** from Hong Kong West Kowloon High Speed Rail Station to **Diamond Hill**, then walk around 5 minutes to **Diamond Hill Station Bus Terminus**. And after that, you can take **Bus 91 or Bus 91P** to North Bus Station (HKUST).

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY



MTR Stations with bus or green minibus service to HKUST
提供往科大巴士或綠色專線小巴服務的港鐵車站

Diamond Hill 鑽石山:	91, 91M, 91P*
Choi Hung 彩虹:	11, 11S#
Ngau Tau Kok 牛頭角:	104
Tiu Keng Leng 調景嶺:	792M
Hang Hau 坑口:	91M, 11, 11M, 11S#
Po Lam 寶琳:	91M, 12, 11S#
Tseung Kwan O 將軍澳:	792M

Transportation from airport to HKUST:
For passengers with bulky luggage, taking a taxi to HKUST direct is recommended. Those with simple luggage may take Airport Bus A22 to Lam Tin MTR station or A29 to Po Lam MTR station, and change for taxi to HKUST.

- Bus Routes 巴士路線
- Green Minibus Routes 綠色專線小巴路線

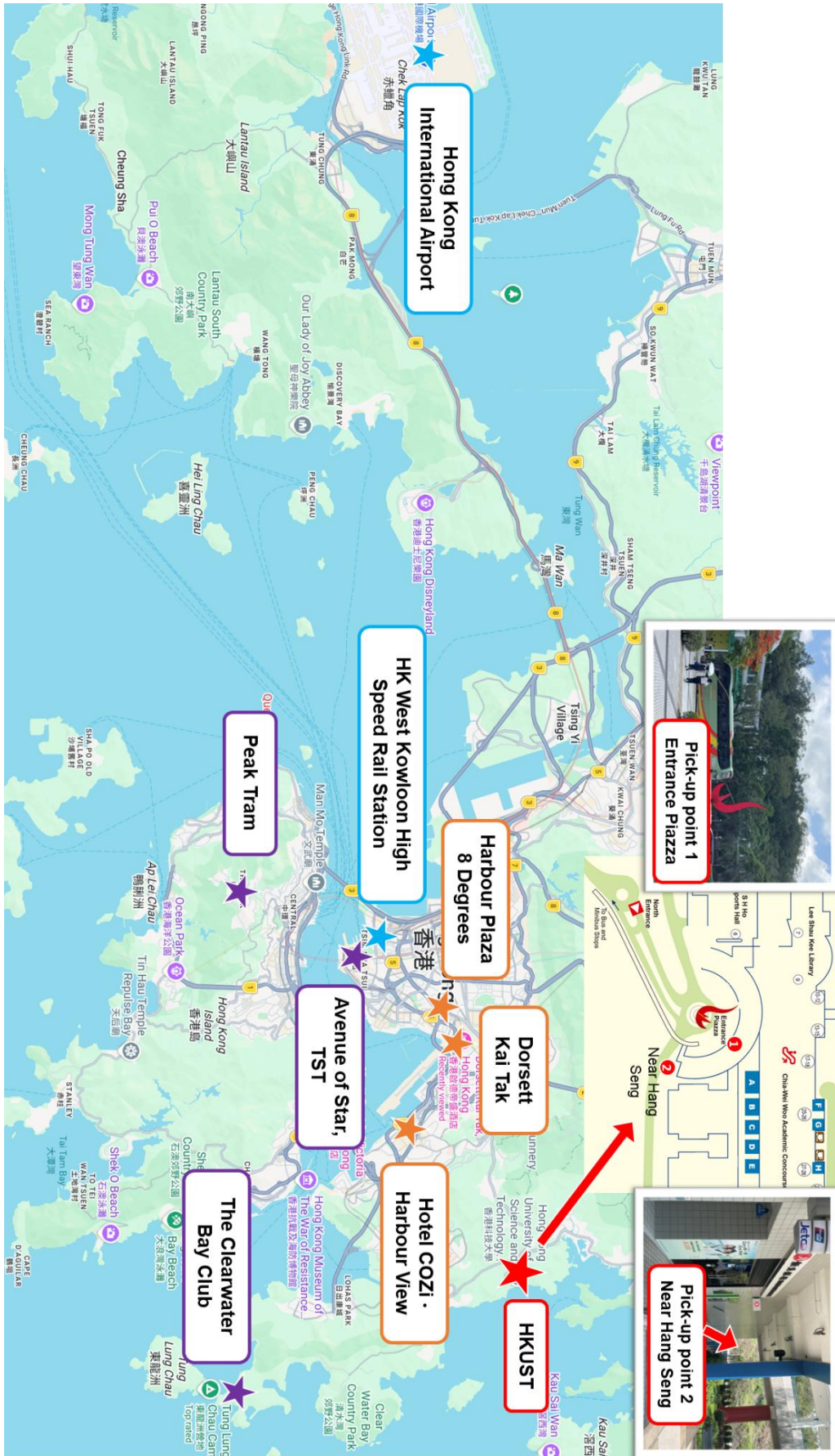
* Departing from Diamond Hill Station at 07:55 - 08:50 to North Bus Station (HKUST) Monday to Friday (except Public Holidays) 星期一至星期五 (公眾假期除外) * 於07:55至08:50由鑽石山總站發往北門巴士站 (香港科技大學)
Departing from Po Lam (Public Transport Interchange) at midnight 12:00 to 05:00 to North Bus Station (HKUST) 午夜12:00至05:00由寶琳 (公共交通交匯處) 前往北門巴士站 (香港科技大學)

Shuttle Bus

During the conference, shuttle bus services will be provided for participants travelling between HKUST, designated hotels, famous landmarks and selected transportation points. Participants are kindly reminded to arrive at the pick-up point a few minutes before departure.

Date	Time	From	To
June 11	8:15 AM	Dorsett Kai Tak	HKUST Entrance Piazza
	8:15 AM	Harbour Plaza 8 Degrees	HKUST Entrance Piazza
	8:15 AM	Hotel COZi · Harbour View	HKUST Entrance Piazza
	18:30 PM	HKUST near Hang Seng	Dorsett Kai Tak
	18:30 PM	HKUST near Hang Seng	Harbour Plaza 8 Degrees
	18:30 PM	HKUST near Hang Seng	Hotel COZi · Harbour View
	18:30 PM	HKUST near Hang Seng	Tsim Sha Tsui Avenue of Stars
	18:30 PM	HKUST near Hang Seng	Central The Peak Tram
June 12	8:15 AM	Dorsett Kai Tak	HKUST Entrance Piazza
	8:15 AM	Harbour Plaza 8 Degrees	HKUST Entrance Piazza
	8:15 AM	Hotel COZi · Harbour View	HKUST Entrance Piazza
	16:30 PM	HKUST Entrance Piazza	Dorsett Kai Tak
	16:30 PM	HKUST Entrance Piazza	Harbour Plaza 8 Degrees
	16:30 PM	HKUST Entrance Piazza	Hotel COZi · Harbour View
	16:30 PM	HKUST Entrance Piazza	The Clearwater Bay Club
	21:00 PM	The Clearwater Bay Club	HKUST Entrance Piazza
	21:00 PM	The Clearwater Bay Club	Dorsett Kai Tak
	21:00 PM	The Clearwater Bay Club	Harbour Plaza 8 Degrees
	21:00 PM	The Clearwater Bay Club	Hotel COZi · Harbour View
June 13	8:15 AM	Dorsett Kai Tak	HKUST Entrance Piazza
	8:15 AM	Harbour Plaza 8 Degrees	HKUST Entrance Piazza
	8:15 AM	Hotel COZi · Harbour View	HKUST Entrance Piazza
	14:30 PM	HKUST Entrance Piazza	Hong Kong International Airport
	14:30 PM	HKUST Entrance Piazza	Hong Kong West Kowloon High Speed Rail Station

Note: The pick-up point for the HKUST is at the **Entrance Piazza or near Hang Seng** (as shown in the picture below). The pick-up point for hotels is at the hotel entrance. Please ask hotel staff for details.



Kindly Reminding

■ **Weather**

The weather in Hong Kong in June is generally hot and humid, with occasional showers or thunderstorms. Participants are advised to wear light and breathable clothing and bring an umbrella or raincoat. Indoor venues, hotels, shopping malls and public transport are usually air-conditioned, so a light jacket may also be useful. Please check the latest weather forecast before departure.

■ **Payment**

It is recommended to use cash, credit cards, Octopus Card, Alipay, WeChat Pay in Hong Kong. Please note that some small shops, local restaurants or markets may prefer cash or Octopus Card.

■ **Currency Exchange**

Currency exchange services are available at the airport, banks, and licensed money changers. ATMs are widely available in Hong Kong. Participants are advised to prepare some cash in HKD for transportation, small purchases and meals.

■ **Electricity**

The standard electrical voltage in Hong Kong is 220V and 50Hz. The power plugs commonly used are the British-style three-pin plugs. Participants from countries or regions using other plug types are advised to bring a suitable power adapter.

■ **Insurance**

The registration fee does not include insurance for the participants regarding accidents, sickness or loss of personal property. It is advisable that participants make their own arrangements with respect to health and travel insurance before leaving their countries.

■ **Internet**

Free Wi-Fi is generally available in hotels, conference venues, shopping malls, MTR stations and many public areas in Hong Kong. Participants may also consider purchasing a local SIM card or using international roaming services for mobile internet access.

■ **Lost and Found**

Any articles found should be taken to the Registration Desk. Lost properties can be claimed at the same place.

■ **Medical Service**

In case of illness or injury, please contact the conference volunteers or the Registration Desk for assistance. For emergencies in Hong Kong, please call 999 for police, fire or ambulance services.

■ **Tax**

There is no value-added tax or general sales tax in Hong Kong. Most prices listed in shops, restaurants and hotels are tax-inclusive unless otherwise stated. However, some hotels or restaurants may add a service charge, which will usually be indicated on the bill or menu.

■ Tipping

Tipping is not generally expected in Hong Kong for most services, such as taxis, restaurants and hotels. However, a small tip may be given to hotel porters, tour guides or service staff for exceptional service. Many hotels and restaurants add a 10% service charge, so additional tipping is optional unless the service charge is not included.

Programme Overview

June 11th		
9:00 - 9:20 am	Opening Ceremony and Welcome Speech	
	Chair: ZHU Yingxin	
	Location: LT-A	
9:20 - 9:30 am	Group photo Location: LT-A	
9:30 - 9:55 am	Keynote Speech Chair: ZHU Yingxin Location: LT-A	Large-language-model (LLM) for Building Energy and Environment Design and Operations Prof. CHEN Qingyan , <i>The Hong Kong Polytechnic University</i>
9:55 - 10:20 am		Systematic assessment of embodied carbon of buildings Prof. PAN Wei , <i>The University of Hong Kong</i>
10:20 - 10:45 am		Dilution is more than ventilation: Why spaciousness and the full dilution cascade matter for infection control? Prof. LI Yuguo , <i>The University of Hong Kong</i>
10:45 - 11:00 am	Break Location: LT-A	
11:00 - 11:25 am	Keynote Speech Chair: ZHU Yingxin Location: LT-A	The Integrated City: Bridging the Gap Between Buildings, Mobility, and the Power Grid Mr. Chun Yin MAK , Global Senior Vice President, <i>Univers</i>
11:25 - 11:50 am		Intelligent Computing in the Age of Artificial Intelligence Prof. Pieter de WILDE , <i>Lund University</i>

11:50 - 12:15 pm	Integrating AI with Domain Knowledge for Building Energy Systems: Practices and Explorations Prof. YAN Da, Tsinghua University								
12:15 - 1:30 pm	Lunch and Break Location: HKUST Campus								
1:30 - 3:30 pm	S01: Climate neutral building design and assessment , Building integrated renewable energy	S03: Passive and active design strategies, Generative design, data-driven modelling, and LLM	S05: Indoor air quality, thermal comfort, productivity and health	S07: Climate neutral building design and assessment , Building integrated renewable energy	S09: Indoor air quality, thermal comfort, productivity and health	S11: Urban micro-climate and heat island, Climate change mitigations and adaptations	S13: Urban scale building energy modelling; District cooling and heating	Workshop 1: Systematic reduction of lifecycle carbon emissions of the building stock of high-density cities	Workshop 3: Generative Agent-Driven Collaborative Architectural Design for Carbon-Neutral Future
	Location: RM 2302	Location: RM 2303	Location: RM 2304	Location: RM 2306	Location: RM 2404	Location: RM 2465	Location: RM 2502	Location: RM 2464	Location: RM 2405
	Chair: TAN Gang	Chair: LIN Guanjing	Chair: ZHANG Tengfei	Chair: ZHENG Xing	Chair: LIU Wei	Chair: LIU Jianlin	Chair: Adrian CHONG	Chair: YU Cong	Chair: HAN Yunsong
	Chair: DENG Jiaojiao	Chair: CHEN Jianli	Chair: SHI Shanshan	Chair: LUO Zhaoyang	Chair: LIU Xue	Chair: HAN Mengtao	Chair: ZHAN Sicheng	Chair: YANG Jingjing	Chair: ZHUANG Dian
	Secretary: LIU Jiatao	Secretary: JIN Zhineng	Secretary: LI Yanjie	Secretary: LIU Yunqin	Secretary: NI Shuangshuang	Secretary: HUANG Qiqi	Secretary: LU Qinhui	Secretary: JIANG Mengqi	Secretary: CHENG Ip

