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Department of Civil Engineering
The University of Hong Kong



Department of Civil Engineering eNews (January to April 2025)

Department News

Department Celebration Lunch for being ranked 13th at QS World University Ranking 2025

The Department of Civil Engineering is proud to announce its remarkable achievement of being ranked 13th globally in the QS World University Subject Rankings 2025 in the area of Civil and Structural Engineering. This prestigious recognition underscores our unwavering commitment to academic excellence and puts us in a global leading position.

In celebration of this significant milestone, the department hosted a celebration lunch on March 25, 2025 (Tuesday), at the Ming Pavilion of the Senior Common Room, HKU. The event was graced by the presence of esteemed guests including Prof. Xiang Zhang, President and Vice-Chancellor of HKU, Prof. David Srolovitz, Dean of Engineering, Mr. Jason Yip, Faculty Secretary of Engineering, government officials, Honorary Professors and department members. Their participation made the occasion truly memorable, reflecting the collective pride and dedication of our academic community. Displayed below are some of the photos captured during the lunch.







Scholarship Presentation Ceremony 2024 - 2025

The Department of Civil Engineering held its highly anticipated Scholarship Presentation Ceremony for the 2024-2025 academic year on April 16, 2025 in the prestigious Convocation Room of the Main Building of HKU. This yearly event celebrated the outstanding achievements of deserving students and recognized the invaluable support of donors, scholarship representatives and distinguished guests. The ceremony was graced by the presence of the esteemed Guest of Honour (“GoH”), Ir Kwok Ting Tony Yau, JP, Director of Highways Department of the Government of the HKSAR.

Displayed below is a group photo of GoH, Prof. Wei Pan, our Head of Department, donors, scholarship representatives, distinguished guests and scholarship recipients.



Staff Award

The journal publication of Dr Clarence E. Choi and his team members entitled, Effects of solid fraction of saturated granular flows on overflow and landing mechanisms of rigid barriers, in Géotechnique, has been awarded 2025 Telford Gold Medal - first overall by the Institution of Civil Engineers (ICE), UK. The Telford Gold Medal is the highest award of ICE and is given to the best civil engineering (i.e., structural, environmental, geotechnical, materials, construction management) paper each year. The award was named after Thomas Telford, the first ICE President.

The medal has been awarded since 1835 to pioneers like Isambard Kingdom Brunel and Ove Arup, whose ground breaking contributions have transformed the industry. The award is recognized globally and celebrates exceptional innovation, originality, and lasting impact in areas such as research, design, and construction, often solving major challenges and influencing engineering practices worldwide.

ICE assesses all papers from industry and academia who are deemed by peers to be of exceptional quality and benefit the entire civil engineering discipline, construction, and materials science community. The medal will be received by Dr Clarence Choi in London at the institution in July later this year.

Staff News

Dr. Clarence E. Choi was awarded a Collaborative Research Fund from the Research Grants Council (RGC) with a project title “Disaster Reconstruction of Debris Flow for Rapid Rescue of Buried Objects using Differentiable Physics-guided Machine Learning.” The funded project is in collaboration with investigators from The Hong



Kong University of Science and Technology. Out of 402 applications in the 2024/2025 exercise, 42 research projects were funded by RGC.

Landslides are one of the most destructive natural hazards in the world. There is a dearth of tools to assist in post-landslide rescue. The 36-months project will adopt differentiable modelling to reconstruct landslide disasters in a rapid manner to locate displaced and buried structures to boost search and rescue efforts in mountainous regions. It is expected that the state-of-the-art tools that will be developed from this project will help to reduce landslide fatalities globally.

Student Awards

Mr. Tak San Lau (CivE 4 2023-2024) was awarded with The HKIE Structural Division Best Student Awards 2024. This award is sponsored by structural engineering firms in Hong Kong for commendation of university undergraduates who have demonstrated excellent academic results and a high level of competence in structural engineering.



Student News

The Shaking Table Competition 2025

The Shaking Table Competition 2025, organized by the Department of Civil Engineering and Project Mingde Student Association (PMSA), took place on February 20, 2025. 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 earthquake loads. Teams were provided with limited materials, predominantly 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, the former Head of Department.



