DEPARTMENT OF
Civil Engineering
土木工程系 eNews

THE UNIVERSITY OF HONG KONG

MARCH - APRIL 2026

Department News

Scholarship Presentation Ceremony 2025-26

The Scholarship Presentation Ceremony for 2025-26 was held on April 16, 2026 in Convocation Room, HKU and the event was well attended by donors, teaching staff and recipients. There was a total of 24 recipients including BEng and MSc students. The Guest of Honour, Ir Mok Wing-cheong Ringo, JP, Director of Drainage Services, Drainage Services Department of the Government of the HKSAR, delivered a speech and presented souvenirs to donors and representatives thanking them for their generosity in offering contributions to the cause of academic excellence.

The donors for Scholarship Presentation Ceremony 2025-26 include:

- A Group of 1977 Graduates of Department of Civil Engineering
- AECOM Group
- Association of Geotechnical & Geoenvironmental Specialists (Hong Kong)
- Family of the late Professor Y.K. Cheung
- Professor Y.L. Choi
- Family of the late Mr. Dick Feast
- Hip Hing Construction Company Limited
- Family of the late Mr. Leung Che Kwong and Ms. Lai Shim
- Family of the late Mr. Leung Ting Kui
- Ir Tony C.K. Shum and Tony Shum Education Fund
- Society of Construction Law Hong Kong

Group photo of the ceremony.

Departmental Team Building Events

Department of Civil Engineering is pleased to highlight two successful team-building events held earlier this year, supported by the University and the Faculty of Engineering.

The first event was a scenic hike at Lamma Island on March 13, 2026, followed by an engaging visit to the Tian Tan Buddha via Ngong Ping 360 Cable Car on April 29, 2026.

Both occasions had participation of over 60 staff members, who enjoyed the memorable and enriching experiences. These activities not only provided an opportunity for relaxation amidst busy schedules but also strengthened connection and collaboration among colleagues.

Group photo taken at Lamma Island.

Group photo taken at Tian Tan Buddha.

Staff Awards

HKU Invention on Automated Bamboo Scaffolding Safety Inspection Wins Silver Medal at the 51st International Exhibition of Inventions Geneva

An invention developed at the Department of Civil Engineering, Faculty of Engineering, The University of Hong Kong (HKU), has been awarded a **Silver Medal** at the **51st International Exhibition of Inventions Geneva**.

The award-winning invention, entitled **"An Automated Bamboo Scaffolding Safety Detection Method and System Based on Deep Learning and 3D Reconstruction,"** was developed by **Prof. Wenjun CAO**, Assistant Professor in the Department of Civil Engineering, and **Mr. Linghao KONG**, PhD student in the Department.

Bamboo scaffolding has long been widely used in the construction industry, particularly in Hong Kong, due to its flexibility, efficiency, and practicality in building works. However, conventional bamboo scaffolding inspection relies heavily on manual assessment, which can be time-consuming, labour-intensive, and subject to safety risks and human error.

To address these challenges, the HKU invention presents an automated bamboo scaffolding safety detection system based on **deep learning** and **3D reconstruction**. The system identifies bamboo poles and nodes using a node-guided fitting method, enabling the curvature of bamboo members to be captured more accurately. It then reconstructs detailed 3D models of the scaffolding structure, which helps reduce false positives in the detection process. By analysing spatial features against preset safety and compliance standards, the system can assess the safety condition of scaffolding in a more accurate and efficient manner.

This innovative approach has strong potential to enhance inspection accuracy, improve operational efficiency, and strengthen safety management in construction. It also demonstrates how advanced digital technologies can support smarter and safer construction practices, particularly in areas where bamboo scaffolding remains an important part of the built environment.

The recognition at the International Exhibition of Inventions Geneva highlights the impact of HKU's research and innovation in construction safety and digital engineering.

51st International Exhibition of Inventions Geneva Silver Medal

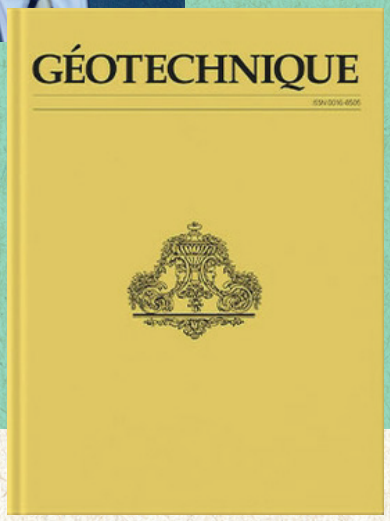
The research team led by Prof. Ray Su, including Dr. Chaobin Li and Mr. Zhongxu Zhao, has been awarded a **Silver Medal** at the **51st International Exhibition of Inventions in Geneva** for their invention titled *"Mirror-assisted Single-Shot Reflecting Laser Line (RLL) Device for Cross-Section Profiling."*