3:30 - 4:00 pm	Poster								
Location: Poster									
4:00 - 6:00 pm	S02: Climate neutral building design and assessment , Building integrated renewable energy	S04: Passive and active design strategies, Generative design, data-driven modelling, and LLM	S06: Indoor air quality, thermal comfort, productivity and health	S08: Climate neutral building design and assessment ; Building-grid interaction	S10: Urban micro-climate and heat island, Climate change mitigations and adaptations	S12: Urban micro-climate and heat island, Climate change mitigations and adaptations	S14: Climate neutral building design and assessment; Building-grid interaction	Workshop 2: AI-Driven Urban Wind and Microclimate Simulations for Sustainable City Development	Workshop 6: Towards climate-resilient futures: Thermal environments and human adaptation in a warming world
	Location: RM 2302	Location: RM 2303	Location: RM 2304	Location: RM 2404	Location: RM 2405	Location: RM 2465	Location: RM 2502	Location: RM 2464	Location: RM 2306
	Chair: ZHANG Xingxing	Chair: ZHANG Fan	Chair: ZHANG Nan	Chair: GANG Wenjie	Chair: WANG Wei	Chair: ZHOU Jin	Chair: HU Maomao	Chair: WANG Liangzhu	Chair: SHEN Pengyuan
	Chair: ZHOU Xin	Chair: SHI Feng	Chair: YANG Xiaochen	Chair: WU Zhibin	Chair: ZENG Zhaoyun	Chair: CHEN Yongbao	Chair: GENG Yang	Chair: TIAN Geng	Chair: LIU Xue
	Secretary: CHENG Ip	Secretary: HU Yike	Secretary: JIANG Mengqi	Secretary: JIANG Huayu	Secretary: HUANG Qiqi	Secretary: WANG Xinyu	Secretary: LU Kunhan	Secretary: LU Qinhui	Secretary: LIN Jinxi

June 12th		
9:00 - 9:25 am	Keynote Speech Chair: ZHENG Siqi Location: LT-D	The Optimal Pathway of Building Decarbonization and Investment Decision-Making Under Uncertainties: From Building Level to Portfolio Level Prof. ZHENG Siqi, Massachusetts Institute of Technology
9:25 - 9:50 am		Societal Challenges of the Anthropocene – An Evolutionary, System-of-Systems, Convergence Paradigm Prof. John LITTLE, Virginia Tech
9:50 - 10:15 am		A Life Cycle Assessment Framework for Carbon Emissions and Mitigation Potential of Urban Rail Transit Prof. LI Xiaofeng, Tsinghua University
10:15 - 10:30 am	Break Location: LT-D	
10:30 - 10:55 am	Keynote Speech Chair: ZHENG Siqi Location: LT-D	A Paradigm Shift in Evidence Based Policy Making: Building Performance Simulation in the Context of Energy-Health-Climate Nexus Prof. Dejan MUMOVIC, University College London
10:55 - 11:20 am		The Important Role and Application Modes of Thermal Energy Storage Technology in the Era of New Energy Prof. NIU Jianlei, The Hong Kong Polytechnic University
11:20 - 11:45 am		TBD Prof. YAN Jinyue, The Hong Kong Polytechnic University
11:45 - 1:30 pm	Lunch and Break Location: HKUST Campus	

1:30 - 3:30 pm	S15: Climate neutral building design and assessment , Building integrated renewable energy	S16: Passive and active design strategies, Generative design, data-driven modelling, and LLM	S17: Indoor air quality, thermal comfort, productivity and health	S18: Climate neutral building design and assessment ; Building-grid interaction	S19: Passive and active design strategies, Generative design, data-driven modelling, and LLM	S20: Urban micro-climate and heat island, Climate change mitigations and adaptations	S21: Smart grid, microgrid, and optimization of energy networks; Building-grid interaction	Workshop 4: Energy interaction between buildings and electric vehicles towards grid decarbonization	Workshop 5: Multi-dimensional modelling, flexibility and decision support for climate-neutral districts.
	Location: RM 2302	Location: RM 2303	Location: RM 2304	Location: RM 2404	Location: RM 2464	Location: RM 2465	Location: RM 2502	Location: RM 2405	Location: RM 2306
	Chair: ZHAO Dongliang	Chair: SUN Yongjun	Chair: LI Yanxue	Chair: Floriberta BINARTI	Chair: WU Yan	Chair: SUN Xiaoqin	Chair: HUANG Gongsheng	Chair: WANG Zhe	Chair: Rosaria VOLPE
	Chair: ZHANG Xiang	Chair: XIE Yongxin	Chair: CAO Xiaodong	Chair: TANG Hao	Chair: QIAN Mingyang	Chair: AN Jingjing	Chair: LI Guannan	Chair: LIU Xiaochen	Chair: ZHANG Xingxing
	Secretary: LIN Jinxi	Secretary: LI Yanjie	Secretary: NI Shuangshuang	Secretary: HU Yike	Secretary: JIANG Huayu	Secretary: ZHANG Shihong	Secretary: HU Ziqi	Secretary: ZHAO Lige	Secretary: LIU Jiatao
3:30 - 4:10 pm	Poster voting Location: Poster								
4:30 - 5:30 pm	From HKUST campus to Clear Water Bay Country & Golf Club Location: HKUST Campus (Departure time-4:30 pm)								
5:30 - 9:00 pm	Banquet Location: The Clearwater Bay Golf & Country Club Happy Hour, Banquet, and Best Paper Awarding Ceremony.								

June 13th		
9:00 - 9:25 am	Keynote Speech Chair: LIN Borong Location: LT-A	Potentials and Technologies for Harnessing Energy Flexibility in Buildings and Data Centers toward Carbon-Neutral Power Grids Prof. WANG Shengwei, The Hong Kong Polytechnic University
9:25 - 9:50 am		Digital Twins and AI-Driven Energy Management for Next-Generation Grid-Interactive Buildings Prof. Alfonso CAPOZZOLI, Politecnico di Torino
9:50 - 10:15 am		Beyond the Roof: The Evolution of the Solar Building Skin - Design and Optimization Prof. ZHAI Zhiqiang, University of Colorado at Boulder
10:15 - 10:30 am	Break Location: LT-A	
10:30 - 10:55 am	Keynote Speech Chair: LIN Borong Location: LT-A	Adaptive Thermal Comfort in HVAC Buildings: Managing the Comfort vs Energy Nexus Prof. Richard de DEAR, The University of Sydney
10:55 - 11:20 am		Understanding the grade of sensible and latent load for energy-efficient built environment Prof. LI Xianting, Tsinghua University
11:20 - 11:50 am	Awarding ceremony and closure Location: LT-A	
	Awarding ceremony: 11:20 am -11:35 am	
	Closure 11:35 am -11:50 am	
11:50 - 2:00 pm	Lunch and Free Social Location: HKUST Campus	

Keynote Speaker (In order of time)



Title: Large-language-model (LLM) for Building Energy and Environment Design and Operations

Jun. 11, 9:30 am – 9:55 am
Location: LT-A

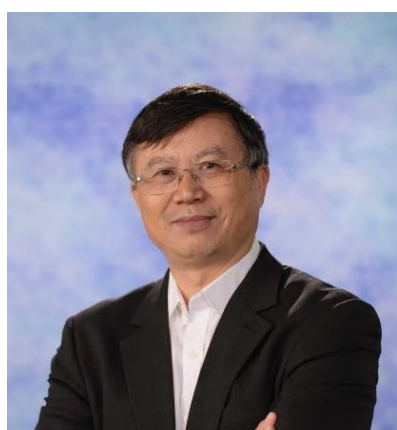
Prof. CHEN Qingyan
The Hong Kong Polytechnic University



Title: Systematic assessment of embodied carbon of buildings

Jun. 11, 9:55 am - 10:20 am
Location: LT-A

Prof. PAN Wei
The University of Hong Kong



Title: Dilution is more than ventilation: Why spaciousness and the full dilution cascade matter for infection control?

Jun. 11, 10:20 am - 10:45 am
Location: LT-A

Prof. LI Yuguo
The University of Hong Kong



Title: The Integrated City: Bridging the Gap Between Buildings, Mobility, and the Power Grid

Jun. 11, 11:00 am - 11:25 am

Location: LT-A

Mr. Chun Yin MAK
Global Senior Vice
President, Univers



Title: Intelligent Computing in the Age of Artificial Intelligence

Jun. 11, 11:25 am - 11:50 am

Location: LT-A

Prof. Pieter de WILDE
Lund University



Title: Integrating AI with Domain Knowledge for Building Energy Systems: Practices and Explorations

Jun. 11, 11:50 am - 12:15 pm

Location: LT-A

Prof. YAN Da
Tsinghua University



Title: The Optimal Pathway of Building Decarbonization and Investment Decision-Making Under Uncertainties: From Building Level to Portfolio Level

Jun. 12, 9:00 am - 9:25 am

Location: LT-D

Prof. ZHENG Siqi
Massachusetts Institute of Technology



Title: Societal Challenges of the Anthropocene – An Evolutionary, System-of-Systems, Convergence Paradigm

Jun. 12, 9:25 am - 9:50 am

Location: LT-D

Prof. John LITTLE
Virginia Tech



Title: A Life Cycle Assessment Framework for Carbon Emissions and Mitigation Potential of Urban Rail Transit

Jun. 12, 9:50 am - 10:15 am

Location: LT-D

Prof. LI Xiaofeng
Tsinghua University



Title: A Paradigm Shift in Evidence Based Policy Making: Building Performance Simulation in the Context of Energy-Health-Climate Nexus

Jun. 12, 10:30 am - 10:55 am

Location: LT-D

Prof. Dejan MUMOVIC
University College London



Title: The Important Role and Application Modes of Thermal Energy Storage Technology in the Era of New Energy

Jun. 12, 10:55 am - 11:20 am

Location: LT-D

Prof. NIU Jianlei
The Hong Kong Polytechnic University



Title: TBD

Jun. 12, 11:20 am - 11:45 am

Location: LT-D

Prof. YAN Jinyue
The Hong Kong Polytechnic University



Title: Potentials and Technologies for Harnessing Energy Flexibility in Buildings and Data Centers toward Carbon-Neutral Power Grids

Jun. 13, 9:00 am - 9:25 am

Location: LT-A

Prof. WANG Shengwei
The Hong Kong Polytechnic University



Title: Digital Twins and AI-Driven Energy Management for Next-Generation Grid-Interactive Buildings

Jun. 13, 9:25 am - 9:50 am

Location: LT-A

Prof. Alfonso CAPOZZOLI
Politecnico di Torino



Title: Beyond the Roof: The Evolution of the Solar Building Skin - Design and Optimization

Jun. 13, 9:50 am - 10:15 am

Location: LT-A

Prof. ZHAI Zhiqiang
University of Colorado at Boulder

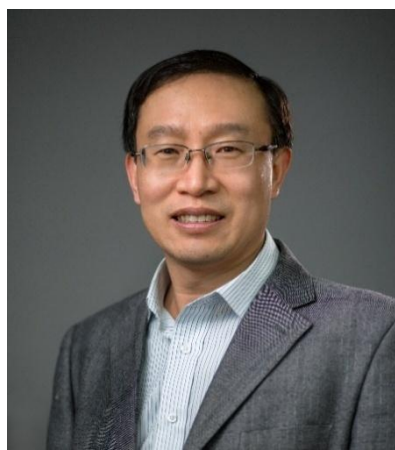


Title: Adaptive Thermal Comfort in HVAC Buildings: Managing the Comfort vs Energy Nexus

Jun. 13, 10:30 am - 10:55 am

Location: LT-A

Prof. Richard de DEAR
The University of Sydney



Title: Understanding the grade of sensible and latent load for energy-efficient built environment