There are 5 teams comprising a total of 19 students participated in this year's competition. It is with great pleasure that we announce Team B as the winners, consisting of Kwok Po Fai, Tsang Siu Tung, Pang Sik Yuen, and Hui Hong, representing students from Civil Engineering, Mechanical Engineering, and Computer Science disciplines. Team B was awarded a cash prize of HK\$1000 and a Certificate of Champion. We extended our heartfelt congratulations to Team B for their remarkable victory and applaud all participants for their dedication and hard work throughout the competition. Displayed below are winning team's group photo and their model, along with other teams' model.

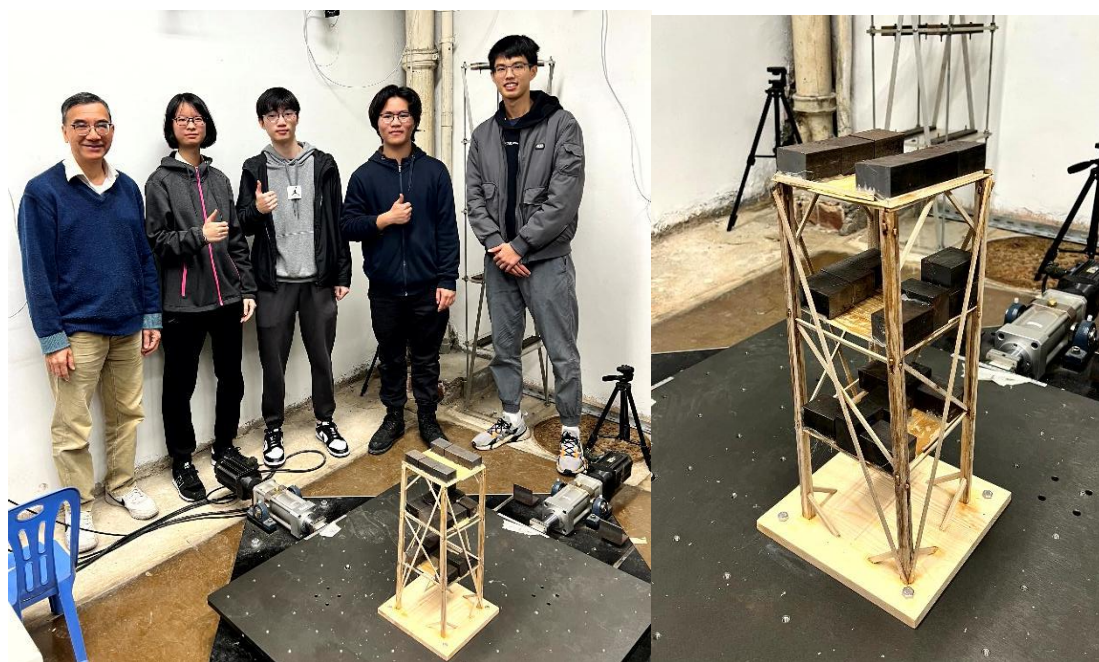


Figure 1. Group photo of winning team and their model, with our Judge Prof. Au.