This innovative device addresses the limitations of traditional in-situ rebar cross-sectional profiling by integrating a mirror-assisted optical configuration. The RLL device enables the capture of complete cross-sectional profiles in a single shot, eliminating the need for multi-view scanning. This advancement significantly enhances measurement efficiency and reliability, particularly for assessing the residual strength of corroded reinforcement in applications related to the structural safety and durability of old reinforced concrete buildings and structures.

This award recognizes their persistent efforts in translating advanced research into impactful engineering solutions with real-world applications.

Mr. Zhongxu Zhao (left) and Dr. Chaobin Li (right)

Prof. Jun Yang, F.ASCE, FICE, FHKIE, has been ranked by *Clarivate* among world's Top 10 geotechnical researchers in terms of the number of publications in *Géotechnique* over the past 25 years (January 2001 to December 2025), being the only Asia-based scholar on the list. Established by the Institution of Civil Engineers (ICE) in London in 1948, *Géotechnique* is the ICE's flagship journal and is the most prestigious in the field of geotechnical engineering, publishing research of the highest quality on all aspects of geotechnics. The journal is very selective and publishes less than 100 papers per year on average. Notably, two of Prof. Yang's papers are also listed by *Clarivate* among the Top 50 most cited papers and another two are among the Top 100 most cited papers out of a total of 2,477 publications by the journal over the quarter century.



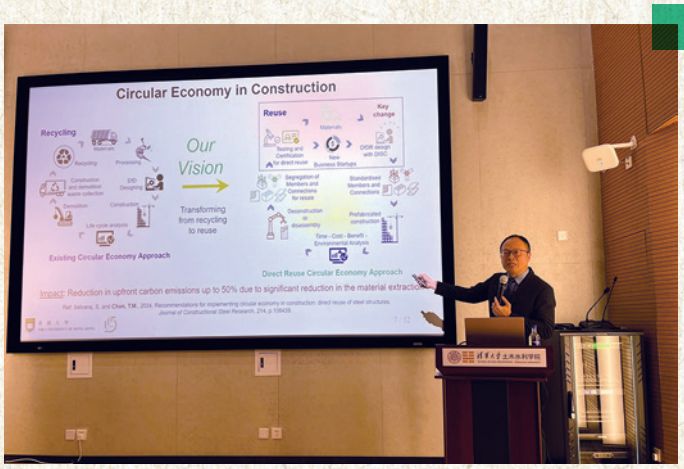
Staff News

Prof. Tak-Ming Chan Delivers an Academic Lecture on Circular Construction at an Event to celebrate Tsinghua's Civil Engineering Centennial

Prof. Tak-Ming Chan was invited to deliver an academic lecture on circularity in construction at the Centennial Lecture Series (清华土木建系百年系列学术报告), hosted by Prof. Gang Shi. His presentation, titled "Achieving the Circular Economy in Construction through Deconstruction and Reuse Technologies for Steel and Composite Structures," focused on innovative strategies and technological advancements aiming at reducing embodied carbon in steel and composite structures. During the lecture, Prof. Chan discussed current technologies, identified key barriers impeding the implementation of circular economy in construction, and proposed practical solutions to address these challenges. A central focus was on the proposed improved design concept for circularity in construction, called Design for Deconstruction and Reuse (DfDR), which incorporates interlocking connections to enable the direct reuse of structural elements. This work is part of his ongoing Research Impact Fund project, supported by the Hong Kong Research Grants Council (RGC). The event took place on March 10, 2026, and was attended by faculty members, research scholars, and students.

More details can be accessed via this link: https://mp.weixin.qq.com/s/8wcYeCsDorR_ggp0XvZgsg

Group photo



Presentation photo

Photo with Prof. Gang Shi

New Academic Staff

Dr. Yang Zhao is an Assistant Professor in the Department of Civil Engineering at the University of Hong Kong. He received his PhD in Civil and Environmental Engineering from Stanford University in 2021. Following his doctoral studies, he served as a Shuimu Postdoctoral Fellow at Tsinghua University. In 2024, he joined Northwestern University as a postdoctoral researcher, where he contributed to projects at the U.S. Department of Energy Center on Geo-processes in Mineral Carbon Storage. Dr. Zhao's research focuses on computational geomechanics, with particular interests in elastoplastic constitutive modeling of anisotropic rocks, fracture mechanics in geomaterials, multiphysics coupling in porous media, and advanced numerical methods for geotechnical engineering applications. He has published 15 journal articles in leading journals in the field and has served as Principal Investigator on several research grants, including the Young Scientists Fund of National Natural Science Foundation of China and the General Program of China Postdoctoral Science Foundation.