Jun. 13, 10:55 am - 11:20 am

Location: LT-A

Prof. LI Xianting
Tsinghua University

Session Codes

Session	Theme	Room
June 11th Thursday 1:30 pm - 3:30 pm		
S01	Climate neutral building design and assessment, Building integrated renewable energy	Room 2302
S03	Passive and active design strategies, Generative design, data-driven modelling, and LLM	Room 2303
S05	Indoor air quality, thermal comfort, productivity and health	Room 2304
S07	Climate neutral building design and assessment, Building integrated renewable energy	Room 2306
S09	Indoor air quality, thermal comfort, productivity and health	Room 2404
S11	Urban micro-climate and heat island, Climate change mitigations and adaptations	Room 2465
S13	Urban scale building energy modelling; District cooling and heating	Room 2502
WS1	Systematic reduction of lifecycle carbon emissions of the building stock of high-density cities	Room 2464
WS3	Generative Agent-Driven Collaborative Architectural Design for Carbon-Neutral Future	Room 2405
June 11th Thursday 3:30 pm - 4:00 pm		
P1		Poster
June 11th Thursday 4:00 pm - 6:00 pm		
S02	Climate neutral building design and assessment, Building integrated renewable energy	Room 2302
S04	Passive and active design strategies, Generative design, data-driven modelling, and LLM	Room 2303
S06	Indoor air quality, thermal comfort, productivity and health	Room 2304

S08	Climate neutral building design and assessment; Building-grid interaction	Room 2404
S10	Urban micro-climate and heat island, Climate change mitigations and adaptations	Room 2405
S12	Urban micro-climate and heat island, Climate change mitigations and adaptations	Room 2465
S14	Climate neutral building design and assessment; Building-grid interaction	Room 2502
WS2	AI-Driven Urban Wind and Microclimate Simulations for Sustainable City Development	Room 2464
WS6	Towards climate-resilient futures: Thermal environments and human adaptation in a warming world	Room 2306
June 12th Friday 1:30 pm - 3:30 pm		
S15	Climate neutral building design and assessment, Building integrated renewable energy	Room 2302
S16	Passive and active design strategies, Generative design, data-driven modelling, and LLM	Room 2303
S17	Indoor air quality, thermal comfort, productivity and health	Room 2304
S18	Climate neutral building design and assessment; Building-grid interaction	Room 2404
S19	Passive and active design strategies, Generative design, data-driven modelling, and LLM	Room 2464
S20	Urban micro-climate and heat island, Climate change mitigations and adaptations	Room 2465
S21	Smart grid, microgrid, and optimization of energy networks; Building-grid interaction	Room 2502
WS4	Energy interaction between buildings and electric vehicles towards grid decarbonization	Room 2405
WS5	Multi-dimensional modelling, flexibility and decision support for climate-neutral districts	Room 2306

Detailed Parallel Session

June 11th

- S01

<p>Jun 11th 1:30pm - 3:30pm</p>	<p>S01: Climate neutral building design and assessment, Building integrated renewable energy Location: RM2302 Chair: TAN Gang, DENG Jiaojiao Secretary: LIU Jiatao</p>
	<p>From Static Compliance to Dynamic Decision-Making: An Interactive Multi-Agent System for Early-Stage Sustainable Building Design <u>Yuxuan Li</u>, Xiaoyue Yan, Yihui Li, Borong Lin, Weimin Zhuang</p>
	<p>Traditional bioclimatic architecture combined with contemporary passive strategies to enhance sustainability of abandoned rural houses in Vojvodina Jovana Stanisic</p>
	<p>Unveiling Urban and Architectural drivers of BIPV Potential for Early-Stage Design in High-Density Cities <u>Zeming ZHAO</u>, Hangxin LI, Shengwei WANG</p>
	<p>A simplified heat transfer performance calculation method for double-layer in series pipe-embedded wall Chongchong Hou, Xianting Li</p>
	<p>Thermal resistance-capacitance (RC) network modeling and operation optimization for integrated photovoltaic-photothermal-energy storage walls in summer <u>Ziqi Zhao</u>, Zhengxia Zhao, Man Fan, Xiangfei Kong, Tailu Li, Han Li</p>
	<p>Evaluation of Photovoltaic Potential in University Campus Building Complexes Based on Airborne LiDAR Data Liqin Zheng, Cheng Fan</p>
	<p>Can semi-transparent photovoltaic (STPV) windows be used in Chinese office building? Shuo Zhang, Feng Wang, Tengfei ZHANG</p>
	<p>Optimized Design Method for Building-Integrated Photovoltaics in Office Blocks Adapted to Future Climate Change_ A Case Study of Wuhan City Gaomei Li, Hongxin Guo, Hao Zhou, Hua Zhong, Borong Lin</p>
	<p>Comparison of energy flows via photovoltaic façades and regular façades Kailong Pang, Feng Wang, Guanqiong Wei, Tengfei ZHANG</p>
	<p>Archetype-Based Calibration for Urban-Scale Building Energy Modeling: A Case Study of Nanjing <u>Linxi Luo</u>, Yongjun Sun, Shengxin Ma</p>

- S03

Jun. 11th
1:30pm - 3:30pm

S03: Passive and active design strategies, Generative design, data-driven modelling, and LLM
Location: RM2302
Chair:
LIN Guanjing
CHEN Jianli
Secretary:
JIN Zhineng

A Multi-Agent LLM Framework for Closed-Loop Automatic Optimization of Building Energy Models via EnergyPlus

Zhexuan Yu, Yihui Li, Xiaoyue Yan, Jun Xiao, Hao Zhou, Borong Lin

Comparative experimental study on building energy, thermal and daylighting performance of thermotropic glass and horizontal overhang in subtropical climate

Xuan Yang, Yilin You, Hanzhen Dai, Shaosen Wang, Feng Shi, Yixin Zhang, Sha Chen, Xiaoqiang Hong

Synergistic optimization of the spectral properties of greenhouse cover film and indoor thermal environment: A case study in Chongqing, China

Yue He, Xiaomeng Chen, Chi Feng

Climate Adaptability of Phase Change Material-Enhanced Radiative Cooling Roofs through Coupled Thermal-Dew Modelling

Ziao Zheng, Teng Xiong, Xiaoqiang Zhai, Mattheos Santamouris, Riccardo Paolini

Photothermal Performance Assessment and Optimization of Thermochromic Windows for Low-Carbon Buildings

Yutong Tan, Rongpeng Zhang, Jinqing Peng

LLM-Based HVAC Anomaly Detection via Domain Knowledge Integration

Zeyu Zheng, Bingyi Wang, Jian Zhang, Yang Zhao

A large language model-assisted optimization model automatic generation method for buildings demandresponse control

Jiayu Xu, Chenxin Feng, Jie Lu, Yang Zhao

A Transformer-Based Physically Consistent Neural Network for Indoor Temperature Forecasting in Office Buildings

Jiequn Lu, Wangtu Xu, XiaoQiang Hong

Memory-Augmented LLM Agents for Adaptive HVAC Control in Building Energy Management

Weilin Xin, Wei Liang, Ruiying Jin, Adrian Chong

Machine Learning-Based Modeling and Dynamic Analysis of End-Use Energy Consumption in Data-Constrained Airport Terminal Buildings

Junlang Zhu, Yang Geng, Hao Tang, Borong Lin

- S05

Jun. 11th
1:30pm - 3:30pm

S05: Indoor air quality, thermal comfort, productivity and health

Location: Room 2304

Chair:

ZHANG Tengfei

SHI Shanshan

Secretary:

LI Yanjie

Upper temperature limits in subtropical offices with elevated air speed: Integrated insights from thermal comfort, physiology, and cognitive performance

Zhibin WU

Performance Investigation of a Multi-Stage Vacuum Membrane Dehumidification System for Precision Microclimate Control of Cultural Relics

Ruiting Wu, Yilin Liu, Ziyao Li, Liwen Jin

Respiratory droplet exposure during close contact in pediatric wards

Xian Lin, Han Yu, Fangli Zhao, Shenglan Xiao

Effects of clothing radiative properties on human thermal comfort in outdoor high-temperature environment

Shengnan Ouyang, Shan Gao, Chi Feng

Effects of restorative interventions in confined environment on stress, physiological and cognitive performance

Jingying Dong, Zhibin Wu

Calibration of the Sweating Function in Thermoregulation Model Based on Chamber Experiment

Xianzhun ZHONG, Yongxin Xie, Han Liu, Peiyang Du, Jianlei Niu

Thermal comfort differences among patients with different orthopedic diseases

Meng Zhen, Jingjing Liu

A Transfer-Learning Framework for Thermal Comfort Prediction with Limited Local Data for Future Climate Conditions

Haitao Yu, Kailun Feng, Weizhuo Lu

From Analogue Codes to Generative Forms: A Scripted Design-to-Code Workflow for Densely Built Environments

Gautam Adhikary

A data-driven approach to healthcare hygiene: dual-view mmWave radar sensing for privacy-preserving handwashing recognition

Nan Zhang, Jianchao Zhang, Fangyu Li

- S07

Jun. 11th
1:30pm - 3:30pm

S07: Climate neutral building design and assessment, Building integrated renewable energy

Location: Room 2306

Chair:

ZHENG Xing

LUO Zhaoyang

Secretary:

LIU Yunqin

From Static to Smart: Unlocking Building Performance with Dynamic Electrochromic Window Control

Shuangdui Wu, Yucan Peng, Borong Lin

Towards Occupant-Centric Non-Contact Thermal Comfort Assessment: Based on Embodied Sensing and Multimodal Fusion

Yuren Yang, Mufeng Yuan, Yang Geng, Borong Lin

Risk-Governed Surrogate Modeling for Early-Stage School Design

Tian Xia, Azlan Shah Ali, Norhayati Mahyuddin, XiaoFei Han

Development and validation of a data quality assessment framework for machine learning modelling in building energy systems

Yongbao Chen, Fu Xiao, Zhe Chen

A prototype-based LLM-assisted framework for residential building life-cycle carbon assessment

Shuxin Jiang, Yuhao Qiao, Sujie Shen, Liu Yang

Inverse Design of Indoor thermal Environment using A New Deep Learning Method

Xingwang Zhao, Jianpeng Li

An LLM-Orchestrated Automated Design Method for Rainwater Harvesting Systems of Non-linear Building Curtain Walls

Xiangyi He, Yi Su, Huibin Wu, Yu Zhao, Yinan Zhang, Wenjie Peng, Quan Jing

Conditional Diffusion-Driven Interval Prediction and Uncertainty Quantification for Building Energy Load

Jinghan Lai, Cheng Fan

From Passive Container to Responsive Organism: Human-Centric Adaptive Building Optimization Environment-Agent-AI Framework

Yonghong Xu, Shi Yin, Adnan Ibrahim, Yiqiang Xiao, Xinyi Zou, Yanchu Liang

Multi-Objective Optimization of Ventilated Photovoltaic Vacuum Glazing for Office Buildings in Shanghai Using XGBoost and NSGA-II

Qianru Bi, Qian Jin

- S09

Jun. 11th
1:30pm - 3:30pm

S09: Indoor air quality, thermal comfort, productivity and health

Location: Room 2404

Chair:

LIU Wei

LIU Xue

Secretary:

NI Shuangshuang

Simulation of Misclassifications in Traditional Air Pollution Exposure Assessment: Insights from a High-Temporal Resolution Framework
Shuwen Ding, Shanshan Shi

Impacts of heavy-tailed contact heterogeneity on fomite transmission dynamics in indoor surface touch networks
Jinhua Zhou, Zihan Hao, Nan Zhang, Shenglan Xiao

Health Risks of Indoor VOCs in Chinese Museums: Exposure Assessment, Prioritization, and Carcinogenic Mechanisms
Yi Fan, Shaodan Huang

A BRIGHT Framework for Bacterial Health-Risk Assessment and Control in Building Environments
Huan Liu, Qisheng Li, Chi Feng, Meng Liu

Contact Network Based Dynamic Control of Airborne Microbial Contamination and Energy Efficiency in High-Traffic Hospital Areas
Qi Zhen, Anxiao Zhang, Yiming Du, Ling Zhu

Configuration-as-Fields Representation for Generalizable Indoor Airflow Surrogates
Yiting Zhang, Wei Liang, Yue Lei, Fangyu Liu, Roman Buckle, Kianwee Chen, Ipppei Izuhara, Eikichi Ono, Shohei Miyata, Adrian Chong

Enhancing Real-Time Indoor Air Quality Prediction Using GA-Optimized Markov Transition Matrices
Yifan An, Yonggang Lei, Wuxuan Pan

Coupled Solar Chimney-Room Ventilation: A CFD Parametric Study on Vent Geometry
Jun Gong, Lup Wai Chew, Poh Seng Lee

Automated Identification of Building Envelope Thermal Defects Using Multimodal Imaging and Deep Learning
Linghan Yao, Wei Wang