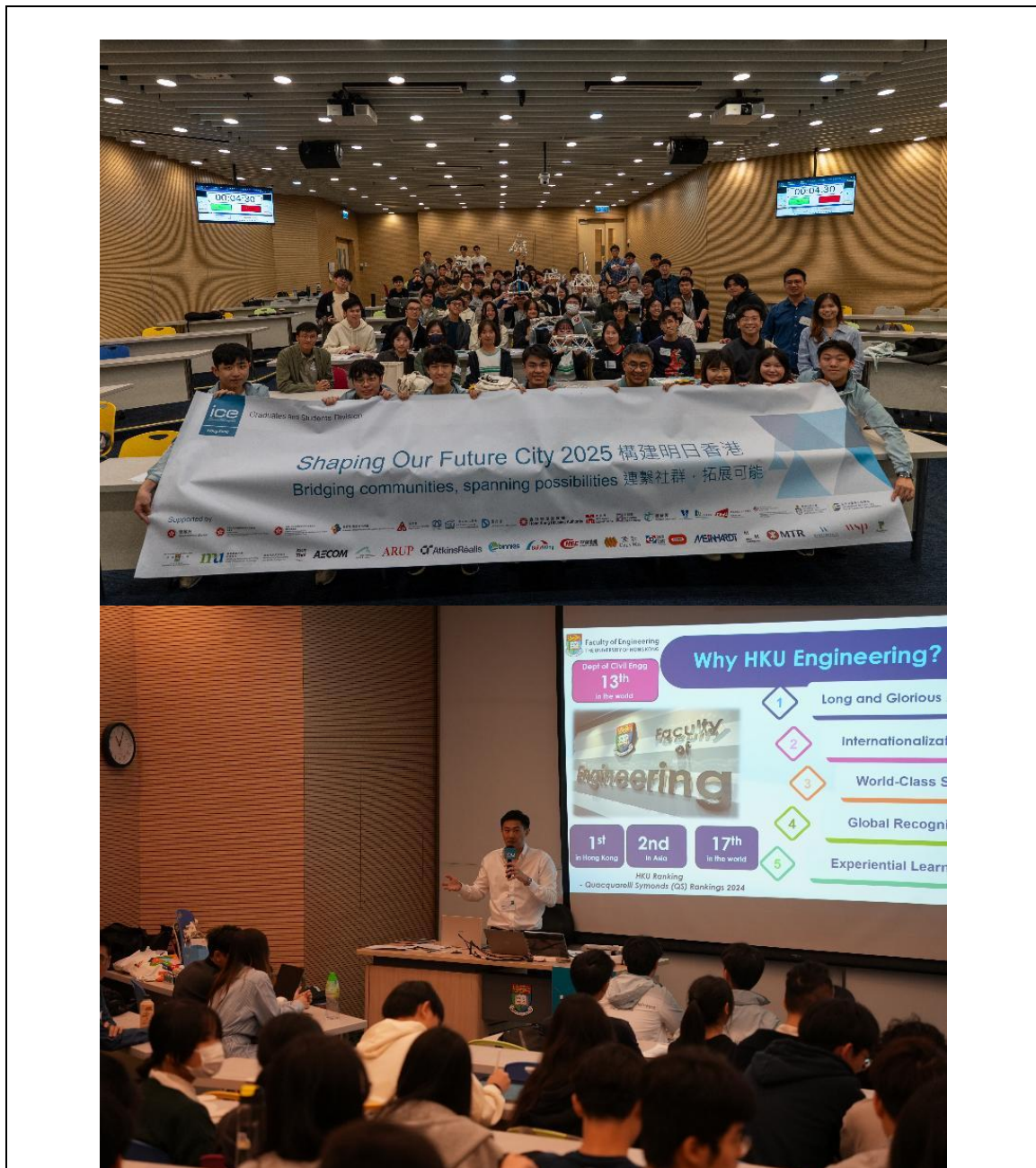
Figure 2. Other teams' model.



School Outreach Activities

With The Department of Civil Engineering's support, The Institution of Civil Engineers, Hong Kong Association Graduates and Students Division, organised one of their "Shaping our Future City 2025" events at HKU on March 15, 2025. The aim of the event is to encourage students to select civil engineering as their future career.

Around 120 secondary school students joined. The event consisted of lectures on the 'planning and design of pedestrian linkages' and 'structural design of footbridges'. Dr. Clarence Choi also introduced our department and our undergraduate programme. The students then visited 4 laboratories. In the afternoon, a bridge building competition was held. Displayed below are some of the photos captured during the event.





Alumni News

ICE Emerging Engineers Award 2025 (Hong Kong regional finals)

Miss Elise Yi Lam Lau (a graduate who was previously supervised by Dr. Liguan Li and Prof. Tong Zhang) was awarded as champion for ICE Emerging Engineers Award 2025 (Hong Kong regional finals) with a project titled "Developing an Energy-Positive and Low-Carbon Emission Sludge Treatment Process by Integrating Physicochemical Capture and Anaerobic Digestion".





Department of Civil Engineering eNews (November and December 2024)

Department News

William Mong Distinguished Lecture

Professor Michael Wagner from University of Vienna has delivered the William Mong Distinguished Lecture titled “Seeing is Understanding: Next Generation Chemical Imaging for Super-Fast Functional Analyses of Microbiomes” on November 13, 2024. The lecture was hosted by Professor Tong Zhang.