Student Award

HKIE Environmental Division Prize for Best Final-Year Environmental Project

Miss Elise Yi Lam Yau has been awarded as first runner-up for the 2023/2024 HKIE Environmental Division Prize for Best Final-Year Environmental Project. The award recognizes the efforts of final-year students in delivering high-quality environmental projects and encourages them to continue advancing environmental engineering practices in their future careers. The award-giving ceremony was held on February 27, 2026 at The Cityview.

The winning paper is titled "*Performance and Energy Efficiency of Mesophilic and Thermophilic Anaerobic Membrane Bioreactors in Chemically Enhanced Primary Sludge Treatment.*" Miss Yau has been supervised by Dr. Liguan Li and Prof. Tong Zhang of the HKU Environmental Biotechnology Lab.

The Shaking Table Competition 2026

The Shaking Table Competition 2026, organized by the Department of Civil Engineering and Project Mingde Student Association (PMSA), took place on March 3, 2026. This competition served dual purposes of education and entertainment, aiming to inspire students to apply their diverse skills and engineering mindset to design small-scale physical models addressing real-world challenges.

The models underwent testing on a shaking table under lateral earthquake loads. Teams were provided with limited materials of plywood sheets, balsa wooden sticks and super glue. Over the 7-day preparation period, each team employed unique design strategies and innovative approaches to meet the specified requirements. Additionally, teams had to present their engineering justifications to the distinguished judge, Prof. Francis Au.

There are 5 teams comprising a total of 20 students participated in this year's competition. It is with great pleasure that we announce Team B "Unity Under Stress" as the winners, consisting of Lam Pui Heng, Ho Ho Ching, Fung Sum In, and Lee Hong Yau, all are Year 1 Civil Engineering students. Team B was awarded a cash prize of HK$1000 and a Certificate of Champion. We extend our heartfelt congratulations to Unity Under Stress for their remarkable victory and applaud all participants for their dedication and hard work throughout the competition.

