

CRIOCM 2026

The 31st International Symposium
on Advancement of Construction
Management and Real Estate



July 13 – 18, 2026

Western Sydney
University, Australia

Organiser

The Chinese Research Institute of Construction Management
(CRIOCM)



Western Sydney University



CO-organiser

ARC ITTC Net-Zero Building Ecosystem Lifecycle (NØBEL)



Co – Host

International Council for Research and Innovation in Building and
Construction (CIB)



Contact us

CRIOCM 2026 Committee
Western Sydney University

Email: criocm2026@westernsydney.edu.au

Conference Website:



Join our WeChat group
for informal discussions

Organising Committee:

Conference Chair	
Distinguished Professor Vivian Tam	Western Sydney University, Australia
Professor Gui Ye	President, CRIOCM
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Professor Yingbin Feng	Western Sydney University, Australia
Professor Payam Rahnamayiezekavat	Western Sydney University, Australia
Professor Swapan Saha	Western Sydney University, Australia
Professor Patrick Zou	Chang'an University, China
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Hongling Guo	Tsinghua University, China
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Dezhi Li	Southeast University, China
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Martin Skitmore	Bond University, Australia

Conference Committee Members

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Chair	
Dist. Professor Vivian Tam	Western Sydney University, Australia
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Professor Haijun Bao,	Hangzhou City University, China
Professor Gui Ye	President, CRIOCM
Professor Yi Peng	Nanjing University, China
Professor Yuzhe Wu	Zhejiang University, China
Professor Patrick Zou	Chang'an University, China

Conference Program

Day 0 — Monday, 13 July

Conference Registration
Time: 15:00–17:00 Venue: ROOM: KW-O.1.00 (Foyer)
CO2 Concrete Workshop (Registration required)
Time: 15:00–17:00 Venue: ROOM: KW-O.1.20
CRIOCM Committee member meetings (Invite only)
Time: 17:00–18:30 Venue: ROOM: KW-O.1.20

Day 1 — Tuesday, 14 July

Registration and Networking Coffee	
Time: 08:00–09:00 Venue: ROOM: KW-O.1.20 Meeting ID: 849 5280 3672 Password: 645415	
Opening Ceremony and Welcome Address	
Time: 09:00–09:25	
Aunty Jean Elder in Residence	Professor Swapan Saha
Professor Swapan Saha -Interim Dean -School of Built Environment and Design, Western Sydney University	
Professor Liyin Shen -Founding President of The Chinese Research Institute of Construction Management (CRIOCM) -Hangzhou City University	
Professor Gui Ye -President of The Chinese Research Institute of Construction Management (CRIOCM)	

Conference Program

Group Photos		
Time: 09:25–09:30 Venue: ROOM: KW-O.120		
Keynote Session I		
Time: 09:30–12:00 Venue: ROOM: KW-O.120		
Plenary Speaker	Topic	Chairs
George Maltabarow FTSE -Former Managing Director, Energy Australia -Deputy Chairman and Former Executive Director, NSW Treasury	The Path to Net Zero – Is it a Mirage	Professor Patrick Zou
Keynote Speaker	Topic	Chairs
Professor Mike Kagioglou -Deputy Vice-Chancellor Planning -Research and Innovation at De Montfort University (DMU)	Twinning the Physical World for the Net-Zero Transition	Professor Patrick Zou
Professor Wilson W.S. Lu -Chair Professor (Digital Construction) -Head of the Department of Real Estate and Construction	Construction Digital Transformation: Hong Kong Experiences	
Morning Tea/Break Time: 10:40–11:00		
Keynote Speaker	Topic	Chairs
Mr Waco Tao -Executive Chair of Prefab Council Australia (PCA)	DfMAD + SCI: Closing the Circle – Supply Chain Integration as the Missing Link for Circular, Carbon Neutral Construction	Professor Payam Rahnamayi ezekevati
Distinguished Professor Sujeeva Setunge -Associate DVC, R&I, RMIT Australia	From Net Zero to Carbon-Positive: Engineering the Next Generation of Infrastructure	

Conference Program

Plenary Speaker	Topic	Chairs
Professor Dongping Fang -Professor at the School of Civil Engineering, Tsinghua University -Director of the Institute for Future Cities and Infrastructures. -President of the International Council for Research and Innovation in Building and Construction (CIB)	Safety Culture and Ethics in Construction (Online presentation)	Professor Payam Rahnamayi ezekevati
Lunch Tea/Break Time: 12:00–13:00		
Parallel Session Time: 13:00–15:00 Each speaker is allocated 10 minutes. Venue arrangements for parallel sessions are shown in P10-P32		
Afternoon Tea/Break Time: 15:00–15:30		
Parallel Session Time: 15:30-17:00 Each speaker is allocated 10 minutes. Venue arrangements for parallel sessions are shown in P10-P32		
Parallel Sessions T1A	Room: KW-P.1.28	
Parallel Sessions W1A	Room: KW-P.1.36	
Parallel Sessions T1B	Room: KW-P.1.33	
Parallel Sessions W1B	Room: KW-P.1.49	
Parallel Sessions T1C	Room: KW-P.1.50	
Parallel Sessions W1C	Room: KW-P.1.60	
Parallel Sessions T1D	Room: KW-P.1.51	
Parallel Sessions T1E	Room: KW-P.1.24	
Parallel Sessions T1F	Room: KW-O.1.05	
Parallel Sessions W1G	Room: KW-O.1.09	
Parallel Sessions W1H	Room: KW-O.1.07	

Conference Program

CRIOCM 2026 Conference Dinner Runsheet

CRIOCM 2026 Conference Dinner	
Tuesday 14th 18:00 – 21:00 Venue: Panthers Penrith Address: 83 Mulgoa Road, Penrith NSW 2750	
Time	Runsheet
18:00	Arrival & Welcome Drink
18:00–18:30	Welcome Speech – Distinguished Professor Vivian Tam Acknowledgement of Country Indigenous Dance
18:30	Entrée Served
18:55–19:15	Co-Host Speeches • CRIOCM • CIB
19:15	Mains Served
19:30–19:45	Sponsors' Speeches • Director, TREMS • ARC E2CROP Hub • Director, CIOB
19:45–20:11	Awards presentation
20:10	Desserts Served
20:15–20:30	Game
21:00	Closing Remarks

Conference Program

Day 2 — Wednesday, 15 July

Registration and Networking Coffee

Time: 08:00–09:00
Venue: ROOM: KW-O.1.20

Keynote Session II

Time: 09:00–10:30
Meeting ID: 847 8658 4566
Password: 099058

Speaker	Topic	Chairs
Professor Marc Aurel Schnabel -Dean of the Design School at Xi'an Jiaotong-Liverpool University	Design Intelligence: Cultivating Living Futures Beyond Construction	Professor Yingbin Feng
Professor Yuzhe Wu -Professor and Doctoral Supervisor at the School of Public Administration, Zhejiang University	Green Transformation of Resource- depleted Cities: Dilemma and Reflection	
Ms Davina Rooney -Chief Executive Officer of Green Building Council of Australia (GBCA)	Sustainability mega trends and role of procurement bringing scale	Professor Pejman Sharafi
Professor Yi Peng -Head of Dept. of Emergency Management, School of Government, Nanjing University	Urban Governance for extreme heat: the urgent inequality issues for addressing	

Conference Program

Morning Tea/Break Time: 10:30–11:00		
Closing Ceremony		
Time: 11:00–12:00 Venue: ROOM: KW-O.1.20		
Speaker	Topic	Chairs
Professor Dezhi Li -Vice President of the CRIOCM	CRIOCM 2026 Conference Remarks	Professor Dezhi Li
Prof. Gui Ye -President of the CRIOCM	Announcement of CRIOCM 2027 (Flag-handover Ceremony)	
CRIOCM2027 Organizer	Welcome Address	
Distinguished Professor Vivian Tam -Chair of the CRIOCM 2026	CRIOCM 2026 Conference Closing Address	
Lunch Tea/Break Time: 12:00–13:00		
Exhibition & Networking Lounge, Meet the Partners		
Time: 13:00–14:00 Venue: ROOM: KW-O.1.20		

**ARC Industrial Transformation Training Centre in digital
platforms Net-Zero Building Ecosystem Lifecycle
ARC ITTC NØBEL Launch**