Impact of air-conditioning heat on urban microclimate and pollutant dispersion in typical urban street blocks in Hong Kong under various background wind speeds: an LES study
Guangda Li, Weiheng Liang, Xing Zheng

- S11

Jun. 11th
1:30pm - 3:30pm

S11: Urban micro-climate and heat island, Climate change mitigations and adaptations

Location: Room 2465

Chair:

LIU Jianlin

HAN Mengtao

Secretary:

HUANG Qiqi

Sensitivity of Residential Retrofit Measures to Urban Microclimate in UK Social Housing Neighbourhoods

Xiaoxiong Xie, Zhiwen Luo

Resolving the Density Paradox: How Compact Morphologies Simultaneously Reduce Carbon Emissions and Alleviate Heat Island Effects in Industrial Dormitories

danya Feng

Modeling Thermal Stress for Tropical Beaches: Integrating Physiological Warning and Luminous Environmental Factors

Jiahao Yang, Jun Lu, Zhaosong Fang

Climate-Responsive Transit-Oriented Development: A Typology-Based Parametric Analysis of Microclimatic Performance

Yuhong Qian

Study on Pollutant Dispersion Around an Isolated Building Based on a Wind-Pollutant Coupled LBM-LES

Yifan Hu, Mengtao Han

Rooftop Mitigation Strategies on Urban Thermal Environment: A Study in Singapore with WRF Local Climate Zones

Puyang Liu, Rui Xin, Xian-xiang Li, Lup Wai Chew

Spatial Inequality of Urban Heat Island Growth during Urbanization: Evidence from Nanjing (2000-2020)

Yifan Guo, Wei Wang

Machine Learning-Based Analysis of Urban Heat Island and Solar Irradiance: A Multiscale Study in Amsterdam

Guang Hu, Tingting Zhu, Dragan Milosevic

Urban-rural differences in residential climate adaptation: Evidence from a Chinese megacity

Tianyi Li, Jingjing An, Shan Hu

Revealing Coupled Mechanisms between Urban Trees and Building Daylighting with Façade Radiation Performance

Lirui Deng

- S13

Jun. 11th
1:30pm - 3:30pm

S13: Urban scale building energy modelling; District cooling and heating

Location: Room 2502

Chair:

Adrian CHONG

ZHAN Sicheng

Secretary:

LU Qinhui

A Quantitative Framework for Evaluating Building Energy Resilience during Power Outages

Qinhui Lu, Shihong Zhang, Qiqi Huang, Xinyu Wang, Zhe Wang

High-Resolution Urban Building Energy Modelling for Australian Cities: A Bottom-Up Framework and Application to Melbourne

Ziyang Sun, Ruijie Liu, Ben Liu, Zijun Ye, Victor Chang, Jenny ZHOU

A Schema-Driven Approach for Automated and Scalable Urban Building Energy Modeling

Xinyu WANG, Shihong ZHANG, Qiqi HUANG, Qinhui LU, Zhe WANG

Performance evaluation of an indirect evaporative absorption thermal energy storage for space cooling

Yuxin Ma, Mengying Li, Shauhrat S. Chopra, Wei Wu

A systematic review of urban building energy modeling for quantifying energy flexibility at scale

Zhang Deng

Buildings.city 2.0: A Scalable, Web-Based Framework for Urban Building Energy Modeling

Pengdi LYu, Yu Qian Ang

From Sensors to Spatial Models: The Environmental Latent Space for Urban to Building Performance Simulations

Yu Qian Ang, Xueyu Chen, Ruohan Xu

Thermal Efficiency Evaluation of a Regional Heating System Coupled with Deep Borehole Heat Exchanger and Heat Pump in Southern Region

Anni Xu, Yixing Chen

From Behavioral Profiles to Urban Energy Demand: A Socio-Demographic Mapping Framework for Residential UBEM in Xiamen

Lin Yang, Yilin You, Xiang Liu, Manli You, Meng Wang, Rui Jing, Feng Shi

Quantification and correction of additional heat loss from buried pipe in permafrost based on a thermo-hydraulic coupled model

Baichao Wang, Yanfeng Liu, Cong Song, Dengjia Wang, Weijie Tian

- S02

Jun. 11th
4:00pm - 6:00pm

S02: Climate neutral building design and assessment, Building integrated renewable energy

Location: Room 2302

Chair:

ZHANG Xingxing

ZHOU Xin

Secretary:

CHENG Ip

Review of Emission Characteristics and Strengths from Human and Printer-Generated Particles

Weihui Liang, Lulu Ren

A Novel Estimation Procedure for Photovoltaic Power Generation

Ip Cheng, Zhe Wang

BIM-Based Life-Cycle Carbon Assessment Framework for Climate-Neutral Prefabricated Building at the Construction and Operation Stages

Wai Phyo Aung, Michael Anharlintama Tjongnotoputera, Zhang Hong

Overheating Risk in Cold-Region Residential Buildings under Evolving Building Regulations: Evidence from Field Measurements, Experiments and Simulation

Jiahui Yu, Bolun Zhao, Yitong Xu, Yuhan Zhao, Haibo Guo

Optimizing Tilt and Azimuth Angles of Residential PV Systems for Enhanced Generation-Load Matching Across China

Lan Wang

Experimental and numerical study of optimizing heat dissipation and efficiency of FIPV through a three-dimensional ventilation gap

Zexin Chen, Wei Wang

Isolated Sensitivity Analysis of Ground-Coupled Heat Transfer in an Underground Building

Sanjaya Sena, Rahul Goyal, S. K. Tyagi

Fault Detection and Diagnostics in Net Zero and Positive Energy Buildings for Energy Security Fault

Howard Cheung

A Study on Low-Carbon Retrofit Strategies for Existing Buildings Based on Dynamic Carbon Emission Factors

Jiachi Yan, Yongcong Guo, Guanjing Lin

Investigation and Analysis of Photovoltaic Power self-Consumption in a Net Zero Energy Building District

Jianlin Liu, Kai Du, Yang He, Rui LI, Mingyang Qian

- S04

Jun. 11th
4:00pm - 6:00pm

S04: Passive and active design strategies, Generative design, data-driven modelling, and LLM

Location: Room 2303

Chair:

ZHANG Fan

SHI Feng

Secretary:

HU Yike

Data-Driven Multi-Objective Optimization of Asymmetric Thermal Insulation Design for Residential Building Envelopes on the Loess Plateau
Jiale Zhu, Jiale Zhou, Wenlong Li, Xiaojun Zhou

Computer vision-driven parametric analysis of passive cooling in Turpan underground dwellings in arid hot-arid climate
Mengyao Li, Liu Yang, Yan Liu, Qimeng Cao

Evaluating Micro-climatic Characteristics and Adaptive Strategies for the Sustainable Preservation of Traditional Timber Heritage: The Case of Foguang Temple's East Hall
Yichen Wang, Xin Zhou

A Retrieval-Augmented Large Language Model Framework for Privacy Risk Assessment in the Operational Stage of BIM
Ziqing Lin, RAMACHANDRAN JAYALAKSHMY, KahMun Au, ABDALLA ABAKR Yousif, Nabil Elioini

Autonomous multi-agent orchestration for neighborhood-scale urban building energy modeling via OpenClaw
Ye Xia, Yu Qian Ang

An A2A Multi-Agent Framework for Building Simulation: A Case Study on Openstudio
Hanlong Wan, Fujian Jiang, Yanping Yuan

Generative Design Methods for Facades to Support Regional Contextual Continuity: A Case Study of the Kisakasaka Government Building, Zanzibar, Tanzania
Yunsong Han, Xiran Cui, Ziming Chen, Runsen Song, Yiran Zhou, Biaoqing Tao, Jingrong Ma

From Plan Typology to Climate Performance: Deriving a 'Space-Energy' Schema for Vernacular Dwellings in Northwest Yunnan
Kundi Shu, Shanchao Xin, Xinmei Deng, Yuhang Kong, Linxi Peng

Appropriate Summer Outdoor Calculation Parameters for Passive Radiative Cooling Envelopes
Guoqiang Peng, Shuoyan Wang, Liping Yang, Liu Yang, Yan LIU

Automated Framework for Predicting Optimal Inspection Time to Detect Delamination of Building Envelopes Using Infrared Thermography
Yike Hu, Jiatao Liu, Kunhan Lu, Zeyu Duan, Zhe Wang

- S06

Jun. 11th
4:00pm - 6:00pm

S06: Indoor air quality, thermal comfort, productivity and health

Location: Room 2304

Chair:

ZHANG Nan

YANG Xiaochen

Secretary:

JIANG Mengqi

Residential particulate pollution in urban villages: Characteristics and influential factors

Chen Chen, Xiaoyi Xiao, Siyi Xie, Xinyao Liao, Zhiye Li

Budgeting health impacts for building ventilation: Balancing the energy-health nexus

Siu-Fung Fung, Volkan Doda, Ivan Korolijia, Dejan Mumovic

Flow Characteristics and Drag Reduction Optimization of Irregular Fittings in Aircraft Cabin Air Pipelines via Multi-Scale Numerical Simulation

Yuanyuan Zhang, Tianyu Zhao, Hejiang Sun*

A Ductless Relay Ventilation for Long-Distance Air Delivery in Deep-Plan Spaces

Wenchao Lv, Jiahao Zhang, Wenyi Han, Haiguo Yin, Angui Li

A Machine Learning Framework for National-Scale Indoor Radon Prediction

Chunxiao Su, Yiwei Zhu, Wei Liu, Zhenchang Zhong, Yi Shi, Zhimin Xu, Jiahui Wang

Octree grid refinement of lattice Boltzmann method-based LES for Indoor Hot Convective Airflow

Mengtao Han, Hideki Kikumoto, Ryoza Ooka

Assessment of data faults of building energy system (BES) in large public buildings based on multi-scale evaluation

Boyan Zhang, Wei Gao, Tianyi Zhao

Multi-scale analysis of PCM wall performance on residential building energy consumption and overheating in Harbin

Yuhan Zhao, Jiahui Yu, Bolun Zhao, Haibo Guo

Learning Effects as a Structured Source of Variance in Repeated Thermal-Cognitive Experiments

Sadia Israt Anam, Fan Zhang

Dynamic gaseous pollutant source term estimation indoors with experiment-based impulse response and non-smooth competing priors

Haoming Liang, Fei Li, Lei Wang, Sheng Fang

- S08

<p>Jun. 11th 4:00pm - 6:00pm</p>	<p>S08: Climate neutral building design and assessment; Building-grid interaction Location: Room 2404 Chair: GANG Wenjie WU Zhibin Secretary: JIANG Huayu</p>
	<p>Energy Management Strategy for Virtual Building-Cluster Microgrids Based on Semantic Mask-Enhanced DRL and Full-Temporal Contextualized V2B Configuration Ben Jiang, Tianyi Zhao</p>
	<p>Bidirectional building-grid coupling framework for quantifying operational vulnerability of power grid under heatwave Fang WANG, Wei LIAO, Fu XIAO</p>
	<p>A Solar-driven Liquid Desiccant Air-conditioning System Coupled with Absorption Heat Pump and Indirect Evaporative Cooling towards Low-carbon Buildings Kaiyin Yang, Yuming Sheng, Zhiyong Li, Yanling Zhang, Jieli Luo, Hongxing Yang</p>
	<p>GraphRAG-Based Intelligent Q&A System for BIPV Carbon Reduction: Workflow and Validation Shufan Duan, <u>Dian Zhuang</u>, Cheng Sun</p>
	<p>An Explainable Graph-Based Multi-Objective Framework for Low-Carbon Retrofit of Existing Campus Buildings <u>Zhen Lei</u>, Tong Zhang</p>
	<p>Passive Cooling Performance of Void-Pilotis Apartments in Tropical Cities: A Coupled CFD-BES Study under Different Terrain Conditions <u>Floriberta Binarti</u>, Wynsom F. Wiyarta, Mitsunaga Masaki, Tetsu Kubota</p>
	<p>The role of site and design: Assessing mixed-mode ventilation performance in real urban context under future tropical climates Siyu Cheng, Weilin Xin, Adrian Chong</p>
	<p>Climate Mitigation and Adaptation in Utility-Scale Photovoltaic Landscapes: An Integrated Microclimate-Ecology-Livelihood Assessment Dingyue Cui, Shi-jie Cao</p>
	<p>A Multi-Scale Evaluation Framework for Urban Wind Fields Prediction Models: From Single Building to Real Cityscapes Jinhui Tang, Longchao Wang, Longhui Xu, Sumei Liu, Runmin Zhao</p>
	<p>Parameterized design study of building façade air-conditioning unit shading under multi-scenario demand orientation in hot summer and cold winter regions of China Mo Yang, Wei Wang</p>