Figure 1. The winning team and their model

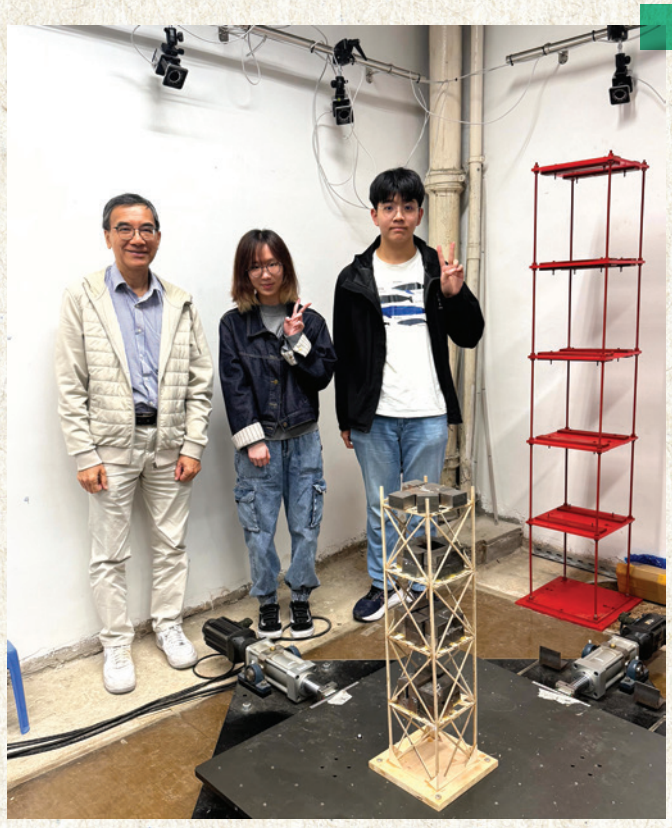


Figure 2. The winning team and Prof. Francis Au, the judge of the competition

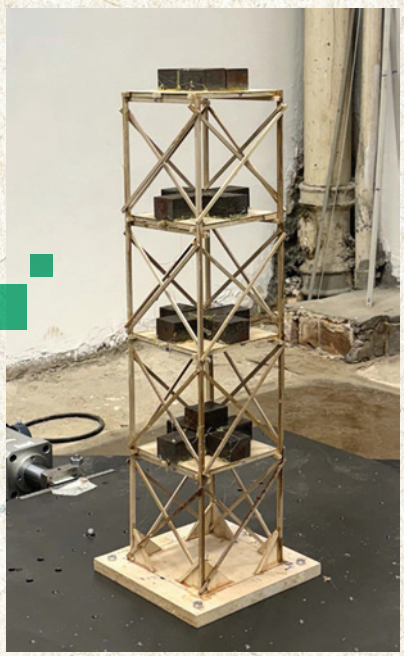


Figure 3. Model of Team A

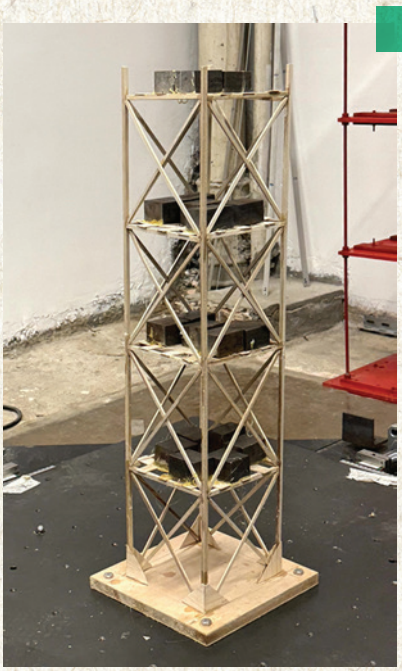


Figure 4. Model of Team B (Winner)

Figure 5. Model of Team C

Figure 6. Model of Team D

Figure 7. Model of Team E

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JANUARY - FEBRUARY 2026

Department News

19th International Symposium on Tubular Structures (ISTS 19) Successfully Held in Hong Kong, December 1 to 3, 2025

Prof. Wei Pan with all Kurobane lecturers

Welcome address by Prof. Tak-Ming Chan

Opening speech by Prof. Wei Pan

Opening Group Photo

The International Symposium on Tubular Structures (ISTS), established by the International Institute of Welding (IIW) in Boston in 1984 to promote scientific development and advanced applications of tubular structures, successfully held its 19th symposium in Hong Kong from December 1 to 3, 2025, under the chairmanship of Prof. Tak-Ming Chan. Organised by the Department of Civil Engineering at the University of Hong Kong and supported by the IIW Sub-Commission XV-E Tubular Structures, the symposium commenced with an opening speech by Prof. Wai Pan, Head of the Department of Civil Engineering at the University of Hong Kong, and featured the Kurobane Lecture delivered by Prof. Leroy Gardner from Imperial College London. With 148 registered participants from 20 regions and a total of 131 presentations, the three days event provided a forum to discuss the latest research trends, developments, and applications in the field. The symposium ended with an invited lecture by Prof. (emeritus) Japp Wardenier from TU Delft, followed by the closing ceremony. The 20th ISTS is scheduled to take place from September 6 to 8, 2027 and will be hosted by TU Delft, Netherlands. More details can be accessed via this link: https://www.civil.hku.hk/ISTS19/

Prof. Leroy Gardner Delivers William Mong Distinguished Lecture on December 4, 2025

Group photo of all speakers

Keynote lecture by Prof. Leroy Gardner

Audience

The William Mong Distinguished Lecture cum workshop on 'Progress Through Technology – The Future of Metal 3D Printing in Construction' was successfully held on December 4, 2025 at the Tam Wing Fan Innovation Wing Two of HKU, with Prof. Leroy Gardner from Imperial College London as the keynote speaker and hosted by Prof. Tak-Ming Chan. The lecture began with inaugural address by Prof. Tong Zhang, Associate Dean (Research) of Faculty of Engineering at HKU.