ARC ITTC NØBEL OFFICIAL LAUNCH

**Industrial Transformation Training Centre in
digital platforms for
Net-Zero Building Ecosystem Lifecycle**

15 July 2026

**Western Sydney University Kingswood
Campus, Building O, Level 1,
Room O.1.20
(Opening Ceremony)**



Conference Program

Parallel Sessions

Date: 14 July 2026

Time: 13:00–17:00

Parallel Session T1A

Theme: Organisation & Management

KW-P.1.28

Session Chair: Yingbin Feng

Supporter: Agana Parameswaran

Zoom Chair: Agana Parameswaran

Zoom Meeting ID: 646 271 3652

Password: 134871 [LINK](#)

Time	Speaker	Topic	ID
13:00 – 15:00	Jinpeng Li (Chongqing University)	Understanding the Formation Mechanism of Public Housing Demand: A Systematic Review	41
	Leva Latifiilkhechi (Western Sydney University)	Rebuilding the Ecosystem: A Cross-Industry Analysis of Modular and Prefabricated Construction	23
	Peiwen Guo (Chongqing University)	Research on Cross-layer Risk Transmission in Overseas Transportation Infrastructure Investment Projects Based on a Multi-layer Network Model	45
	Mingchao Lin (Southeast University)	Distinguishing Benchmark and Deviation Emissions: Benchmark-Based Responsibility Allocation for the Embodied Phase of Prefabricated Components	46
	liu Wu (xiamen university)	Mapping the Structure and Interdependence of Owner Project Capabilities: A Dynamic Capability Perspective	50
	Feiyu Cheng (Beijing Jiaotong University)	Decision Complexity in the Green Transition of Construction Supply-Chain: Considering Elements Allocation and Green Total Factor Productivity	73

Conference Program

Time	Speaker	Topic	ID
13:00 –15:00	Yang Yang Yu (China University of Mining and Technology)	Association Rules Mining for Causes of Delay Claims in Construction Projects Based on NLP and SNA	84
	Xinran Li (Chongqing University)	Modelling Green Logistics Performance at the National Level	96
	Nilmi Bhagya Senarath (Deakin University)	Improving Team Climate in Construction Project Teams to Support Intragroup Conflict Management	112
	Ying Terk Lim (The Hong Kong Polytechnic University)	Developing an Accident Causation Model for Repair, Maintenance, Alteration, and Addition Works (RMAA) in Hong Kong	37
	Johnson Xuesong Shen (UNSW Sydney)	Syntactic-Semantic Feature Fusion for Entity Extraction in Tunnel Specification Knowledge Graph Construction	149
Afternoon Tea/Break Time: 15:00–15:30			
Session Chair: Lavender Liu			
15:30 – 17:00	ZhaoKun Guo (Chongqing University)	Identifying Key Factors and Mechanisms of Tunnel Construction Schedule Delays: A Data-Driven Multifactor Coupling Framework	21
	Yijia Cai (Southeast University)	Work-related Challenges, Impacts, and Coping Strategies among International Construction Expatriates during Repatriation	52
	Chuan Jun Ren (Shandong Jianzhu University)	Risk Identification and Compliance System Construction of Real Estate Enterprises' Investment in Central Asia under the Background of "Belt and Road"	101
	Trung Nguyen Cao (Curtin University)	Enhancing the Resilience of Public-Private Partnership Infrastructure Projects through Contractual Clauses	105
	Zixin Lu (Western Sydney University)	A Normative Decision Support Framework for Governance-Oriented Decisions at Project-Level in Prefabricated Construction	110

Conference Program

Time	Speaker	Topic	ID
15:30 – 17:00	Juan Wang (The University of Hong Kong)	A Policy Simulation Platform for Cross-Regional Construction Supply Chain Collaboration Leveraging the CGE Model: A Study on the Guangdong-Hong Kong-Macao Greater Bay Area	136
	Ting Wang (Shanghai Institute of Technology)	A Case-Based Study on Value Identification of Mega-Programs	49
	Simeng Li (Zhongnan University of Economics and Law)	Fostering Ambidextrous Innovation for Project Teams in Megaprojects: A Relational Behavior Network Embeddedness Perspective	72
	Wenbo Du (Guangdong Ocean University)	Rethinking Construction Waste Management: Exploring the Role of Network Orchestration	86

Conference Program

Parallel Session W1A-TREMS HUB Workshop		
Theme: TREMS Hub Workshop KW-P.1.36 Time: 13:00–17:00 Facilitator: Sujeeva Setunge Supporter: Leva Latifiilkechi Zoom Chair: Md Jaynul Abden Meeting ID: 872 7296 5086 Password: 720652 LINK		
Time	Speaker	Topic
13.00 – 13.30	Distinguished Professor Sujeeva Setunge Professor Priyan Mendis	Welcome and Overview
13.30 – 14.15	Professor John Laby - Director at Laby building Pty Ltd Professor Vute Sirivivatnanon - Research Director of SmartCrete CRC Ltd	Industry Guest Keynote Speak
14.15 – 15.00	Professor LY Shen Distinguished Professor Vivian Tam, Professor John Laby Professor Vute Sirivivatnanon	Academic-Industry Panel discussion
Afternoon Break Time: 15.00 – 15.30		
15.30 – 16.15		Q&A and Open Discussion TREMS “What’s Next?”
16.15 – 16.30		Event Close

Conference Program

Parallel Session T1B

Theme: Sustainability & Resilience

KW-P.1.33

Session Chair: Pengcheng Xiang

Supporter: Zebang Liu

Zoom Chair: Zebang Liu

Meeting ID: 824 5699 8970

Passcode: 571535 [LINK](#)

Time	Speaker	Topic	ID
13:00 – 15:00	Yao Ji (Chang'an University)	Topic Identification and Analysis of Road Work Zone Safety Research Based on the LDA Topic Model	155 Online
	Xiaoyue Zou (RMIT University)	BIM-Enabled Sustainability Assessment for Residential Green Retrofits: A Digital Twin–Based LCSA Closed Loop	47
	Xiaoyu Li (Xiamen University)	A Natural Language Processing-Based Framework for Dynamic Evaluation of Project-Level Environmental, Social and Governance (ESG) Practices	48
	Dongyue Huang (Chongqing University)	Spatiotemporal heterogeneity and U-shaped relationship between public emotional tendencies and complaint behaviors: adaptive management of construction noise pollution	16
	Mengying Wang (Chongqing University)	Spatiotemporal Dynamics of Habitat Quality in Response to Land Use Change Along Transportation Corridors	17
	Yuran Xiang (Chongqing University)	A Human-Perception–Based Framework for Evaluating Urban Service Quality in Megacities: Evidence from Chongqing, China	54
	Rui Li (Chongqing University)	Decoding local collaboration patterns in green building innovation networks: A network motif analysis	28

Conference Program

Time	Speaker	Topic	ID
13:00 – 15:00	Ying Li (Shenzhen University)	A Life Cycle Assessment Model for Carbon Emissions in Urban Village Redevelopment: A Case Study of Dachong Village, Shenzhen	34
	Shu Su (Southeast University) Chaoran Li (Southeast University)	Spatiotemporal Evolution of Residential Building Demolition Stock and Carbon Emissions: A Dynamic Scenario Analysis Based on Jiangsu Province	62
	Xingye Ma (RMIT University)	Advancing Building-Integrated Photovoltaics: Solution for Façade Installation Challenges	38
	Yue Teng (The Hong Kong Polytechnic University)	Work package planning to mitigate the impacts of carbon reduction policies: a graph-restricted cooperative game approach	55
	Dahai Wang (Wuhan University of Technology)	Wind-Induced Dynamic Reliability Analysis of Transmission Tower Lines System	78
Afternoon Tea/Break Time: 15:00–15:30			
15:30 – 17:00	Pengcheng Xiang (Chongqing University)	Research on Sustainability Risk Measurement of Mega Infrastructure Projects	82
	Weiqi Xing (University of Technology Sydney)	Quantification of Uncertainties in Carbon Emission of Concrete in Australia	13
	Lan Luo (Nanchang University)	Reshaping the Connotation of Ecological Value in Mega Hydraulic Engineering Projects	59
	Ruijun Cao (Shenzhen University)	A Life-Cycle Sustainability Assessment of Phosphogypsum-Slag Pavement: Integrating Environmental and Economic Perspectives	60
	Ruiyang Ma (The Hong Kong Polytechnic University)	LLM-driven Cognitive Framework for Stakeholder Negotiation Dynamics in Cross-border Mega Infrastructure Projects	61