For full details, please access the webpage via this link: [Faculty eNews - Issue 12, 2024](#)

Departmental Distinguished Lecture

A Departmental Distinguished Lecture was held successfully on December 12, 2024. The Department is honoured to have Professor Nikolaos Geroliminis, one of the world's leading experts in urban transportation, to give a keynote speech for the lecture. Professor Nikolaos Geroliminis is a Full Professor at EPFL and the Head of the Urban Transport Systems Laboratory (LUTS). His research interests focus on urban transportation systems, traffic flow theory and control, public transportation and on-demand transport, car sharing, optimization and large-scale networks. He is currently the Editor-In-Chief of Transportation Research Part C: Emerging Technologies.

The title of the lecture is "Large-scale Modelling and Perimeter Control for Congested Transport Networks." The lecture was hosted by Dr. Jintao Ke and the Department souvenir was presented to Professor Geroliminis by Professor S.C. Wong. This lecture was held in KKL109 on LG1/F of K.K. Leung Building in HKU, with around 100 participants. Professor Geroliminis shared insights on how to trace where congestion originates and how traffic management systems affect its



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formation and the time it finishes. A black-tie dinner was hosted following the lecture.



Staff Award

Leung Cheuk Tong Outstanding Young Professorship

Dr. Hailong Ye has been honoured with the Leung Cheuk Tong Outstanding Young Professorship and has received the award at The Thirteenth Inauguration of Endowed Professorships on November 25, 2024.



For full details, please access the webpage via this link: [HKU Media](#) and [Faculty eNews - Issue 12, 2024](#)



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Staff News

Dr. Mingfu Guan has been promoted to Associate Professor, effective from November 1, 2024.

Dr. Mingfu Guan has been awarded with 2024/2025 NSFC-RGC Joint Research Scheme grant (HK\$ 992,300) by Research Grant Council, with a project titled “Developing strategies to boost resilience of metro systems to extreme flooding in a changing climate”.

Professor A.W. Jayawardena has been invited to a Keynote Lecture on the “Role of artificial intelligence in hydrological modelling” given at the International Conference on Hydrology and Water Management (CHWM2024) held during April 19-21, 2024 in Xiamen, China (via Zoom).

He has also been invited to a Keynote presentation on the “Role of water for a sustainable future” at the International Conference on Environmental Science and Sustainable Earth 2024 held during November 11 – 12, 2024 in Paris, France (in person).

Dr. Xiao Li has been awarded with Innovation and Technology Fund with the project titled “Hybrid Pose Adjustment (HyPA) robot for assembly process in modular integrated construction (MiC)”.

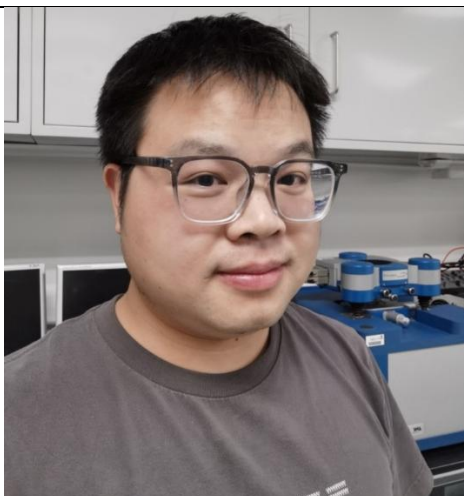
The MEMBest research team led by Professor Chuyang Tang, Chair Professor of Environmental Engineering, has developed a novel nanofiltration membrane using natural silk. This membrane is ten times more permeable than commercially available products, allowing a water flux of as high as 56.8 liters per square meter per hour under a partial vacuum suction. The patented technology can offer approximately 80% reduction in energy consumption for water purification.

“Silk is an amazing material—strong, flexible, and eco-friendly. We’ve harnessed its unique properties to push the boundaries of water purification,” explained Mr. Bowen GAN, Professor Tang’s PhD student who spearheaded the invention.



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The team has published the work in *Nature Communications*, in an article entitled “Ultra-permeable Silk-based Polymeric Membranes for Vacuum-driven Nanofiltration”.