Prof. Gardner shared his achievements and insights, showcasing the integration of 3D printing into construction. Following the keynote lecture, four talks were given by Prof. Barbara Rossi from the University of Oxford, Prof. Man-Tai Chen from Shanghai Jiao Tong University, Prof. Lan Kang from South China University of Technology, and Prof. Xiaowei Deng from The University of Hong Kong, after which a panel discussion was held with enthusiastic participation from the audience. The lecture cum workshop highlighted research on metal additive manufacturing (3D printing) for structural applications, including material behaviour, component optimisation, and full-scale case studies, and discussed the roadmap for the future of resource-efficient infrastructure enabled by metal 3D printing. More details can be accessed via this link: https://engg.hku.hk/News-Events/Details/id/8604

Professor Leroy Gardner Emphasizes on Nurturing Independent Thinking and Resilience at William Mong Distinguished Lecture RPg Sharing Series:

Prof. Chan and Prof. Gardner

Group photo

Prof. Leroy Gardner, Head of Structures Section at Imperial College London and a Fellow of the Royal Academy of Engineering, shared his experience and reflections from his academic journey at the William Mong Distinguished Lecture: RPg sharing series, organised by the Research Student Centre of the Faculty of Engineering at HKU. The sharing session, titled *"A Conversation on Research: The Importance of Ideas, Dedication, Organisation, Clear Thinking and Resilience in Your Academic Journey"*, was moderated by Prof. Tak-Ming Chan, with research students and early-career researchers interacting directly with Prof. Gardner on various aspects of research career. Prof. Gardner highlighted on embracing uncertainty, nurturing independent thinking, and developing resilience, while also exploring work-life balance. He also stressed importance on quality publications and interdisciplinary collaboration for translating knowledge into industrial and societal impact. The event was held on December 5, 2025 at the Tam Wing Fan Innovation Wing Two of HKU.

2025 International Symposium on Smart Mobility System

The 2025 International Symposium on Smart Mobility Systems was held on December 6, 2025, at CPD-3.04, Centennial Campus, Run Run Shaw Tower, The University of Hong Kong (HKU). The symposium was supported by *Frontiers of Engineering Management* (a quarterly journal published by Springer Nature, to be renamed *ENGINEERING Management* from 2026) and HKU's Department of Civil Engineering. Under the leadership of Assistant Professor Jintao Ke, the event gathered scholars from Mainland China, the United States, Canada, Qatar, and Hong Kong, serving as an international platform for exchange and collaboration in smart mobility systems.

The program featured seven keynote presentations covering cutting-edge methodologies and emerging applications in intelligent transportation systems. Prof. Xuegang Ban (University of Washington) spoke on the sensitivity of ITS learning models using large-scale mobility data, highlighting implications for privacy protection and cybersecurity. Prof. Roberto Baldacci (Hamad Bin Khalifa University) presented exact optimization methods via logic-based Bender's decomposition to improve tractability in complex transportation decision problems. Prof. Yueyue Fan (University of California, Davis) discussed physics-informed data analytics that integrates domain knowledge with data-driven approaches. Prof. Lina Kattan (University of Calgary) explored the shift from self-driving to self-organizing mobility systems enabled by

connected vehicles. Associate Prof. Fang He (Tsinghua University) examined disturbance mitigation strategies for scheduled mobility systems under uncertainty. Associate Prof. Kai Wang (Tsinghua University) introduced coordinated urban logistics frameworks combining public transit and drones for last-mile delivery. Prof. Jiateng Yin (Beijing Jiaotong University) presented an online optimization framework for emergency logistics integrating freight allocation and train unit scheduling with reusable resources.

Discussions spanned learning-based sensitivity analysis, logic-based optimization, physics-informed modeling, CAV coordination, CAV–rail integration, drone–transit delivery, and online linear-programming-based resource allocation, strengthening international collaboration and interdisciplinary research.

Department Retreat 2026

The Department of Civil Engineering successfully held its department retreat on January 14, 2026, at the Conrad Hong Kong Hotel. The event was a resounding success, with active participation from 34 departmental staff members and esteemed guests, including six government and industry partners.

We would like to extend our sincere gratitude to all of the colleagues and guests for their valuable presence and insightful sharing, following guests in particular for both morning and afternoon sessions:

1. Ir Tony Yau, JP, Director of Highways, Highways Department, The Government of HKSAR
2. Ir Frankie Fung, Principal Assistant Secretary (Project Capability and Strategy), Development Bureau, The Government of HKSAR
3. Ir Harry Ma, JP, Deputy Director, Civil Engineering and Development Department, The Government of HKSAR
4. Dr. Sherman Yip, Assistant Director (Development & Procurement), Hong Kong Housing Authority, Housing Department, The Government of HKSAR
5. Ir Alfred Wong, Chief Executive Officer, Building Technology Research Institute
6. Mr. Carl Devlin, Capital Works Director, MTR Corporation

The retreat not only facilitated meaningful exchanges among the participants but also strengthened our department's connections with key stakeholders. We look forward to leveraging the insights gained to further advance the future development of our department.