Conference Program

Time	Speaker	Topic	ID
15:30 – 17:00	Wu Huanyu (Shenzhen University)	Coupling Coordination Degree Between Construction and Demolition Waste Generation and Urban Spatial Development Level in Urban Agglomerations	67
	Chengxing Hu (Nanjing Forestry University)	Bridging Immunology and Public Building Energy Management: A Critical Review and Conceptual Framework	80
	Shervin Zabeti Targhi (Western Sydney University)	Prefabricated Prefinished Volumetric Construction (PPVC) Sustainability: A Critical Review of Interface Determinants, Circularity, and Digital Workflows	95
	Agana Parameswaran (Western Sydney University)	A Systematic Literature Review on Simulation Techniques in Lean Practices in the Construction Industry	29

Conference Program

Parallel Session W1B-CIB W116 Workshop

Theme: CIB W116 Workshop

KW-P.1.49

Time: 13:00-15:00

Facilitator: Linna Geng

Supporter: Lei Liu, Mingxue Ma, Yijun Zhou

Zoom Chair: Linna Geng

Meeting ID: 585 412 1458

Password: 981636 [LINK](#)

Time	Speaker	Topic
13:00–13:10		Arrival and access
13:10–13:15	Distinguished Professor Vivian Tam	Welcome address
13:15–13:20	Professor Dongping Fang -CIB President, Tsinghua University	Opening remarks
13:20–13:35	Associate Professor Hongling Guo -Tsinghua University	Semantic-based behaviour decision-making method for construction robots in worker-robot collaboration (Online)
13:35–13:50	Associate Professor Isabelle Y.S. Chan -The University of Hong Kong	Trust in Human-Robot Collaboration for Sustainable Construction
13:50–14:05	Assistant Professor Mike WU -Lingnan University	Human-Robot Collaborative Agentic AIoT for Sustainable Cross-Border Modular Construction Logistics
14:05–14:45	Facilitator: Dr Linna GENG Panellists: A/Prof. Isabelle Y.S. Chan; Asst. Prof. Mike Wu	Panel Discussion: Integrating AI and Robotics for a Safer, Smarter, and Sustainable Built Environment
14:45–14:55		Appreciation the speakers and gifts
14:55–15:00		Event Conclusion & afternoon tea break

Conference Program

Afternoon Tea/Break

Time: 15:00–15:30

Parallel Session WIB

Theme: Digitalisation & Industrialisation

KW–P.1.49

Time: 15:30-17:00

Facilitator: Linna Geng

Supporter: Lei Liu

Zoom Chair: Lei Liu

Meeting ID: 825 7338 8273

Password: 065157 [LINK](#)

Time	Speaker	Topic	ID
15:30 – 17:00	Yanhu Han (Chang'an university)	AI-driven Project Management for Off-site Construction: Bibliometric Analysis and Theme Discussion	151
	Weihan Sun (RMIT University)	From Small Data to Reliable Insights: GAN-Based Data Augmentation and Feature Selection for C&D Waste Datasets Preparation	156
	Danesh Hedayati (Western Sydney University)	Innovative BIM-Oriented Platform for Design for Manufacturing and Assembly (DfMA) of Prefabricated Residential Buildings	115
	Xichen Chen (Auckland University of Technology)	Digital technologies for knowledge management in construction: Insights from a bibliometric review and a New Zealand case study	11
	Tupakula Saranya (Narasaraopeta Engineering College)	Hybrid Quantum-Classical Layers for Sentiment Analysis in Natural Language Processing	166

Conference Program

Parallel Session TIC

Theme: Digitalisation & Industrialisation

KW-P.1.50

Session Chair: Bo Xia

Supporter: Freddie More Franco Pablo

Zoom Chair: Freddie More Franco Pablo

Meeting ID: 874 5856 2458

Password: 894596 [LINK](#)

Time	Speaker	Topic	ID
13:00 – 15:00	Freddie More Franco Pablo (Western Sydney University)	AI and Machine Learning for Cold-Formed Steel Manufacturing Optimisation: Translating Digital Twin and Industry 4.0 Advances into Practice	94
	Tianliang Gao (Western Sydney University)	Research on the Full-Process Intelligent Management System for Renovation and Demolition Waste Based on Indoor Scan-to-BIM	27 Online
	JIA WANG (Queensland University of Technology)	Digitalisation in Age-Friendly Initiative Descriptions: A Text Mining Analysis of WHO Global Network for Age-friendly Cities and Communities Profiles	65
	Fangli Hou (The Hong Kong University of Science and Technology)	Multi-objective optimization for multi-zone building HVAC system via physics-integrated predictive control framework	100
	Yuna Wang (Guangzhou University)	Measuring the digital capability structure of construction enterprises: A patent data-based study	81
	Jingfeng Yuan (Southeast University) Feixiang Hu (Southeast University)	Enhancing Situational Awareness of Remote Tower Crane Operators: A Controlled Study	111 Online
	Yiting Yan (The University of Hong Kong)	A Critical Review of Visual Datasets in Construction Sites: From Real-World Capture to Synthetic Generation	113
	Zining Ren (The Hong Kong Polytechnic University)	Zero-Shot 3D Vision-Language Models for Intelligent BIM Updating	117

Conference Program

Time	Speaker	Topic	ID
13:00 – 15:00	Hongying Chen (The Hong Kong Polytechnic University)	Explainable Proficiency Evaluation of Construction Workers Using Vision-Language Models	116
	Yue Sun (Beijing Jiaotong University)	Inventory Optimization of Time-sensitive Building Engineering Materials Based on Reward Shaping DQN	63
	Ali Rahimian (Iran University of Science and Technology)	Multimodal AI for Robotic Task Synthesis in Construction Automation: A Systematic Review of Perception, Planning, and Human–Robot Collaboration	99
	He Zhou (Chongqing University)	Learning to collaborate: teaming-state-aware reinforcement learning for adaptive human-robot task allocation in construction	74
Afternoon Tea/Break Time: 15:00–15:30			
15:30 – 17:00	Xinyu Pan (Tsinghua University)	From Data Rich to Informed Decisions: A Review of LLMs for Structuring Unstructured Data in Construction	39
	Junjie Chen (The University of Hong Kong)	Futureproof by Automation: Exploring the “Blesses” and “Curses” of Robotics and AI in Facility Upkeep	97
	Xin Liu (The University of Hong Kong)	Large Language Model-Enhanced Ontology for Hospitals with Multi-Trade Integrated Mechanical, Electrical, and Plumbing System	79
	Yu Gao (University of New South Wales)	A Systematic Review of Large Language Models in Smart Construction	12
	Vinay Dandamraj (Mags Solutions)	Smart IoT Based Hydroponics Farming	1
	Manish Patil (SVKM's NMIMS)	Advanced Database Testing and Verification: Methodologies, Vulnerability Analysis, and Automated Methods of Testing Modern Database Backends	3

Conference Program

Time	Speaker	Topic	ID
15:30 – 17:00	Liupengfei Wu (Lingnan University)	A Framework for Persistent Quality Assurance: Leveraging Agentic AIoT Memory Mechanisms in Modular Building Supply Chains	144
	Moghal Babar (Narasaraopeta Engineering College)	Realistic and Lightweight Driver Drowsiness Detection Using MobileNetV2 Features and Logistic Regression with Noise-Robust Learning	10
	Sepehr Abrishami (University of Portsmouth)	THE RESILIENCE GENESIS: A FRAMEWORK FOR ENHANCED POST-DISASTER HOUSING BY EXPLOITING BIM, GENERATIVE DESIGN AND OSM	146

Parallel Session WIC-Book Launch

**Theme: Book Launch – Mental Health in Construction Industry
KW-P.1.60**

Time: 13:00–14:00

Facilitator: Carol Hon

Supporter: Wenqing Wan

Zoom Chair: Carol Hon

[Zoom Link](#)

Afternoon Tea/Break

Time: 15:00–15:30

Conference Program

Parallel Session W1C

Theme: Construction Engineering & Materials

KW–P.1.60

Time: 15:30-17:00

Facilitator: Yijun Zhou

Supporter: Wenqing Wan

Zoom Chair: Wenqing Wan

Meeting ID: 823 8356 7951

Password: 811852 [LINK](#)