- S10

Jun. 11th
4:00pm - 6:00pm

S10: Urban micro-climate and heat island, Climate change mitigations and adaptations

Location: Room 2405

Chair:

WANG Wei

ZENG Zhaoyun

Secretary:

HUANG Qiqi

Mitigating extreme weather-induced power outages by electric vehicles to enhance urban energy resilience

Shihong Zhang, Xinyu Wang, Qiqi Huang, Zhe Wang

Coupled Impacts of Occupant's Behaviour and Energy Efficiency on Residential Cooling Energy Consumption During Heatwave Events

Longkang Dai, Meng Liu, Qifeng Fan

Temperature-Adaptive Radiative Coatings: Mitigating Climate, Energy, and Mortality Under Climate Extremes

Tiancheng Zeng, Hungchen Tai, Jianmin Yang, Kaichen Dong, Shuai Lu

Vegetation Cooling Pathways and tree-building Coupling Controls under Extreme Heat: A SCOPE and XGBoost-SHAP Analysis across LCZ Contexts

Jinghan Pan, Wei Wang

Partitioning Surface Forcing and Waste Heat Impacts of Rooftop Retrofitting Across High Density Urban Morphologies

Siyuan Ren, Yukai Zou

Balancing accuracy and efficiency in the dynamic downscaling WRF-LES simulations: Impacts of building resolution and terrain representation on urban wind patterns

Qian Ma, Yini Fan, Pak Wai Chan, Jimmy Chi Hung FUNG, Xing Zheng

Assessing Microscale Strong Wind Exposure in Hong Kong: A WRF-PALM and Observational Study during a Full Typhoon Evolution

Yini FAN, Qian MA, Pak Wai CHAN, Xing ZHENG

A Novel "Space-Sky-Ground" Multi-Source Data Assimilation Framework for the WRF-UCM Model to Enhance Urban Wind-Thermal Simulations

Wei Xu, Yingxian Zhai, Lin Zhao, Guoxin Tang, Jianhua Nong, Wanyang Ma, zhaoming Huang

Quantifying Urban Building-Sector Electricity Decarbonisation Gap under the Business-as-Usual Scenario: The Case of Hong Kong

Qiqi Huang, Shihong Zhang, Xinyu Wang, Qinhui Lu, Zhe Wang

Identifying High-Potential Cooling Shelters in Centralized Traditional Village: A Coupled Workflow of ENVI-met and Agent-Based Modeling

Yiming Du, Anxiao Zhang, Qi Zhen, Hao Jing

- S12

<p>Jun. 11th 4:00pm - 6:00pm</p>	<p>S12: Urban micro-climate and heat island, Climate change mitigations and adaptations Location: Room 2465 Chair: ZHOU Jin CHEN Yongbao Secretary: WANG Xinyu</p>
	<p>Sequence-Aware Prediction of Pedestrian-Level Air Temperature Using Urban Morphology in a Digital Twin Framework <u>Ruohan Xu</u>, Yu Qian Ang, Joie Lim, Marcel Ignatius, Yijun Lu, Shanshan Tong, Nyuk Hien Wong</p>
	<p>Spatio-temporal Distribution Patterns, Driving Factor Identification, and Spatial Heterogeneity Analysis of Fire Disasters in Hefei City Yi He, Sarula Chen, Yunfa Wu</p>
	<p>Comparative Analysis of Isothermal and Non-Isothermal Urban Airflow Using Wind Tunnel Experiments and Large Eddy Simulations Shaofang XU, Kaizhe SHI, Wei ZHANG, Wei LIU</p>
	<p>Research on Fast Indoor and Outdoor Flow Field Simulation Based on Fourier Neural Operator and Reduced-Order Model Xin Yang, Yiwei Yao, Hejiang Sun</p>
	<p>A "Space-Sky-Ground" Multi-Scale Data-Model Integration Framework for Urban Wind-Thermal Prediction: A Case Study in Subtropical Beibu Gulf Yingxian Zhai, Jianhua Nong, Wei Xu, Guoxin Tang, Wanyang Ma, Zhaoming Huang, Lin Zhao</p>
	<p>Spatial fire risk assessment of traditional villages in Huizhou based on machine learning and explainable AI Ziyan Fan, Sarula Chen, Yunfa Wu</p>
	<p>Impacts of void deck support structure layouts on pedestrian-level wind environment in a building array Yeyu Xiang, Jinjun Ye, Lup Wai Chew</p>
	<p>CFD Simulation of the Impacts of Vegetation on the Wind and Thermal Environment in a Sunken Plaza Ruibin Li, Xinzi Xu, Chenxing Wang, <u>Yan Wu</u>, Naiping Gao</p>
	<p>Assessing the Mitigation Effects of Wind-Driven Rain by Barriers in Building Verandas and Linkways Shan Huang, <u>Shi Yin</u>, Yiqiang Xiao, Yu Sun</p>
	<p>Research on VOCs emission mechanism of water-based paints: experiments and modeling XueQiong He, Shaodan Huang</p>

- S14

Jun. 11th
4:00pm - 6:00pm

S14: Climate neutral building design and assessment; Building-grid interaction

Location: Room 2502

Chair:

Maomao Hu

Yang Geng

Secretary:

LU Kunhan

Anomaly Detection of Building Energy Consumption based on Spatiotemporal Feature Fusion

Siliang Ma, Zaihui Lin, Weinuo Huang, Wanfa Deng

A multi-level custom parameter method for building energy modeling

Guangchen Li, Yixing Chen

Evaluating and Optimizing Chiller System Performance in Pharmaceutical Facilities: A Data-Driven Clustering Analysis

Yu Ma, Yu Yang, Jiawei Shi, Wenxuan Zhao, Rongpeng Zhang

Efficient Operation Optimization for Heterogeneous Chiller Plants under Real-Time Demand Response: An Input Convex Neural Network-assisted Approach

Dongmei Jia, Zhiwei Li, Shasha Song, Chunwen Xu, Peng Wang, Shanshuo Xing

An Application Framework for Probabilistic Forecasting and Uncertainty Quantification of Urban-Scale Building Cooling Sources

Jide Niu, Yumeng Yang, Zhe Tian, Xiaoyuan Li, Jing Zhao, Yakai Lu

Enhancing early-stage sustainable design: Transferable graph neural network surrogates for residential zone performance prediction

Zhaoji WU, Feng WANG, Qingyan CHEN

Physics-Informed Self-Calibration of Multi-Dimensional Monitoring Variables in Chiller Plants

Fan Wu, Cheng Fan

Development and Application of a High-Fidelity Virtual Simulation Test Platform for Data Center HVAC Systems

Chuang Ye, Zhe Tian, Xiaochi Yang

Decision-Focused Model Predictive Control for Fixed-Frequency HVAC System

Yunqin LIU, Huayu JIANG, Zhe WANG

Steady-State Detection for chiller modelling

ZHINENG JIN, SI WU, ZHE WANG

June 12th

- S15

Jun. 12th
1:30pm - 3:30pm

S15: Climate neutral building design and assessment, Building integrated renewable energy

Location: Room 2302

Chair:

ZHAO Dongliang

ZHANG Xiang

Secretary:

LIN Jinxi

A deep learning and modified Rayman model integrated method for accurate city-scale assessment of building rooftop solar energy potential

Chengliang Xu, Yaohui Hu

Carbon reduction optimization planning for regional photovoltaic and radiation-cooled roofs under complex roof availability conditions

Chengliang Xu, Xinyue Shen

Poured Earth Technology: Low-Carbon Construction Methods and Practice in Rural Areas

Junjie LI, Yi DU, Qian YU, Yichun JIN, Xinchen GUO

Shadow Pricing the Urban Facade: Decoupling Energy Yield from Carbon Asset Value in BIPV Design

YI YAN, Ling Mao, Changying Xiang

Knowledge-Graph-Guided Fault-Tolerant MPC for Chilled Water Plants

Huaiyu Yang, Zhiyi Zheng, Wanpeng Zhang, Guanjing Lin

Anisotropic Thermal Conductivity Calculation Model Based on the LBM Method

Liping Yang, Qing Liu, Shuoyan Wang, Liu Yang, Yan LIU

Influence of Thermal Radiation Characteristics of Building Envelope Surfaces on Building Cooling and Heating Loads

Yutao Liu, Mengfan Duan, Dongliang Zhao

Analysis of Hybrid Air-Liquid Cooling System for Servers under Dynamic Workloads

Wenjie Pan

A Hybrid Method Integrating Physical Model and Residual Neural Network for Rapid Calibration of Medium-Deep Borehole Heat Exchangers (MDBHE)

Qilin Zhang, Yixing Chen

Exploring the Impact of Functional Organization on Building Energy Consumption: A Graph Neural Network Approach with Explainability Analysis

Minghao Liu, Zhonghua Gou

- S16

<p>Jun. 12th 1:30pm - 3:30pm</p>	<p>S16: Passive and active design strategies, Generative design, data-driven modelling, and LLM Location: Room 2303 Chair: SUN Yongjun XIE Yongxin Secretary: LI Yanjie</p>
	<p>High-Fidelity Rapid Daylighting Simulation for Complex Interfaces via Multi-modal Fusion Diffusion Models <u>Zhaoyang Luo</u>, Cheng Sun, Yunsong Han</p>
	<p>FILM-Conditioned Convolutional Neural Networks for Indoor CFD Surrogate Modeling Yanjie Li, Zhe Wang, Lige Zhao, Dengbo He, Yongxin Xie</p>
	<p>Comprehensive energy saving for industrial building rooftop photovoltaic in representative cities of four climate zones in China: A simulation study Zhixiao Zhao, Zhixiang Cao, Tongtong Zhao, Chao Zhai, Yi Wang</p>
	<p>Seasonal differences in driving factors of residential building carbon emissions in hot-summer and cold-winter region: a case study in Wuhan <u>Sujie Shen</u>, Yuhao Qiao, Shuxin Jiang, Feiyi Li, Liu Yang</p>
	<p>Comparing DDPM and DDIM for Probabilistic Building Energy Forecasting Under Data-Scarce Conditions Haihui He, Cheng Fan</p>
	<p>Performance of conditional diffusion models across limited data scenarios for building energy probabilistic forecasting Haihui He, Cheng Fan</p>
	<p>Adaptive Construction Method for Building Energy Knowledge Graphs Based on Large Language Models Bingyi Wang, Jian Zhang, Zeyu Zheng, Yang Zhao</p>
	<p>A Physics-First Layered Framework for Satellite-Derived Solar Irradiance Datasets Rosaria Volpe, Sahand Pourhmadisangestani, Alberto Fichera</p>
	<p>From Natural Language to Deployable Building Automation Control Logic: An LLM-Assisted Generation Framework for Building Automation Systems <u>QingBin Lin</u>, Lun Zhang, Xin Zhou</p>
	<p>An LLM-EnergyPlus Multi-Agent Collaborative Framework for Autonomous Building Energy Optimization Nana Shi, <u>Jun Xiao</u>, Ziyue Tang, Borong Lin, Haizhu Zhou</p>

- S17

Jun. 12th
1:30pm - 3:30pm

S17: Indoor air quality, thermal comfort, productivity and health

Location: Room 2304

Chair:

LI Yanxue

CAO Xiaodong

Secretary:

NI Shuangshuang

Multi-scale Performance Assessment of Passive PV Cooling Synergized by Passive Dehumidification

Keru Shang, Mengying Li, Shauhrat S. Chopra, Wei Wu

Internal or External? Comparing Energy and Overheating performance of insulating strategies in Shanghai Residential Building retrofit

Hongjuan Liao, Feng Yang

Multi-objective collaborative control of mixed-mode buildings in hot and humid regions driven by Standard Effective Temperature

Chang Yin, Xia Deng, Feng Shi

Experimental Investigation of Room-Scale Interference in Multi-Fan Ceiling Arrays

Roman Buckle, Fangyu Liu, Wei Liang, Shanrui Shi, Eikichi Ono, Shohei Miyata, Adrian Chong

Comfort-Oriented Cooling Energy Optimization in Office Buildings through Natural Ventilation and Phase Change Materials under Urban Conditions

Sirui Hu, Xiangmin Guo

Performance of a multi-vortex ventilation system for removing widely-dispersed water mist: Field investigation, full-scale experiments, and numerical simulations
yuqing Bai, Chen Zhang, Yi Wang, Zhixiang Cao, Zefang Yang, Chao Zhai, Pan Liu, Tongtong Zhao

A Data-Driven Analysis of Indoor–Outdoor Environmental Interaction Characteristics of Existing Residential Buildings in Severe Cold Regions
Dayang Wang, Qi Dong

Mass Housing Spatial Morphology and the Use of Common Spaces: Perception, Comfort, and Social Interaction — A Case Study of Mohammedia, Morocco
Kaoutare AMINI ALAOUI, Youssef JAMIL, Laarbi BARHAZI