Staff Award

The paper "Proof of Carbon Reduction: A Novel Incentive Mechanism in Blockchain for Carbon Emissions Reduction in Construction, Building and Environment, Volume 272, March 2025, 112684" from Dr. Xiao Li's research team has earned 2025 Best Paper Award from the journal, *Building and Environment*. The award was established in 2007 as a measure to encourage the publishing of high-quality papers in Building and Environment. The paper was first ranked highly by the reviewers of the team's paper, then selected by the Editors and Editors-in-Chief, further evaluated by the Editorial Advisory Board of the journal, and finally determined by the Best Paper Award Committee of the journal. The award is given to the team's for its originality, contributions to the field, presentation quality, and science soundness.

Staff News

Prof. Tak-Ming Chan Elected to the IStructE Nominations Committee

Prof. Tak-Ming Chan has been elected to the Nominations Committee of the Institution of Structural Engineers (IStructE), a professional body for structural engineers headquartered in London. The Nominations Committee coordinates the election process for the President, Vice-Presidents, Council Members, Board, and other senior roles within the Institution in line with governance procedures. The Committee also recommends candidates for honorary Fellowships, UK state honours, and is responsible for the Gold Medal and numerous other awards. Prof. Chan is one of ten members of the Committee, with a term of office of two years (2026-2028). More details can be accessed via this link: Nominations Committee - The Institution of Structural Engineers

Prof. Tak-Ming Chan Delivers Talk on Circularity in Construction at Imperial College and University College London

Imperial College Group Photo

University College London Group Photo

Laboratory Visit at Imperial College with Prof. Leroy Gardner

Laboratory Viist at Imperial College with Prof. Hong Wong.

Prof. Tak-Ming Chan was recently invited to deliver seminars on sustainable construction at both Imperial College London and University College London on January 27, 2026. His talk, titled "Achieving the Circular Economy in Construction through Deconstruction and Reuse Technologies for Steel and Composite Structures," focused on innovative strategies to reduce embodied carbon in steel and composite buildings. During the talks, Prof. Chan highlighted the importance of digital fabrication, rapid assembly and disassembly methods, the development of rapid non-destructive testing for certification, and the need for standards and policies to facilitate the reuse of structural members. This work forms part of his ongoing Research Impact Fund project, supported by the Hong Kong Research Grants Council (RGC). The seminar at Imperial College was hosted by Dr. Pinelopi Kyvelou and took place at the Skempton Building, South Kensington Campus. Later, Prof. Chan spoke at University College London, where the event was hosted by Prof. Katherine Cashell, Professor of Structural Engineering, and attended by research students and academic staff from the Department of Civil, Environmental & Geomatic Engineering. At the end of the talks, Prof. Chan also introduced collaborative funding and research opportunities in Hong Kong, including the RGC European Union – Hong Kong Research Cooperation Co-funding Scheme, the RGC Research Fellow Scheme, the HKU Presidential RAP Scheme, the RGC Hong Kong PhD Fellowship Scheme, the HKU Presidential Scholar and the HKU Summer Internship schemes. Additionally, on January 26, 2026, Prof. Chan visited the Structures Laboratory at Imperial College with Prof. Leroy Gardner, Head of the Structural Engineering Section, as well as with Prof. Hong Wong, Professor of Concrete Materials, further strengthening academic ties and exploring collaborative opportunities. More details can be accessed via this link: https://www.imperial.ac.uk/events/203790/structures-seminars-professor-tak-ming-chan-hku-achieving-the-circular-economy-in-construction-through-deconstruction-and-reuse-technologies-for-steel-and-composite-structures/

Student Award

Miss Leung Nga Yin wins IStructE Annual MSc Research Grant

MSc Civil Engineering student Miss Leung Nga Yin, has been awarded the Annual Research Grant by the Institution of Structural Engineering (IStructE), UK. Yin's project titled Enhancing Structural Circularity: Investigations on Shear Performance of Demountable Bolted Plate Connections for the Reuse of Existing Slabs, supervised by Prof. Tak-Ming Chan. She will receive a grant of £800 from the Institution. The annual grant supports postgraduate research projects undertaken as part of an MSc degree programme within a department of civil or structural engineering. This year, the grant prioritised topics related to structural engineering innovation for a zero-carbon world, with assessment based on scope of further research, innovation, and feasibility. Up to three grants are awarded each year. More details can be accessed via this link: https://www.istructe.org/training-and-development/apply-for-grants/msc-research-grants/

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