Time	Speaker	Topic	ID
15:30 – 17:00	Mengyuan Zhu (Western Sydney University)	A Novel Attempt to Use Western Sydney Expansive Soil as Precursor for Alkali-Activated Expansive Soil Stabilisation	162
	Fuyi Yao (North China University of Technology)	Fault-Tree-Based Detachment Risk Analysis of EPS Board Thin-Plastering External Thermal Insulation Composite Systems (ETICS)	158
	Ana Evangelista (Engineering Institute of Technology)	Turning Red Mud Green: Recent Advances in Bauxite Residue Waste Utilisation for Sustainable Civil Construction (2021–2025)	135
	Nayanatara Gamage (RMIT University)	Interfacial Transition Zone Characterisation and Phase Distribution Analysis in Textile Fibre Reinforced Concrete	31
	Xiaobo Zhao (Wuhan University)	Network Perspectives on Construction Project Risk: A Systematic Review	33
	Jialong Shang (The Hong Kong Polytechnic University)	A Knowledge-Driven Visual Reasoning Framework for Construction Safety Based on GraphRAG and VLM	118
	Lilian Obi-George (Massey University, Auckland Campus)	Circularity at Concept Design Stage for Sustainable Modular Housing Construction in New Zealand: The Case for Research	30

Conference Program

Parallel Session T1D

Theme: Construction Engineering & Materials

KW-P.1.51

Session Chair: Laura Almeida

Supporter: Jianguo Lei

Zoom Chair: Jianguo Lei

Meeting ID: 831 1960 0918

Password: 322102 [LINK](#)

Time	Speaker	Topic	ID
13:00 – 15:00	Cheng Jiang (Western Sydney University)	Potential Solutions for Damage Detection of Membrane Lunar Base	152
	Jianguo Lei (Western Sydney University)	A Stage-Controlled Synergistic Hydration Framework for Designing Low-Carbon High Sulfate Resistance Portland Cement–Slag–Fly Ash Systems	18
	Kuangye Zhang (Xi'an Jiaotong-Liverpool University)	Kuangye Zhang (Xi'an Jiaotong-Liverpool University)	150 Online
	Jiachen Niu (Chongqing University)	Neuromanagement in Engineering for People-oriented Engineering Management: Literature Review	36
	Yue Wu (The Hong Kong Polytechnic University)	PCFR: A Knowledge Graph-Driven Framework for Automated Fire Risk Assessment from 3D Point Clouds	87
	Tiantian He (Chongqing University)	“People-oriented” in Engineering Management: A Review on the Neuro-Engineering Management	35
	Yintao Luo (Chongqing University)	Effects of Geometric Dimensions on the Frequency-Domain Hydrodynamic Responses of a Floating Mixed Structure Foundation for Wind Turbines	44
	Jinmei Shi (Western Sydney University)	The Coupling Mechanism and Contradictory Relationship Between the Mechanical and Electrochemical Properties of Cement-Based Supercapacitors	19

Conference Program

Time	Speaker	Topic	ID
13:00 – 15:00	Md Jaynul Abden (Western Sydney University)	Decarbonisation Strategies for Recycled Aggregate Concrete	104
	Zhenchao Guo (Chongqing University)	Flood Risk Assessment of Urban Rail Transit Stations under Uncertainty: Integration of Multi-Source Heterogeneous Information	56
	Emma Jiang (Western Sydney University)	Residual Compressive Strength of CO2 Concrete after Exposure to High Temperature	71
	Yanling Zhao (Chongqing University)	Optimal Retrofit Strategies for Residential Building Envelopes: A Multi-objective Optimization Approach	66
Afternoon Tea/Break Time: 15:00–15:30			
15:30 – 17:00	Mohammad Tolouei (Western Sydney University)	Design, Analysis, and Circularity of an Adaptable Slab-Column Structural Backbone for Prefabricated Prefinished Volumetric Construction	102
	Chethana Illankoon (University of New South Wales)	Decarbonising Residential Construction Logistics: A Preliminary Assessment of Australian Detached Housing	142
	Junrun Xia (Adelaide University)	Effects of Carbonated Steel Slag Powder Replacement Levels on Hydration and Micromechanical Properties of Ultra-High-Performance Concrete	130
	Seyed Babak Atashfaraz (Western Sydney University)	Design and Evaluation of RSI Interconnection for High-rise Volumetric Modular Buildings in Sydney	121
	Mahsa Abdkarimi (Tabriz Islamic Art University)	A Proposal for Modular Construction: An Innovative and Simple Assembly Solution	122
	Fangliang Wang (Jiangxi University of Science and Technology)	Exploring the Spatial Association Characteristics of Input Efficiency for China's Information Infrastructure: A Network Perspective	64

Conference Program

Time	Speaker	Topic	ID
15:30 – 17:00	Bowen Ma (University of Canterbury)	Investigating the Effects of Augmented Hazard Alerts on Workers' Attention Allocation and Hazard Recognition Performance	140
	Ramtin Hajirezaei (Western Sydney University)	Overcoming Façade Barriers to Industrialised PPVC	103

Conference Program

Parallel Session TIE

Theme: Organisation & Management

KW-P.1.24

Session Chair: Jian Zuo

Supporter: Derek Zhu

Zoom Chair: Derek Zhu

Meeting ID: 836 4910 0957

Password: 968475 [LINK](#)

Time	Speaker	Topic	ID
13:00 – 15:00	Zheng Ma (Western Sydney University)	Engineering Text Qualitative Analysis Driven by Large Language Models	153
	Yongtao Shang (Chongqing University)	A Review of the Formation Mechanisms of Public Demand for Urban Functions	138
	Xiaojing Peng (The Hong Kong Polytechnic University)	Developing a Framework for Causal Analysis of Construction Unsafe Behaviours in Work-at-Height Operations	26
	Haoran Xing (Chongqing University)	Analysis of Synergy Causes of Prefabricated Building Supply Chain Based on Structural Equation Model	43
	Diya Yan (UNSW Sydney)	Predicting Women's Managerial Attainment in the Australian Construction Industry with Artificial Neural Networks: Evidence from LinkedIn Profiles	14
	Isabella Deininger (Technical University of Munich)	Toward More Manageable Planning in Construction Project Management: Building Typology and Planning Process Drivers of Early Phase Planning Durations	15
	Changfan Li (Chongqing University)	Investigating the Antecedents of Construction Workers' Unsafe Behaviors: A Systematic Review	137
	Carol K.H. Hon (Queensland University of Technology)	Exploring the Impact of Psychosocial Hazard Management Strategies on Construction Workers' Mental Health: An Agent-Based Modeling Approach	123

Conference Program

Time	Speaker	Topic	ID
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	Matt Stevens (Western Sydney University)	Selecting Contributors and Not Careerist in the Hiring Process	160
	Matt Stevens (Western Sydney University)	Chaos Theory: A Project Management Breakthrough	168
	Yiming Lu (Xi'an Jiaotong-Liverpool University)	Determinants of Contractors' On-Site Sorting Behaviour for Construction Waste: A DEMATEL-Based Analysis in Yunnan Province	76
	Jelena Andrić (Xi'an Jiaotong-Liverpool University)	Developing an ANN Model for the Prediction of Overruns in Asian Infrastructure Projects	88
	Bee Lan Oo (UNSW Sydney)	International Students' Decision-Making and Learning Experience in Construction Management Coursework Master's Degree	128
	Fei Ying (Massey University)	Workplace Coping Strategies among the Trade Workers in New Zealand Construction Industry	114
	Yimin Kuang (Nanjing University)	Bridging Discontinuity: Evolution and GNN Prediction of Inter-Project Innovation Networks	92

Conference Program

Parallel Session TIF

Theme: Sustainability & Resilience

KW-O.1.05

Session Chair: Yitian Ren

Supporter: Feng Cheng

Zoom Chair: Emma Jiang

Meeting ID: 834 6918 1407

Passcode: 412036 [LINK](#)