A morphing-enabled workflow for classroom overheating risk screening under future climates

Yilin Wang, Nazli Bin Che Din, Ziad Baydoun

A validated mechanistic model for indoor bioaerosol fate and transport across air, surfaces, and porous materials

Zhuo Chen, Wei Wu

- S18

<p>Jun. 12th 1:30pm - 3:30pm</p>	<p>S18: Climate neutral building design and assessment; Building-grid interaction Location: Room 2404 Chair: Floriberta Binarti TANG Hao Secretary: HU Yike</p>
	<p>Resilience-Informed Optimal PV-Battery Sizing for Grid-Responsive Building Communities Against Extreme Weather Events Qinhuan Liu, Maomao Hu</p>
	<p>A Climate-Adaptive Building-Integrated Photovoltaic (BIPV) Facade Morphology Generation Framework Based on AI Algorithms and Bayesian Prior Parametric Skins Chao Yang, Yao Fu, Tianheng Zhang</p>
	<p>Battery capacity selection for building photovoltaic–battery systems considering time-of-use tariffs and control capability levels Xiaoqian Zhang, Yixing Chen</p>
	<p>Performance-based Parametric Design of Covers on Urban Facade Air-conditioning units Considering Pedestrian Dynamic Visual Perception Nisso Satorova, Wei Wang</p>
	<p>Temperature-Adaptive Radiative Coating achieves cross-seasonal carbon reduction for High-Rise buildings through an assessment of 200 climate-diverse cities HUNG CHEN TAI, Tiancheng Zeng, Kaichen Dong, Shuai Lu</p>
	<p>Study on Key Influencing Factors and Cross-Scale Evolution Mechanisms of Thermal Resilience in Residential Building Clusters under Climate Xiaochen Yang, Jianwei Li, Hongxin Tian, Zhe Tian</p>
	<p>Simulation-Based Assessment of Smart Adaptive Façade Retrofits for a Tall Office Building in London Farhan Ishrak, Tania Sharmin</p>
	<p>Hierarchical thermal modeling for grid-interactive buildings: Decoupling VRF operational heterogeneity and latent gains under data-missing Jiahui Li, Xinyi Lin, Zhe Tian, Yakai Lu, Jide Niu</p>
	<p>Spatial Inequality of Solar Radiation Reception Dynamics during Urbanization: Evidence from Nanjing (2000-2020) Yifan Guo, Wei Wang</p>

- S19

<p>Jun. 12th 1:30pm - 3:30pm</p>	<p>S19: Passive and active design strategies, Generative design, data-driven modelling, and LLM Location: Room 2464 Chair: WU Yan QIAN Mingyang Secretary: JIANG Huayu</p>
	<p>Reverse Temporal Inference for Building Age Identification Using Historical Satellite Imagery and Spatial Rules Xinyue Zhang, Xin Zhou</p>
	<p>From Multi-Sensor Point Clouds to BIM: Non-Destructive Reconstruction of Interior Structures in Historic Buildings Kunhan Lu, Yike Hu, Zeyu Duan, Zhe Wang</p>
	<p>A Multi-Source Data Fusion Framework for Identifying Aging Residential Communities for Urban Renewal Chengjin Wu, Yixing Chen</p>
	<p>Enhancing the Fidelity of Coarse Grid Indoor Airflow Simulations via Graph Neural Networks Zhenyu SUN, Wei LIU</p>
	<p>Simulation-Based Energy and Daylight Performance of Modular UHPC Curved Façade Building Across ASHRAE Cold Climate Zones 6–8: Hohhot, Harbin, and Norilsk Michael Anharlintama Tjiongotoputera, Wai Phyo Aung, Hong Zhang</p>
	<p>Tiny-AMPC: A Quantized Multi-Layer Perceptron (MLP) Framework for Mixed-Integer Model Predictive Control Huayu Jiang, Yunqin Liu, Zhe Wang</p>
	<p>Eigen-Entropy-based feature extraction from quantile-clustered graphs for simulation-to-real fault detection in building HVAC systems Jiajing Huang</p>
	<p>A Personalized Federated Learning Method for Building Energy Prediction with Low-Quality Data Hang Zeng, Cheng Fan</p>
	<p>Evaluation of LSTM-Based Update Algorithms for Office Building HVAC Load Prediction Yongjie Wang, <u>Weining Zhang</u>, Guanqing Lin</p>
	<p>Physics-Informed Bayesian Neural Networks for Robust Chiller Sequencing Control in Large-Scale Public Buildings Shuhao LI, Zhe Wang</p>

- S20

<p>Jun. 12th 1:30pm - 3:30pm</p>	<p>S20: Urban micro-climate and heat island, Climate change mitigations and adaptations Location: Room 2465 Chair: SUN Xiaoqin AN Jingjing Secretary: ZHANG Shihong</p>
	<p>An Estimation Framework for Capturing the Part-Time Part-Space Energy Use Characteristics of Residential Buildings Jingjing Yang, Yi Wu, Da Yan</p>
	<p>Optimizing Retrofit Investments Pathways for Real Estate Portfolio Decarbonization <u>Shihong Zhang</u>, Xinling Li, Gioele Zardini, Siqi Zheng</p>
	<p>Study on the Dissemination Mechanism and Intervention Strategies of Energy Saving Behavior among Building Occupants <u>Xiao Runjin</u>, Liu Sha, Sun Yichao, Luo Yaning</p>
	<p>Data-Driven Mixed-Mode Ventilation Control via Inverse Reinforcement Learning Wei Liang, Chong Adrian</p>
	<p>OPTIMIZING COOLING INFRASTRUCTURE: A VULNERABILITY-BASED SPATIAL PLANNING APPROACH FOR BEIJING Jiafeng CHEN, Lun LIU</p>
	<p>City-scale assessment of thermotropic glazing–driven urban building energy use under future climate scenarios <u>Yilin You</u>, Manli You, Xiang Liu, Lin Yang, Xuan Yang, Xiaoqiang Hong, Meng Wang, Rui Jing, YuQian Ang, Feng Shi</p>
	<p>Assessing the Flexibility of District Heating Systems via Dynamic Simulation of Building and Network Thermal Inertia Naijun Xu, Wenjia Chu, Shiming Tang, Liang Han, <u>Baoping Xu</u></p>
	<p>Fast Evaluation of Demand Response Potential for District Cooling System by Using Physics-Informed Neural Network Yiwen Chen, Siqi Wang, Zhuang Zheng</p>
	<p>Reducing the environmental impact of data center cooling through optimal integration with district thermal network <u>Sicheng Zhan</u>, Daniela Carrasco, Les Norford</p>
	<p>Improving HVAC Energy Efficiency using Raw Signal CNN Leak Detection in Hydronic Networks <u>Beenish BAKHTAWAR</u>, Tarek Zayed</p>

- S21

<p>Jun. 12th 1:30pm - 3:30pm</p>	<p>S21: Smart grid, microgrid, and optimization of energy networks; Building-grid interaction Location: Room 2502 Chair: LIU Yan Chen Yongbao Secretary: HU Ziqi</p>
	<p>Community power system optimization under power-outage scenarios in different seasons based on smart photovoltaic-battery-vehicle-building interactions <u>Chengyu Zhang</u>, Tianyi Zhao</p>
	<p>Fast Flexibility Quantification and Resilience Evaluation for Building Air-conditioning Systems Zhe Chen, Yongbao Chen, Fu Xiao</p>
	<p>Data-Driven Chance-Constrained Aggregation of Residential Air Conditioners under Decision-Dependent Uncertainty via Survival Analysis HouZe Jiang, ShiLei Lu, Ran Wang</p>
	<p>Co-optimization of multi-zone thermal storage and HVAC dynamics for enhanced flexibility control Zhe Tian, Xiaochi Yang, Jie Zhu, Jide Niu, Chuang Ye, Yakai Lu</p>
	<p>A Reinforcement Learning-Based Scheduling Method for Multi-Energy Systems Oriented to Dynamic Carbon Emission Responsibility Factors of Electricity Yanbing Jia, Shilei Lu, Pengbo Zhang</p>
	<p>Trustworthy Customer Baseline Load Aggregation in Demand Response via Federated Learning with Reputation Scoring <u>Zhiwei Li</u>, Zhenshang Wang, Yuming Zhao, Jing Wang, Junyao Gao, Hangxin Li, Shengwei Wang</p>
	<p>Hardware-in-the-Loop Simulation for Benchmarking Building HVAC Control Strategies Sen Huang</p>
	<p>A Scalable Dynamic Coupled Model for Urban Rooftop Photovoltaic Systems performance and urban temperature response prediction Using LOD Methods <u>Yueer He</u>, Ye Hong, Xingwen Xi, Zhenyu Zhu, Jiayao Qin</p>
	<p>Orthogonality-constrained basis driven model predictive control for few-shot adaptation in HVAC system control <u>Ziqi Hu</u>, Zhe Wang</p>
	<p>Building-Integrated PV and EV-Based Energy Sharing: A C2V2C Framework for Community-Level Energy Coordination Pei Huang</p>

Detailed Poster Session

Jun. 11th
3:30pm - 4:00pm

Location: Poster

1. Human thermal stress characterization based on multidimensional physiological-perceptual fusion: a deep learning-driven construction of an individualized warning index (IHSI)

Yudong Mao, Peng Zhang, Xiwen Feng, Zhaosong Fang

2. Biomimetics for Energy-Efficient Buildings: A Literature-Based Quantitative Framework Across Climate Zones

Chenxi Shi, Wei Wang, Xiangfeng Li

3. Quantifying Neighbourhood Spillover Effects in Urban Thermal Environments: A Physics-Informed Hybrid GNN-XGBoost Framework

Jiachen Bu, Ziyu Tong, Zihao Wu, Ruize Wu

4. A Simulation Framework for Evaluating Architectural Spatial Performance Using Agent-Based Modeling

Song Junbo, Jiayuan Zhang, Weiya Chen

5. Assessing the Suitability of PMV and Adaptive Comfort Model for Tropical Mixed-Mode Ventilation

Yue Lei, Jiahao Wang, Thomas Parkinson, Bin Cao, Adrian Chong

6. City-scale identification of glass curtain walls for facade photovoltaic potential assessment

Zishang Zhu, Haida Tang, Jinhan Mo

7. Flame-Resistant Electrolyte for High-Voltage Lithium Batteries: Enhancing Thermal Safety and Cycling Stability in Building-Integrated Energy Storage Systems

Jiaojiao Deng, Junquan Chen, Jinhan Mo

8. Suppressing Load Rebound: A Time Sequence Optimization Method for AC Clusters Considering User Compensation Adjustment Behavior

Boyang LI, Shilei Lv, Ran Wang

9. U-Net-Based Convolutional Neural Network for Urban Sectional Wind Environment Prediction

Jihua Huang, Shi Yin

10. Carbon Emission Accounting and Configuration Optimization of Multi-source Solar Energy Collaborative Heating Systems in the Loess Plateau Region

Jiale Zhou, Jiale Zhu, Xiaojun Zhou

11. Construction and Optimization of a Solar Thermal Power Conversion Energy Supply Model for the Qinghai-Tibet Plateau Region

Weijie Tian, Cong Song, Dengjia Wang, Yanfeng Liu

12. Simulation and Improvement Strategies for Outdoor Thermal Comfort in Older Residential Areas from a Local Climate Zone Perspective

Yue Fan, Zhuo Zhang, Hongfeng Zhong, Jie Chen

13. Synergistic "Source-Storage-Scheduling" Co-optimization for Green Microgrids: A Nested Bi-level Approach Considering PV Orientation

Libo Yu, Xuanting Lu, Tian Sun, Aili Ablimit, Gang Tan

14. Interdependency between energy flexibility and morphological characterization of district building space heating system

Yanxue Li, Chengru Wang, Yingjun Ruan

15. A novel graph convolutional network and building shading effect integrated method for urban building energy consumption forecasting
Chengliang Xu, Rongmian Cheng, Guannan Li, Xinyue Shen

16. The Impact of Urban Building Morphology and Albedo on Shortwave Radiation Transfer in Realistic Urban Geometry
Liangxin Tong, Shuojun Mei, Ting Sun

17. Development and Experimental Validation of a Dynamic Model for Decoupled Radiant Cooling Panels
Yizhen Li, Gongsheng Huang

18. Explainable Surrogate Model to Reveal the Mechanism of Residential Neighbourhood Morphology on the Synergistic Performance of Light-Heat-Energy: A Case Study of Shanghai
Yucheng GUO, Yue TENG, Jie Shi

19. Improving Aerodynamic Resistance Parameterization for Strongly Buoyant Urban Canopy Turbulence Using Large-Eddy Simulation
Shiyi Hu, Shuojun Mei, Ting Sun