Time	Speaker	Topic	ID
13:00 – 15:00	Qiwen Chen (RMIT University)	Sustainability-Orientated Infrastructure Resilience to Natural Disasters: Insights from a Systematic Review	40
	Yitian Ren (Xi'an Jiaotong-Liverpool University)	Building-up Urban Resilience: Flood Vulnerability Assessment Based Adaptive Zoning Approaches	75
	Boao Zhang (Chongqing University)	Spatiotemporal Evolution Research of Construction and Demolition Waste: A Case Study of the Chengdu–Chongqing Economic Circle, China	109
	Shiying Liu (The Hong Kong Polytechnic University)	Assessing the Economic and /Environmental Impacts of Extending China's Emissions Trading System to the Construction Sector	108
	Huili Xie (Curtin University)	Scenario-Based Multi-Criteria Decision Support for Affordable Housing Retrofit: A Case Study in Perth, Australia	169
	Munguntsetseg Otgon (Curtin University)	Aligning Organisational Capabilities with Net-Zero Transportation Logistics in the Construction Sector	145
	Tusankine Salasini (Xi'an Jiaotong-Liverpool University)	Exploring Modular Timber Construction for Flood Relief Housing in Lusaka, Zambia	106

Conference Program

Time	Speaker	Topic	ID
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	Wenqing Wan (Western Sydney University)	The Impact of Carbon Price Trajectories on Building Sustainability: A Prospective LCA-LCC Integrated Approach	70
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15:30 – 17:00	Kola Olayiwola (Western Sydney University)	Modern Methods of Construction: A Compendium of Sustainable Development Goals	127
	Fan Zou (Wuhan University of Technology)	Research on Decision Support for Air Pollution Governance Based on Knowledge-Enhanced Large Language Models	68
	Zhe Zhang (University of Canterbury)	Multi-Objective Optimization of School Retrofits: A Simulation Approach to Energy and Cost Trade-offs	69
	Yuqing Xu (The Hong Kong University of Science and Technology)	Orchestrating Multi-LLM Agents for Automated Carbon-Aware Assessment of openBIM-based Ductworks	89
	Na Xiao (Queensland University of Technology)	When Staying Becomes a Governance Risk: Ageing in Place and Environmental Responsibility in the Built Environment under Net-Zero Transition	85
	Chun Chen (Chongqing Jiaotong University)	Unraveling the Built Environment Drivers of Traffic Congestion in Mountainous Cities	77

Conference Program

Parallel Session TIG

Theme: Digitalisation & Industrialisation

KW-O.1.09

Session Chair: Chun Chen

Supporter: Jinmei Shi

Zoom Chair: Jinmei Shi

Meeting ID: 832 1063 2805

Password: 781546 [LINK](#)

Time	Speaker	Topic	ID
13:00 – 15:00	Yucheng Liu (Shenzhen University)	Spatial Heterogeneity in Regional Resilience to Typhoon Disasters Revealed by Daily Nighttime Light Data: Evidence from Typhoon Yagi	154
	Pengqi Yang (UNSW Sydney)	Integrating Life Cycle Assessment and Emissions Trading Scheme in the Australian Construction Sector: A Preliminary Study	129
	Yang Chen (The Hong Kong Polytechnic University)	Multi-factor Combination Strategies for Synergizing Pollution Reduction and Carbon Reduction in Chinese Cities	22
	Yunzheng Zhang (The University of Hong Kong)	Green for Healthy Aging: The Greener the Better?	148
	Cuong Tran (Vietnam National University)	A Flood Vulnerability Index Approach to Prioritising Timber Heritage Conservation in Hoi An, Vietnam	126
	Feng Cheng (Massey University)	A Review of Wind Turbine Blades Recycling Technologies in End-of-Life Stage Based on Circular Economy	125
	Yusen Zhao (RMIT University)	State-of-the-Art Review of Digital Design Approaches for Building-Integrated Photovoltaics	20
	Rashid Maqbool (The University of Manchester)	Project Management Approaches Influencing the Sustainable Practices Adoption in UK Construction Organizations in Lack of Knowledge, Reluctant Behaviours and Economic Issues	6

Conference Program

Time	Speaker	Topic	ID
13:00 – 15:00	Hua Wang (National Center of Technology Innovation for Green and Low-Carbon Building)	A Data Acceptance Method and Quality Assessment Framework for Carbon Emission Factors: Driving Digital Decarbonization in the Chinese Construction Industry	83
	Su Han (Central University of Finance and Economics)	Multi-Objective Collaborative Optimization for Multi Microgrid Systems Considering Multiple Renewable Energy Sources	51
	Rashid Maqbool (The University of Manchester)	Exploring the Management Approaches Influencing the Sustainable Practices Adoption in UK Construction Organizations: A Green Technology Perspective	5

Conference Program

Parallel Session TIH

Theme: Sustainability & Resilience

KW-O.1.07

Session Chair: Lan Luo

Supporter: Yu Gao

Zoom Chair: Vivian Tam

Meeting ID: 872 7296 5086

Password: 720652 [LINK](#)

Time	Speaker	Topic	ID
13:00 – 15:00	Mingxue Ma (RMIT University)	A Review of Policy, Regulatory and Governance Instruments for Electric Vehicle Battery End-of-Life Management in Australia	90
	Ying Chen (Heriot-Watt University)	Perspectives on Implementing Circular Economy in the Construction Industry: Evidence from New Zealand	93
	Salman Ahmad (Jian Tomke Artificial Intelligence Hardware Co., Ltd)	Smart and Sustainable Built Environment: Integrating Knowledge Mapping and AI for Effective Project Risk Management	161
	Hongqin Fan (The Hong Kong Polytechnic University)	Equipment Replacement for Construction Equipment Fleets: A Cost-effectiveness Analysis model	170
	Dongzhi Guan (Southeast University)	Deep learning-based path simulation of the carbon emissions in the building sector in Shandong Province	164
	Lingxi Yang (Zhongnan University of Economics and Law)	Substantive or Strategic: Does Occupying the Structural Hole Really Improve Firms' Green Technological Innovation in the Green Technology Market?	58
	Rashid Maqbool (The University of Manchester)	Building Materials Adaption and Adoption Impacting on Energy Efficiency in Sustainable Construction	4

Plenary Speakers

CRIOCM 2026 Plenary Speakers



Mr George Maltabarow FTSE was Managing Director of Ausgrid (formerly Energy Australia) from November 2004 to June 2012. He joined Energy Australia as Chief Financial Officer and Company Secretary in February 1999 and prior to becoming MD, was General Manager, Network, responsible for planning and operating Energy Australia's electricity transmission and distribution networks.

George's former roles include Executive Director of NSW Treasury and Deputy Chairman of NSW Treasury Corporation. George is an experienced chief executive as well as an energy and financial specialist whose career has included utility and policy roles in all sectors of the

electricity industry.

He is the former chairman and board member of the Energy Networks Association of Australia, a former Director of the Energy Supply Association of Australia and Deputy Chair of the NSW Treasury Corporation.

The Path to Net Zero – Is it a Mirage



Dr. Dongping Fang is a professor at the School of Civil Engineering, Tsinghua University. He also serves as the director of the Institute for Future Cities and Infrastructures. He is currently president of the International Council for Research and Innovation in Building and Construction (CIB).

Professor Fang specializes in construction safety and urban resilience. He developed a cognition-based Leadership-Culture-Behavior (LCB) approach for construction safety and a Trio-space Framework (Physical-Social-Cyber) for urban resilience. Currently his research focuses on human-centric approaches to improve urban resilience against earthquakes and floods.

Professor Fang has authored over 200 papers in peer-reviewed academic journals. He has been invited as keynote speakers at more than 50 international conferences such as World Building Congress 2016 and 2022, and Urban Transitions 2017. His contributions have earned him awards from the Construction Industry Council in Hong Kong, and the Chartered Institute of Building (CIOB) in the UK.

Safety Culture and Ethics in Construction (Online)

Keynote Speakers

CRIOCM 2026 Keynote Speakers



A Shanghai-born, Melbourne-based entrepreneur and prefab industry pioneer, **Mr Waco Tao** bridges global innovation with Australian pragmatism. With multidisciplinary expertise spanning architecture, construction, advanced manufacturing, and supply chain—bolstered by master's degrees in Marketing and Supply Chain Management (Monash University) and a Graduate Diploma in Hospitality Management—Waco is redefining how Australia builds.

In 2009, he founded PowerHouse Homes, Australia's first vertically integrated prefabricated construction company. By applying automotive-grade supply chain principles to building, Waco's model delivers high-design, low-carbon homes at 40% lower cost and 6x faster than traditional methods. Under his leadership, PowerHouse Homes has become an industry case study, with projects ranging from cyclone-resistant regional housing to 7.2-star energy-rated urban developments—proving that sustainability and scalability can coexist.

DfMAD + SCI: Closing the Circle – Supply Chain Integration as the Missing Link for Circular, Carbon Neutral Construction

Abstract

For decades, many industries have championed circular economy principles – yet circular construction remains the exception, not the default. Why? Because we have focused on design while neglecting the supply chain infrastructure required to close the loop.

Drawing on 19 years of pioneering experience in prefab construction and three decades of supply chain management, this keynote introduces DfMAD + SCI – Design for Manufacturing, Assembly, and Disassembly with Supply Chain Integration. The framework argues that DfMAD alone is a drawing, not a delivery system. To achieve circular, carbon neutral construction, we must integrate four critical supply chain layers.

Keynote Speakers



Professor Wilson W.S. Lu is Chair Professor (Digital Construction) and Head of the Department of Real Estate and Construction at the University of Hong Kong (HKU). His research interests focus on two main areas: 1) construction informatics, including building information modelling, smart construction, big data, and blockchain; and 2) circular construction, focusing on management, economics, and public policies.

Prof. Lu is the Director of iLab@hku, a smart city construction lab established to take on the opportunities and challenges instigated by the global visions of Smart City and Industry 4.0. He is the principal investigator (PI) of research grants worth HK\$80+ million from various prestigious funding regimes. Furthermore, he is the author of two books and more than 300 book chapters and journal papers, and has been consistently ranked as a Top 1% Scholar by Clarivate Analytics since 2017.

Prof. Wilson Lu is the author of 2 books, 200+ book chapters and journal papers. He has a Google Citation > 12000 and H-index > 64. He has been ranked as one of the Top 1% Scholar by Clarivate Analytics since 2017.

Construction Digital Transformation: Hong Kong Experiences

Abstract

The architecture, engineering, and construction (AEC) industry is undergoing a radical digital transformation to meet increasing demands for efficiency, sustainability, and regulatory compliance. We have witnessed the rise of Building Information Modeling (BIM), big data, blockchain, and robotics in this traditionally hands-on industry. Recently, the rapid development of large language models (LLMs) and generative AI has disrupted an already “hyped” AEC sector, bringing both new challenges and opportunities. Hong Kong’s small but strong industry is no exception to this digital wave. In this talk, the speaker will share his journey advancing digital technologies in AEC, including generative design, circular economy, and cross-border logistics and supply chain management, with a focus on Hong Kong. He will try to debunk the stereotype that construction is a “traditional” (a tactful way of saying “technologically backward or innovation retard”) industry and to reassure those who feel overwhelmed by emerging technologies that they are not alone.

Keynote Speakers



Distinguished Professor Sujeewa Setunge is the Associate Deputy Vice Chancellor (ADVC) for Research and Innovation at STEM college in RMIT University managing the research portfolio of Science, Engineering, Computing and Health, while serving concurrently as the interim Dean of Engineering.

Professor Setunge leads the \$21 m ARC Industrial Transformation Research Hub for Transformation of Reclaimed Resources to Engineered Materials and Solutions for a circular Economy (TREMS) awarded in 2020, in partnership with 9 Australian and 4 international universities and 33 industry partners. Engineering the Next Generation of Infrastructure is a major topic area included in the hub where she has partnered with stakeholders to develop multiple solutions and creating pathways to impact through reduction of barriers for translation. She is a fellow of Engineers Australia and a chartered professional engineer (CPEng).

From Net Zero to Carbon-Positive: Engineering the Next Generation of Infrastructure

Abstract

The global commitment to decarbonisation presents the construction sector with both an unprecedented challenge and a transformative opportunity. As one of the largest contributors to carbon emissions, construction must move beyond incremental efficiency gains toward systemic change across the entire asset life cycle.

The keynote will present the outcomes of current research towards net zero in construction and will explore the barriers for pathways to impact. Drawing on international examples and emerging research, the keynote will demonstrate how engineered materials, computational modelling, whole of life and whole of system approach, AI driven optimisation and design for deconstruction can create opportunities for a carbon negative future infrastructure.

Keynote Speakers



Wu Yuzhe is a Professor and Doctoral Supervisor at the School of Public Administration, Zhejiang University. He currently serves as the Director of the Academic Committee of the School of Public Administration, Director of the Institute of Land Science and Real Estate, and Director of the Urbanisation and Spatial Governance Research Centre at Zhejiang University.

He has previously served as President of the China Construction Management Research Association (2017-2019) and holds several academic positions, including Chief Expert for a Major Project of the National Social Science Foundation, Expert of the International Organization for Standardization's Land Management Working Group, Standing Director of the

China Urban Economics Society, Chief Land Science Communication Expert of the China Land Society, Deputy Director of the Professional Committee of Land Spatial Planning Research of the China Natural Resources Society, Deputy Director of the Professional Committee of Urban Transformation and Innovation of the China Urban Science Society, Vice President of the Zhejiang Land Society, and Vice President of the Zhejiang Special Towns Research Association. He is also an editorial board member for the Journal of Urban Management, Habitat International, and China Land Science, and has been continuously selected as a Highly Cited Chinese Scholar by Elsevier since 2019.

Green Transformation of Resource-depleted Cities: Dilemma and Reflection

Abstract

The speech examines the multifaceted challenges faced by resource-depleted cities in advancing green transformation under China's "dual carbon" objectives, with a focus on northwest China as a case study. At the industrial level, these cities exhibit excessive reliance on energy-intensive industries, while coal mine closures have exacerbated employment and fiscal pressures. Institutionally, the inertia of GDP-centric evaluation systems has delayed substantive transformation by perpetuating interregional coal dependency. Spatially, land use conflicts, ecological restoration difficulties, and imbalanced urban-rural population flows further constrain progress.

The analysis further emphasizes that transformation strategies must transcend sole emphasis on carbon reduction, instead requiring systematic coordination of energy security, food security, ecological circulation, and developmental realities of middle-income economies. To this end, it advocates the "Green Cat" innovation pathway - a model that enhances economic efficiency while ensuring sustainable development through technological and institutional innovation

Keynote Speakers



Prof. Yi Peng is the Head of Dept. of Emergency Management, School of Government, Nanjing University. He also serves as Vice President of the Chinese Research Institute of Construction Management (Hong Kong), President of Jiangsu Zhongan Emergency Management Research Institute, Editor of International Journal of Construction Management, Associate Editor of Journal of Urban Management. His research interest includes emergency management, sustainable and resilient Cities, and policy simulation. His google scholar citation is more than 5900 with H-index of 39. He has been listed in Most Cited Chinese Researchers of Elsevier since 2020.

Urban Governance for extreme heat: the urgent inequality issues for addressing

Abstract

Progressively frequent extreme heat poses growing challenges to smooth functioning of cities. Understanding the inequality issues of extreme heat is critical for urban governance. This talk would share the research findings in China derived from multi sourced data at finer scale. Potential coping strategies would also be discussed.

Keynote Speakers



A property professional with a passion for sustainability, **Ms Davina** has led the Green Building Council of Australia since 2019. As a qualified engineer, Davina worked on large-scale construction projects in Sydney and London and spent nearly a year building an award-winning school in the Himalayas. Davina devoted a decade to driving sustainability at one of Australia's largest diversified property companies, Stockland, which culminated in Stockland's recognition as the world's most sustainable property company. Davina is on the Board of Evolve Housing and the Australian Sustainable Built Environment Council, as well as Chairing the Sustainable Procurement Roundtable for the Sustainable Built Environment National Research Centre.

Sustainability mega trends and role of procurement bringing scale

Keynote Speakers



Professor Mike (Michail) Kagioglou is the Deputy Vice-Chancellor Planning, Research and Innovation at De Montfort University, where he leads the university's strategic planning, research, enterprise, and innovation agenda. His portfolio includes oversight of research performance, industry engagement, innovation strategy, and major institutional development initiatives.

Prior to joining De Montfort University, Professor Kagioglou served as Pro Vice-Chancellor Global Development (Europe and UK) and Dean of Engineering, Design and Built Environment at Western Sydney University. During his tenure, he led major organisational reforms, research restructuring, strategic international partnerships, and the development of significant innovation initiatives, including collaborations with the Sydney Opera House.

Professor Kagioglou has held senior leadership positions at the University of Huddersfield and the University of Salford, and has contributed extensively to research and innovation in the built environment sector. He has been involved in more than £25 million of research funding across the UK and Europe and has led several major interdisciplinary research centres focused on construction, infrastructure, manufacturing, and health environments.