20. Physics-Informed Neural Networks for Building Thermal Modelling: Integrating Inter-Zone Dynamics for Robust Generalization
LUNLONG LI, Ziqi HU, Parastoo MOHEBI, Zhe WANG

21. Thermal-Cardiovascular Responses to Hot-Humid Exposure: Age and Sex Effects in a Chamber Study
Han Liu, Xianzhun Zhong, Peiyang Du, Yongxin Xie, Jianlei Niu

22. CFD-RSM Optimization of Fan-Assisted Ventilation in Street Stores
Xiaofei Han, Mingyuan Qin, Tian Xia

23. Enhanced Anti-Condensation Performance of Decoupled Radiant Cooling System by Integrating Fresh Air Ventilation
YUJIAO DU, GONGSHENG HUANG

24. Acoustic Imaging for Energy-Efficient and Climate-Neutral HVAC Noise Management
Kuen Wai Ma

25. Research on the Energy-saving Performance Analysis and Parametric Optimization of Window Insulation Layer for Industrial Buildings in Severe Cold Regions of Northeast China
Meng Chen

26. Deconstructing Negative Spaces in High-Density Cold-Climate Residential Areas: A Case Study of Yanbao·Baiwan Jiayuan, Beijing
Ke Ding, LI He

27. Calibrated Simulation and Explainable Modeling of Thermal Buffering in Cold-Region Transitional Spaces during Extreme Events
Peng Gao, Zixuan Cui, Yongming Huang, Xiaoyang Li

28. Research on Neural Network-based Thermal Performance Prediction Model for Pit Thermal Energy Storage (PTES)
Ying Chen, Yong Li, Renfeng Wei, Yanfeng Liu

	29. Critical Pipe Identification in District Heating Networks under Independent and Cascading Failure Scenarios Ding Mao, Linhua Shen, Wei He
	30. Developing Residential Buildings Archetypes for Single-Storey Houses in India Charles Divyateja Bontha, Aakash C. Rai
	31. Thermal Dynamics and System Optimization of Distributed Solar Energy Systems under Bidirectional Energy Flow Conditions Zhengping Shi, Qingwei Miao, Man Fan, Xiangfei Kong, Jianjuan Yuan, Han Li, Ziqi Zhao, Zheng Li
	32. Aerodynamic Performance of Integrated Rooftop Louvre Blade Designs for Urban Wind Energy Harvesting Wan-Yi Chen, Ting-Yu Wei, Zhengtong Li, Yu-Hsuan Juan
	33. Synergistic Optimization of Multi-depth Closed-loop Geothermal Systems for Seasonal Thermal Energy Storage Yudong Yan, Qing Xia, Xiong Yang, Hangyu Li, Wanlong Cai, Fenghao Wang
	34. An Interpretable Spatio-aware Fault Detection and Diagnosis Framework for Central Cooling Systems using Graph Attention Mechanisms Huimin Yao, FU XIAO
	35. Paired field evidence for quantifying thermal buffering in campus transitional spaces: a calibration-oriented framework Shenghua Liu, Yang Ni
	36. LLM-Driven Generative Design for Climate-Adaptive Net-Zero Buildings Arts Cheung, YuXin Ren, LiuXin Zhao, Qi Wang, Cheuk Hei Alfred NG, Jun Yin, Haoran Tang, Xiang Deng, Jing Zhong, Wai Ning Louie, JADE JIANG, YAN GAO
	37. Defining Minimum Viable Fidelity for Building Systems: A Sensitivity Analysis of Simulation-Reality Discrepancy in Generative Fault Diagnosis Jintong Han, Adrian Chong
	38. Building cooling load generation method based on diffusion model and knowledge fusion Chen Huang, Shilei Lu, Ran Wang
	39. Integrated Digital Twin Framework for Enhancing Thermal Comfort and Health of Older Adults During Heatwaves: A BIM and IoT Approach Mingyang Tao, Zhonghua Gou
	40. Reassessing Mixed-Mode Ventilation Potential in Tropical Cities by Incorporating Fan-Induced Air Movement Kazuki Horikoshi, Federico Tartarini, Adrian Chong
	41. An Automated UAV-CFD Framework for Multi-Element Urban Ventilation Assessment in High-Density Cities Xiaotian Geng, Zhonghua Gou
	42. Multi-Building Coordinated Control of Grid Voltage on a Physics-Based Simulation Platform Using Constrained Reinforcement Learning Ziyan WU, Rui TANG
	43. Moisture Accumulation and Mould Growth Risk in Externally Insulated Brick Masonry Walls: Evidence from In-Situ Experiments Jaberswamy S, Aakash C. Rai
	44. Evolving LLM-empowered Multi-Agent System for Autonomous Building Energy Modelling and Analysis Using Multimodal Data Tianyi Zhang, Yu Li, Xi Chen, Ben M. Chen

-
- 45. Improving WRF-UCM Performance in the Guangfo Metropolitan Area: Integration of LCZ-POI Data and Dynamic Anthropogenic Heat Feedbacks**
Huiwang Peng, Qiong Li, Yu Huang, Renzhi Wu, Jianwei He, Haotian Wu, Shuo Jiang
-
- 46. Safety-Oriented Micromobility Infrastructure Planning for Climate-Neutral Cities: A Near-Miss Assessment in Kuala Lumpur**
Jiali Zhu
-
- 47. A Multi-Principle Sensor Array with Matrix Decoupling for Accurate VOCs Identification in Indoor Environments**
YAN Wang, Jinhan Mo
-
- 48. Operational Optimization Strategy for Building Integrated Energy Systems Based on Deep Reinforcement Learning**
Bingxu Zhao, Xiaodong Cao, Haifen Ye
-
- 49. Modeling of Evaporation and Shading Coupled Cooling Mechanisms for Transparent Roofs with Water-Mist Systems**
Huijun Mao, Qinglin Meng, Junsong Wang, Xiaoyang Lv, Ling Fang
-
- 50. A comprehensive physiology-based model for assessing outdoor microclimates in warm-biased conditions**
Ying Jiang, Yongxin Xie, Jianlei Niu
-
- 51. Collaborative Optimization of Building-Integrated Energy system under Climate Change Using Topology-Aware Multi-Agent Reinforcement Learning**
WANG, Zixuan, Xiao, Fu, Li, Yanxue
-
- 52 Retrofitting Urban Building Stock for Climate Readiness: A Case Study of the City of Melbourne, Australia**
Ziying Sun, Jin Zhou

Detailed Workshop Session

■ Workshop 1: Systematic reduction of lifecycle carbon emissions of the building stock of high-density cities

Chair/Co-Chair:

Dr Cong Yu, The University of Hong Kong, China,

yucong@hku.hk

Dr Jingjing Yang, Tsinghua University, China,

jjyang@mail.tsinghua.edu.cn

Secretary: JIANG Mengqi

Location: RM 2464

Content of the Workshop

The building industry worldwide accounts for around 34-37% of the global carbon emissions. The percentage is particularly pronounced in high-density cities. Energy conservation and carbon reduction are critical and urgent in high-density cities, considering the ambitious carbon neutrality goals and the IPCC's target of limiting global warming to below 1.5°C by 2100. Consequently, the analysis and mitigation of building-related lifecycle carbon emissions (LCCE) become essential to achieving the goals. Analyzing LCCE at the city level is increasingly important, as the cumulative emissions from the building stock significantly contribute to overall city carbon output. It can more comprehensively identify and evaluate the carbon footprint of each stage, discover the main sources of carbon emissions, and thus take effective emission reduction measures.

This workshop aims to advance systematic analysis and mitigation strategies for lifecycle carbon emissions of the building stock in high-density cities, fostering in-depth discussions and collaborative research among researchers to support accelerated progress toward carbon neutrality targets and the IPCC's 1.5°C warming limit.

Proposed Presentations

Time	Topic	Speaker
15 min	Urban Building Energy Models and Electrification in Canada: Optimizing Retrofits to Enable Cross-sector Decarbonization	Professor Liangzhu Leon Wang Concordia University, Canada leon.wang@concordia.ca
5 min	Question and discussion	
15 min	Life Cycle Global Warming Potential of Optimized PV System in the Built Environment	Professor Xingxing Zhang Dalarna University, Sweden xza@cdu.se
5 min	Question and discussion	
15 min	Research on Energy Consumption of Urban Residential AC from the Perspective of Energy Sufficiency and Considering Supply and Demand Characteristics	Associate Professor Xin Zhou Southeast University, China zhou-x06@seu.edu.cn
5 min	Question and discussion	
15 min	Reducing the embodied carbon in Hong Kong's permanent living quarters through concrete modular integrated construction	Dr. Siwei Chen The University of Hong Kong, China swchenly@connect.hku.hk
5 min	Question and discussion	
15 min	Assessing the Impact of Meteorological Data Spatial Resolution on Rooftop Photovoltaic Potential of Urban Buildings	Dr. Jingjing Yang Tsinghua University, China jjyang@mail.tsinghua.edu.cn
5 min	Question and discussion	
15 min	Climate adaptation and mitigation of energy efficiency and decarbonization in high-rise buildings: Case study of Hong Kong	Mr. Yumin Liang The University of Hong Kong, China ymliang@connect.hku.hk
5 min	Question and discussion	
30 min	Panel Discussion	Moderator: Professor Alfonso Capozzoli Politecnico di Torino, Italy alfonso.capozzoli@polito.it

■ Workshop 2: AI-Driven Urban Wind and Microclimate Simulations for Sustainable City Development

Chair/Co-Chair:

Professor Liangzhu Leon Wang, Concordia University, Canada,

leon.wang@concordia.ca

Dr. Wei Liu, Tianjin University, China,

weiliu@tju.edu.cn

Secretary: LU Qinhui

Location: RM 2464

Zoom link: 84289851222, **Password:** 013645

<https://concordia->

[ca.zoom.us/j/84289851222?pwd=a7bD32rsRu9Mplof1pjaYWpoQ7yaGM.1&from=addon](https://concordia-ca.zoom.us/j/84289851222?pwd=a7bD32rsRu9Mplof1pjaYWpoQ7yaGM.1&from=addon)

Content of the Workshop

Building simulation plays a vital role in building environmental engineering and urban physics, enabling the analysis of urban wind fields, microclimate dynamics, thermal comfort, pollutant dispersion, and climate resilience across building and city scales. However, high-fidelity computational fluid dynamics (CFD) approaches—such as large-eddy simulation (LES)—remain constrained in practice by high computational cost, long spin-up times, and difficulties in scaling to realistic and heterogeneous urban morphologies.

Recent advances in artificial intelligence, particularly operator-learning frameworks such as Fourier Neural Operators, have opened new pathways for AI-enhanced urban wind and urban climate simulation. These developments not only advance theoretical modeling and physical understanding, but also enable large-scale data generation, benchmark construction, and open data sharing for urban flow and climate research. This workshop will bring together researchers and practitioners to exchange recent progress in theoretical foundations, data-driven methodologies, standardized datasets, and hybrid physics–AI frameworks, as well as their integration with accelerated CFD/LES and digital twin systems.

The workshop aims to promote the synergy between theory, open data, and real-world applications in AI-enabled urban wind and urban climate modeling, fostering reproducible research, community-wide data sharing, and practical deployment in areas such as pedestrian wind comfort, urban heat mitigation, ventilation design, and climate-resilient city planning.

Proposed Presentations

Time	Topic	Speaker
15 min	The Effectiveness of Different Physics Priors for AI-Accelerated Urban and Built Environment Simulation (online presentation)	Chin Chun Ooi, Researcher IHPC, Singapore E-mail ooicc@ihpc.a-star.edu.sg
15 min	Feilian: A Machine Learning Model Family for Urban Microclimate Evaluation and Urban Canopy Parameterization (online presentation)	Negin Nazarian, Professor and Jiachen Lu, Researcher University of New South Wales, Australia E-mail n.nazarian@unsw.edu.au
15 min	Optimizing Urban Morphology for Thermal Environment and Air Quality: A Two-Way Coupled CFD and Multi-Objective Framework	Pengyuan Shen, Assoc. Professor Tsinghua SIGS, China E-mail shenpengyuan@sz.tsinghua.edu.cn
15 min	Graph Neural Network for 3D Real-time Urban Wind Field Reconstruction and Prediction toward Low-Altitude Flight Safety	Haidong Wang, Professor University of Shanghai for Science and Technology, China E-mail whd@usst.edu.cn
15 min	A Hierarchical Generative-Refinement Framework for High Resolution Microclimate Modelling and Sensor Placement Optimization (online presentation)	Xu Han, Assi. Professor University of Notre Dame, USA E-mail xhan7@nd.edu
15 min	Accelerating Large Eddy Simulations of Urban Airflow with Two Generative Adversarial Networks-based Architectures	Wei Liu, Professor Tianjin University, China E-mail weiliu@tju.edu.cn
15 min	Accelerating Urban Microclimate Simulation with Tree Modelling Using a ANN-CFD Framework	Ruibin Li, Researcher and Jiwei Zou, Researcher Hong Kong Polytechnic University, China E-mail ruibinpolyu.li@polyu.edu.hk and jiwei.zou@polyu.edu.hk

■ Workshop 3: Generative Agent-Driven Collaborative Architectural Design for Carbon-Neutral Future

Chair/Co-Chair:

Professor Han Yunsong, Harbin Institute of Technology, China,

hanyunsong@hit.edu.cn

Associate Professor Zhuang Dian, Harbin Institute of Technology, China,

zhuangdian@hit.edu.cn

Secretary: CHENG Ip

Location: RM 2405

Content of the Workshop

Building sector is a major contributor to global energy consumption and carbon emissions, making deep decarbonization in this field a critical challenge in addressing the climate crisis. Traditional low-carbon design heavily relies on designer experience and disparate tools, facing bottlenecks such as low efficiency, difficulties in multi-objective trade-offs, and lagging performance prediction.