An internationally recognised scholar in construction engineering and management, Professor Kagioglou has published more than 240 academic papers, industry reports, and books. He is a Fellow of the Chartered Institute of Building (CIOB), the Royal Institution of Chartered Surveyors (RICS), and the Royal Society of New South Wales. He also served as the 121st President of CIOB from 2024 to 2025 and is the Immediate Past President of the Institute.

Twinning the Physical World for the Net-Zero Transition

Abstract

Digital twinning solutions, enabled by AI, IoT and autonomous systems, are transforming how we understand and manage the physical world. This talk explores the art of the possible for such solutions in the way they facilitate the net-zero transition. It reviews the current landscape and the trends shaping the years ahead, and provides examples from current research projects that demonstrate twinning in action across very different domains, from digital twins for children with respiratory diseases to the use of autonomous vehicles for the inspection of critical national infrastructure. The talk reveals the common threads that emerge, which speak directly to NØBEL's vision of digital platforms for a net-zero building ecosystem, and closes with recommendations for practice and a set of research questions.

Keynote Speakers



Professor Marc Aurel Schnabel is an internationally recognised architect, researcher, and academic leader whose work explores the future of design, digital architecture, immersive environments, and intelligent urban systems. As Dean of the Design School at Xi'an Jiaotong-Liverpool University, he leads interdisciplinary initiatives across architecture, engineering, urban planning, and industrial design. With more than 30 years of experience across Europe, Asia, Australia, and Oceania, his research advances Design Intelligence as a framework for integrating human creativity, artificial intelligence, digital systems, and environmental knowledge to cultivate adaptive, resilient, and meaningful built environments.

Design Intelligence: Cultivating Living Futures Beyond Construction

Abstract

For more than a century, construction has focused on delivering buildings that are stronger, faster, smarter, and more efficient. Yet the challenges of the twenty-first century demand a more profound transformation. Rather than viewing the built environment as a collection of completed objects, we must begin to understand it as a living ecosystem that continuously learns, adapts, and evolves with society.

This keynote introduces Design Intelligence as a new paradigm for the built environment: the purposeful integration of human, artificial, and environmental intelligence to create places that improve the quality of life. Technologies such as AI, digital twins, immersive environments, and predictive analytics are no longer simply tools for optimisation; they become enablers of environments that respond to changing human, ecological, and cultural needs throughout their lifecycle.

The keynote argues that the future of construction is no longer defined solely by what we build, but by what our built environments can become. Construction delivers buildings. Design Intelligence cultivates living futures.

Peer Review List

We would like to express our special thanks to the following experts for their support in the peer review of the conference papers. (In alphabetical order by last name)

Linna GENG	Western Sydney University
LEI LIU	Western Sydney University
Brian Guo	University of Canterbury
Jing Bian	Xi'an University of Architecture and Technology
Shengping Li	Curtin University
Shi Xiaoli	Jimei University
Yu Gao	University of New South Wales
Zezhou Wu	Shenzhen University
Chen Shi	Xi'an Jiaotong University
Dan Chong	Shanghai University
Mingxue Ma	RMIT University
Ruidong Chang	Adelaide University
Xincheng Wang	Tongji University
Zeng xueqin	Changzhou Institute of Technology
WeiQi Xing	University of Technology Sydney
Chethana Illankoon	University of New South Wales
Jingxuan Zhang	RMIT University
Yijun Zhou	Massey University
yuanping wang	Chongqing university
Jindao Chen	Guangzhou Maritime University
Nini Xia	Southeast University
Pei Dang	Tianjin Chengjian University
Xiaoxiao Xu	Nanjing Forestry University
Yi TAN	Shenzhen University
Bo Xia	Queensland University of Technology
Hongping Yuan	Guangzhou University
Qinjun Liu	Western Sydney University
Xinyun Li	The Hong Kong Polytechnic University

Workshop Introduction

1. CO2 Concrete Workshop

- Location:
KW-O.1.20, Western Sydney University Penrith Campus
- Date:
Monday, July 13
- Time:
15:00-16:00

Abstract:

Construction and demolition waste is a major contributor to landfill, yet its use in concrete remains limited due to inconsistent quality and performance concerns. CO2 Concrete addresses this by injecting carbon dioxide into recycled aggregate before mixing, triggering mineral carbonation that improves aggregate strength and bonding with cement. Testing shows CO2 Concrete can deliver mechanical and durability performance comparable to conventional concrete made with virgin aggregate. The process also permanently stores CO₂, reducing the embodied carbon of concrete while increasing confidence in recycled materials. CO2 Concrete offers a practical, scalable solution to support low-carbon construction and wider construction and demolition waste reuse.

2. [CIB W116 Workshop] Human-Robot Collaboration for Sustainable Construction

- Location:
KW-P.1.49, Western Sydney University Penrith Campus
- Date:
Tuesday, July 14
- Time:
13:00-15:00

Abstract:

Excited to share that the first CIB W116 Workshop on Human-Robot Collaboration for Sustainable Construction, organised by Distinguished Professor Vivian WY Tam FTSE, Dr Linna GENG, Dr Mingxue Ma, Dr Yijun Zhou and Dr Lei Liu, will take place on 14 July 2026 as part of the CRIOCM 2026 Conference. This workshop brings together leading researchers and practitioners to explore how AI and robotics can be integrated into construction workflows to enhance safety, productivity, and sustainability in the built environment.

3. TREMS Hub Workshop

- Location:
KW-P.1.33, Western Sydney University Penrith Campus
- Date:
Tuesday, July 14
- Time:
13:00-17:00

Abstract:

TREMS is a network of key stakeholders formed to progress research and innovation towards a circular economy. The TREMS research hub, led by RMIT and the University of Melbourne, brings together leading scientists, researchers, and industrial experts from nine Australian universities and 36 state, industry and international partners.

The TREMS Hub is built around five themes. Together, these themes aim to change practice, reduce contamination, inform evidence-based standards and guidelines, and build supply chain confidence. Research spans behavioural change, smart design to minimise waste, advanced waste processing and waste-to-energy technologies, innovative recycled materials, and circular economy solutions that transform waste into valuable resources for a more sustainable built environment.

4. Book Launch – Mental Health in the Construction Industry

- Location:
KW-P.1.51, Western Sydney University Penrith Campus
- Date:
Tuesday, July 14
- Time:
13:00–14:00

Abstract:

Mental Health in the Construction Industry compiles the latest research on mental health within the construction sector. Construction jobs are often transient, physically demanding, and involve long hours, creating a working environment with high levels of psychosocial hazards. Prolonged exposure to these hazards significantly increases the risks of work-related stress and harm to mental health. This book explores the critical need for comprehensive mental health support and awareness, detailing essential measures to protect and promote construction workers' mental health and wellbeing.

The Chinese Research Institute of Construction Management:

The Chinese Research Institute of Construction Management (CRIOCM) is a registered non-profit-making society under the Hong Kong Societies Ordinance. The Society is registered with the Department of Real Estate and Construction at The University of Hong Kong.

The mission of CRIOCM is to serve as a bridge in undertaking research and academic activities for the construction and real estate industries, including urban planning and development, construction project feasibility and design, real estate appraisal, construction management, and property management, both within China and internationally. It aims to promote the development of the construction and real estate industries.

CRIOCM values its tradition and culture of being member-oriented, fostering teamwork, and encouraging innovation. Its members come from a wide range of universities and industries. Since 1996, CRIOCM has successfully organised annual symposiums in different cities and countries.

CRIOCM is also responsible for the publication of the International Journal of Construction Management (IJCM). For more information, please visit the CRIOCM website: <https://fac.arch.hku.hk/criocm/>. Scan the QR code to follow the WeChat account of CRIOCM.

Introduction:

The University of Western Sydney (UWS) began operation on 1st January 1989, under the terms of the University of Western Sydney Act, 1988 which had been passed by the New South Wales Parliament in December 1988. However, the predecessors of the University date back as far as 1891 with the establishment of the Hawkesbury Agricultural College.

The Act created a federated network university, based on two existing Colleges of Advanced Education - Hawkesbury Agricultural College and Nepean College of Advanced Education.

Following incorporation into the University, the foundation network members were known as the 'University of Western Sydney, Hawkesbury' (UWS Hawkesbury) and the 'University of Western Sydney, Nepean'

The Act was amended by the University of Western Sydney (Amendment) Act, 1989 (Act No. 128, 1989) and the Macarthur Institute of Higher Education became the third University member on 1 November 1989. The new campus was known as the 'University of Western Sydney, Macarthur' (UWS Macarthur).

In 1995 a review of the structure of UWS was undertaken. The Report of the Committee to Review the Structure of the University of Western Sydney (the Rogers Report) recommended restructuring the institution and a new federated University system emerged. The University of Western Sydney became a federated university system comprising four co-operative and interrelated elements: Office of the Vice-Chancellor, UWS Hawkesbury, UWS Macarthur, UWS Nepean.

This federated system ensured the University was represented at a national and international level as a single institution with common objectives and values, while giving each of its Members the autonomy needed to react quickly and flexibly to the demands and needs of its local communities. The principal advantage of the federated network structure was the opportunity to build on the individual strengths of each member university, and through the University as a whole to define and achieve objectives that the individual members might have found unattainable.

Western Sydney University Information

Each member was largely autonomous and responsible for: the development and conduct of courses; the admission of students; the initiation and supervision of research programs; staffing; the development of consultancy and entrepreneurial activities; and the development and maintenance of campus facilities and properties.

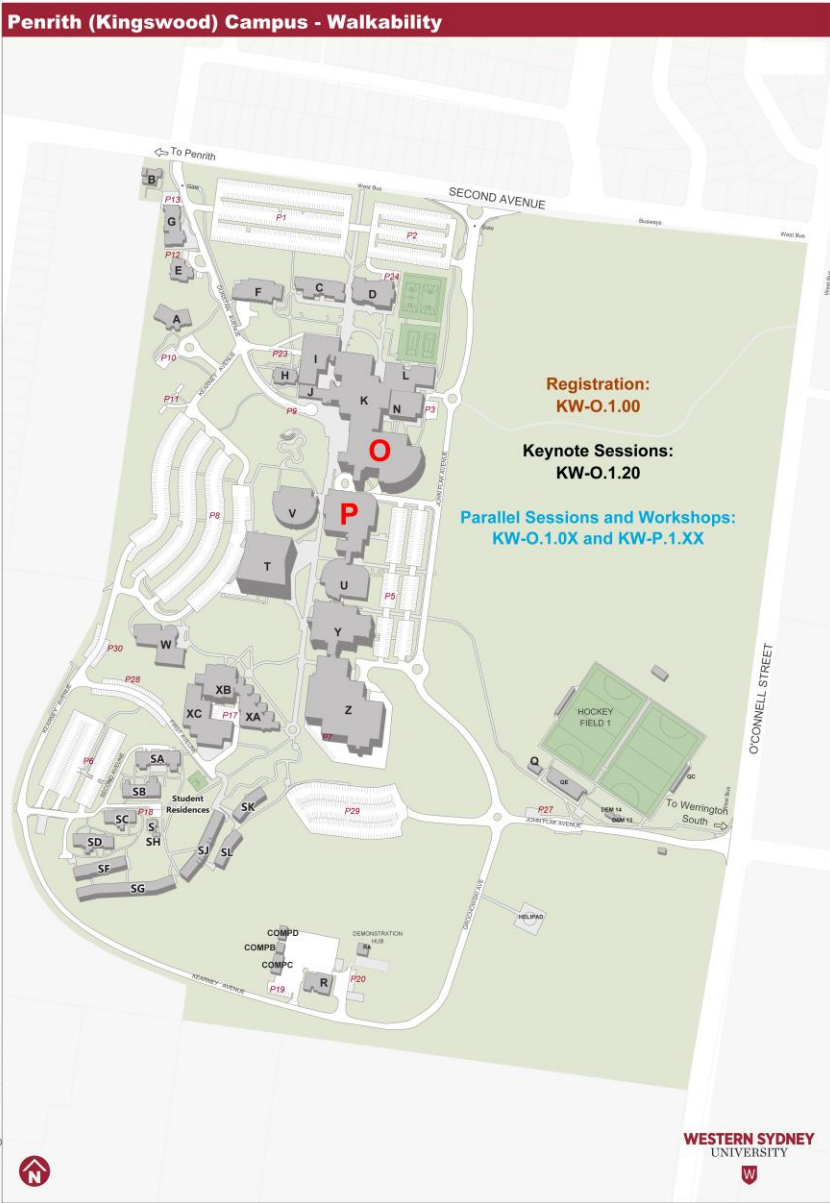
On 26 November 1997, the University of Western Sydney Act, 1997 (Act No. 116, 1997) was passed by the State Parliament. This Act which replaced the original Act came into force on 1 January 1998.

Following consultation across UWS the Vice Chancellor put proposals before the UWS Board of Trustees at the end of 1999 for a major restructure of the University. The Board approved the principles of the restructure, and the consequent detailed work to be undertaken to develop the new structure. From the beginning of 2001 the University of Western Sydney operated as a single multi-campus university rather than as a federation.

The new structure of the university was outlined in the 2001 Calendar with revisions and changes outlined in the 2002 Calendar.

The single multi-campus University of Western Sydney has six campuses: Bankstown, Blacktown, Campbelltown, Hawkesbury, Parramatta, and Penrith.

In 2014, the University of Western Sydney is celebrating its 25th anniversary as a statutory institution. The University acknowledges over 200 cumulative years of bringing knowledge to life in Greater Western Sydney from our heritage and member institutions.



Transportation Guidelines

From Sydney Kingsford Smith International Airport to Western Sydney University (WSU) Kingswood Campus:

1. By Train (Recommended for Overseas Travellers)

- Follow the signs for the train at the airport. The station names are:
 - International Airport – for overseas travellers
 - Domestic Airport – for domestic travellers
- Transfer at Central Station and take a train to Kingswood Station.
- Kingswood Station is approximately 1.5 km from the campus.
- WSU Penrith campus operates a shuttle bus service between Kingswood Station and the campus.



2. By Taxi or Rideshare

- Taxis and rideshare services such as Uber are available at designated pickup points outside the airport.
- Journey time: 45 minutes to 1 hour, depending on traffic.
- This option is convenient for participants with heavy luggage.



3. By Car / Driving

- Use GPS navigation apps such as Google Maps for detailed driving directions.
- WSU campus map is available here to help navigate the university.
- Parking: Available on campus at \$7 per day. Follow the signage for designated parking areas.



Conference Venue Address:

Western Sydney University
56 Second Avenue, Kingswood, NSW 2747

Coach Schedule

Date	Pick-up	Back	Route
Tue 14 Jul	8:00	17:15	Pullman Sydney Penrith → WSU Kingswood WSU Kingswood → Pullman Sydney Penrith
Wed 15 Jul	8:00	17:15	Pullman Sydney Penrith → WSU Kingswood WSU Kingswood → Pullman Sydney Penrith
Wed 15 Jul	17:15		WSU Kingswood → The Log Cabin, Penrith
Fri 17 Jul	12:00	15:00	Pullman Sydney Penrith → Museum Discovery Centre in Castle Hill Museum Discovery Centre in Castle Hill → Pullman Sydney Penrith

On-site Contact:

- Dr Lei Liu: 0422 255 387
- Dr Jaynul: 0414 997 252

Hotel Guidelines

1. Pullman Sydney Penrith

- Address:
81 Mulgoa Road, Penrith, NSW 2750, Australia
- By Car:
Approximately 10 minutes (6 km)
- By Train:
12 minutes from Penrith Station to
Kingswood Station + 1.5 km walk or shuttle



2. Mercure Penrith

- Address:
Corner of Mulgoa & Jamison Roads, Penrith,
NSW 2750, Australia
- By Car:
Approximately 10 minutes (6 km)
- By Train:
12 minutes from Penrith Station to
Kingswood Station + 1.5 km walk or shuttle



3. Quest Penrith

- Address:
83 Lord Sheffield Circuit, Penrith, NSW 2750,
Australia
- By Car:
Approximately 12 minutes (6.5 km)
- By Train:
14 minutes from Penrith Station to
Kingswood Station + 1.5 km walk or shuttle



4. The Select Inn Penrith

- Address:
83 Lord Sheffield Circuit, Penrith, NSW 2750,
Australia
- By Car: Approximately 12 minutes (6.5 km)
- By Train:
14 minutes from Penrith Station to
Kingswood Station + 1.5 km walk or shuttle



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