In this workshop, we will introduce and apply the "Generative Agent-based Whole-Process Green Building Computational Design Platform". This platform utilizes generative AI agents to simulate a multi-disciplinary expert team. It is capable of understanding natural language instructions, automatically invoking analysis tools, conducting real-time performance simulation and carbon assessment, and providing data-driven optimization strategies.

Centered around a real-world architectural decarbonization design challenge, the workshop will allow participants to experience this new human-AI collaborative paradigm of "conversation as design". Assisted by the intelligent design assistant, participants will complete the entire process—from carbon footprint baseline analysis and decarbonization goal setting, to low-carbon scheme generation and iteration, and finally multi-objective performance optimization. Throughout this process, they will explore innovative methods to seek optimal solutions balancing spatial form, material construction, energy systems, and carbon constraints.

The core curriculum of the workshop will cover: the application principles of generative AI and multi-agent systems in architectural design, whole-life carbon accounting methodologies and standards for buildings, and strategies for natural language interaction and agent task planning based on the platform.

Proposed Presentations

Time	Topic	Speaker
13:30-13:50	Fire Evacuation Design for Existing Buildings in High-Density Urban Contexts	Tongtong Zhang, Associate Professor Shenzhen University
5min	Question and discussion	
13:55-14:15	Simulating People Across the Building-city Continuum	Tianren Yang, Assistant Professor The University of Hong Kong
5min	Question and discussion	
14:20-14:40	Computational-Design Cloud: Generative Agent-Driven Low-Carbon Building Design	Dian Zhuang, Associate Professor Harbin Institute of Technology
5min	Question and discussion	
14:45-15:05	Building Energy Consumption Prediction: From Temporal Correlation Learning to Cross-Modality Alignment	Pengyue Wang, Lecturer Beijing University of Civil Engineering and Architecture
5min	Question and discussion	
15:10-15:30	Green-Building Embodied Intelligent Agents Based on Human Thermal Response Mechanisms	Yunsong Han, Professor Harbin Institute of Technology

■ **Workshop 4: Energy interaction between buildings and electric vehicles towards grid decarbonization**

Chair/Co-Chair:

Associate Professor Zhe Wang, The Hong Kong University of Science and Technology, China,

cezhewang@ust.hk

Assistant Professor Xiaochen Liu, Tsinghua University, China,

lxc4@tsinghua.edu.cn

Secretary: ZHAO Lige

Location: RM 2405

Content of the Workshop

Towards carbon neutrality, vehicles and buildings, as the two main demand-side sectors, will constitute the largest electricity load components and the most significant sources of stochastic fluctuation in future cities, posing challenges to the safe, economical, and low-carbon operation of power systems. Urban buildings and vehicles are inherently coupled: vehicles spend long time parked in or around buildings where charging takes place. If they are coordinated, it can not only meet their respective energy demands, but also jointly facilitating the low-carbon energy transition of cities.

This workshop aims to explore recent advances in the energy interaction between buildings and electric vehicles, including urban-scale potential analysis, intelligent regulation of equipment and systems, battery safety and lifespan impacts, user behaviors, and representative pilot projects.

Proposed Presentations

Time	Topic	Speaker
15min	Topic 1: Unlocking Vehicle-to-Building benefits at city scale: Energy and emission assessment using 20+ million EVs in China (online)	Minda Ma, Professor Chongqing University, China E-mail: minda.ma@cqu.edu.cn
3min	Question and discussion	
15min	Topic 2: Performance Regulation Technology for Electric Vehicle Batteries Based on Wide-Frequency Amplitude Pulse Current (online)	Yalun Li, Associate Professor Beihang University, China E-mail: yalunli@buaa.edu.cn
3min	Question and discussion	
15min	Topic 3: AI Powered Low-carbon Management of Urban Energy Systems	Yi Wang, Assistant Professor The University of Hong Kong, China E-mail: yiwang@eee.hku.hk
3min	Question and discussion	
15min	Topic 4: Energy Interaction between Buildings and Electric Vehicles: Potential Analysis and Demonstration Projects	Xiaochen Liu, Assistant Professor Tsinghua University, China E-mail: lxc4@tsinghua.edu.cn
3min	Question and discussion	
15min	Topic 5: Multi-Timescale Rolling Optimization Coordinating Heterogeneous EV and Building Load Flexibility	Hong Tang, Research Assistant Professor The Hong Kong Polytechnic University, China E-mail: honghong.tang@polyu.edu.hk
3min	Question and discussion	
15min	Topic 6: Global perspectives on electrochromic glazing application for electric vehicle driving range extension	Lige Zhao, PhD Candidate The Hong Kong University of Science and Technology, China E-mail: lzhaobc@connect.ust.hk
3min	Question and discussion	

■ Workshop 5: Multi-dimensional modelling, flexibility and decision support for climate-neutral districts

Chair/Co-Chair:

Prof. Rosaria Volpe, University of Catania, Italy,

rosaria.volpe@unict.it

Prof. Xingxing Zhang, Dalarna University, Sweden,

xza@du.se

Secretary: LIU Jiatao

Location: RM 2306

Content of the Workshop

Building simulation has traditionally focused on single-building performance, supporting design and retrofit decisions through detailed models. However, the ongoing transition toward climate-neutral districts and cities is profoundly changing the role of simulation. Buildings are no longer isolated entities; they act as active nodes in complex energy systems, interacting through shared infrastructures, storage, renewable generation, and increasingly flexibility mechanisms (demand response, sector coupling, aggregation, energy sharing). This evolution raises new challenges for building simulation, including multi-dimensional, multi-scale consistency, integration of electrical, thermal and cooling domains, coupling physics-based models with optimization, data-driven methods and control, translation of simulation outputs into decision-support tools for planners, operators and policy makers.

In this context, emerging urban configurations, both above-ground and underground, are becoming increasingly relevant to the building simulation community. They represent highly comprehensive energy infrastructure with significant potential for waste heat recovery, pre-cooling, and flexibility provision, and their integration with buildings and district energy systems poses new modelling and decision-support challenges. Simulating such interactions requires extending building performance models to account for spatial coupling, temporal flexibility, and system-level impacts at **both horizontal and vertical urban dimensions**.

This workshop aims to bring together different perspectives, ranging from advanced simulation frameworks, optimization models and real-world validation, urban planning for inclusive and socially just cities, as well as experiences from ongoing projects, to foster the discussion on where building simulation is heading in the next decade.

Proposed Presentations

Time	Topic	Speaker
15min	Bridging the SDG goals with positive energy buildings and districts	Prof. Rosaria Volpe University of Catania, Italy rosaria.volpe@unict.it
2min	Question and discussion	
15min	Underground data centers as urban energy infrastructure	Prof. Xingxing Zhang Dalarna University, Sweden xza@du.se
2min	Question and discussion	
15min	Co-creation methodologies and communities' involvement for building a rating system for PEDs and PEBs - the SDG-BASED project perspective (online)	Dr. Irina Panait Urbasofia, Romania irina.panait@urbasofia.eu
2min	Question and discussion	
15min	Choreographing data - making the technical tangible in participatory energy transition (online)	Dr. Bahanur Nasya Wonderland – Platform for European Architecture, Austria office@wonderland.cx
2min	Question and discussion	

■ **Workshop 6: Towards climate-resilient futures: Thermal environments and human adaptation in a warming world**

Chair/Co-Chair:

Associate Professor Pengyuan Shen, Tsinghua University, China,

shenpengyuan@sz.tsinghua.edu.cn

Associate Professor Xue Liu, Southwest Jiaotong University, China,

liuxue@swjtu.edu.cn

Location: RM 2306

Secretary: LIN Jinxi

Content of the Workshop

In recent years, global temperatures have repeatedly reached record-breaking levels, with the past three years ranking among the hottest ever observed. This warming trend has been accompanied by a marked increase in the frequency, duration, and intensity of extreme heat events, posing significant risks to urban environments and human health. Such conditions are associated with rising heat-related morbidity and mortality, especially among vulnerable populations in high-density cities. Therefore, there is an urgent need to integrate urban thermal environments and human responses to better assess and enhance thermal resilience in urban environments.

This workshop aims to address the growing challenges of understanding and enhancing thermal resilience in the context of a warming climate. The main objectives include: 1) development and application of future weather datasets to better characterize climate change; 2) investigating the impacts of climate and heat extremes on urban thermal environments; 3) understanding human responses to thermal environments. This workshop emphasizes an integrated understanding of thermal environments and human thermal perception, and their interactions across scales in a warming climate.

Proposed Presentations

Time	Topic	Speaker
20 min	Feeling the Heat: Modeling Outdoor Thermal Perception and Its Health Implications	Prof Yongxin Xie Hong Kong Polytechnic University, China yong-xin.xie@polyu.edu.hk
5 min	Question and discussion	
20 min	Future and Representative Weather Datasets Development for North America	Prof Zhaoyun Zeng University of Macau, China Zyzeng@um.edu.mo
5 min	Question and discussion	
20 min	Thermal Resilience of Different Urban Forms Under Compound Temperature-humidity Extremes: An Observational Study in High-Density Humid Subtropical Twin Cities	Prof Yueer He Shenzhen University, China heyueer@szu.edu.cn
5 min	Question and discussion	
20 min	Tracking the Thermal Pulse: Psycho-Physiological Sensing of Environmental Variability in a Warming World	Prof Yuchen Ji Shenzhen University, China jiyuchen@szu.edu.cn
5 min	Question and discussion	

Social Activities

■ Opening Ceremony

The opening ceremony will be held on Thursday, June 11th, from 9:00 to 9:20 (GMT +8), in Room LT-A, Academic Building, HKUST. Welcome speech, opening address, and a group photo of all the participants are included.

■ Banquet

The banquet will begin at 17:00 (GMT+8) on Friday, June 12th, in The Clearwater Bay Golf & Country Club. Happy Hour, Banquet, and Best Paper Awarding Ceremony are included. Ticket is required.



■ Award Ceremony

The Award Ceremony will be held on Saturday, June 13th, from 11:20 to 11:35 (GMT+8) in Room LT-A, Academic Building, HKUST. “Best Oral” and “Most Popular Poster” award are included.

■ Avenue of Star, TST

You can visit the Avenue of Stars in Tsim Sha Tsui on the evening of Thursday, June 11th, based on your own arrangement. The Avenue of Stars offers a beautiful night view of Victoria Harbour and the Hong Kong skyline.



■ Peak Tram

You can also take the Peak Tram to Victoria Peak on the evening of Thursday, June 11th. The Peak, Hong Kong's most popular attraction is more than just stunning vistas or great shopping and dining. It's an amazing collection of unique must-visit attractions, providing you with a diverse fun-filled experience of Hong Kong's living culture.

Getting to the Peak by the Peak Tram is an unforgettable experience. One of the world's oldest and most famous funicular railways, the tram rises to 396 metres (about 1,300 feet) above sea level. It is so steep that the buildings you pass look like they are leaning a gradient of between 4 to 25.7 degrees! Whether you are going up or coming down, you will love this trip.

You are advised to check the tram schedule and ticket information in advance (<https://www.thepeak.com.hk/en/ticket-and-booking/purchase-ticket/peak-tram-sky-pass>).





Organized by

The Hong Kong University of Science and Technology
Tsinghua University
Tsinghua University Press
GREAT Smart Cities Institute, HKUST

Sponsored by

Envision Energy
School of Engineering, HKUST
Dept. of Civil and Environmental Engineering, HKUST
Asian University Alliance