For full details, please access the webpages via these links: [Nature Communications](#), [HKU Media](#), [Ming Pao](#), [Hong Kong Economic Times](#), [Hong Kong Economic Journal](#), [Oriental Daily News](#) and [Ta Kung Pao](#).

Professor Sze Chun Wong has been appointed as a Member of the Environment Committee for San Tin Technopole, effective from September 27, 2024, to September 26, 2026.

Alumni News

Fellow of Australian Academy of Technological Science and Engineering

Professor Yixia Zhang has been elected as the Fellow of Australian Academy of Technological Science and Engineering in October 2024. Professor Zhang was awarded PhD in Structural Engineering from Department of Civil Engineering at the University of Hong Kong in 2001, under the supervision of Professor Y.K. Cheung.

Professor Zhang is currently Deputy Chair of Academic Senate (was Acting Chair and member of Board of Trustee) of Western Sydney University, Discipline Lead of Civil and Environmental Engineering and Co-Director of Advanced Manufacturing Technology. Before joining Western Sydney University in 2019, she worked in University of New South Wales for 15 years. She was elected as the member of the College of Expert of Australian Research Council since 2021. Professor Zhang has made tremendous contribution in the area of advanced engineering materials, construction and building materials, composite materials and structures, and structural engineering and computational mechanics. Her interest focuses on the construction sustainability and infrastructure resilience and structural safety. Working closely with her industry partners and government, her research over 50 projects made significant impact to the society. Up until October 2024, she published



over 400 peer reviewed papers with 210 papers published in the top international journals in the relevant areas. She supervised and mentored over 100 researchers from the globe with many from China.



For full details, please access the webpage via this link: [ATSE](#)

Student Awards

Mr. Chen Chen (Mphil student supervised by Dr. Xiao Li) has won the Best Innovation and Impact Award at the 2024 International Conference on Construction Project Management and Construction Engineering (iCCPMCE), which was held during November 20 – 23, 2024 in Sydney, Australia.

Miss Siyuan Wu (PhD student supervised by Professor Quentin Z.Q. Yue) has won the Excellent Graduate Student Presentation Award at The 12th China Engineering Geology Conference, which was held during November 22 - 25, 2024 in Shenzhen, China.

Ms. Wentao Zhu (PhD student supervised by Dr. Xiao Li) has won the Best Paper Award at the 2024 International Conference on Construction and Real Estate Management (ICCREM), which was held during November 23 – 24, 2024 in Guangzhou, China.

Mr. Zexiu Zhu (PhD student supervised by Dr. Ray Su) has won the Best Student Paper Award with a paper titled "Performance of a Demountable CFST Column-to-column Connection in the Shear Wall System with Boundary Columns" at The 1st International Conference on Engineering Structures, which was held during November 8 - 11, 2024 in Guangzhou, China.



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Student News

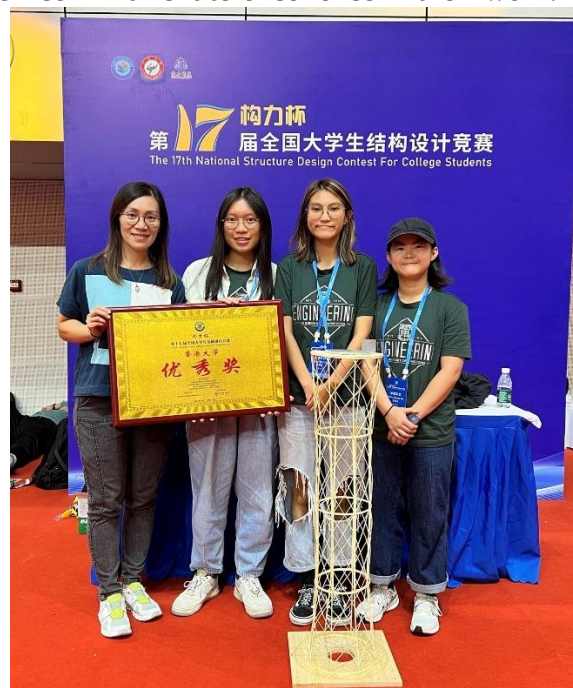
The 17th National Structural Design Contest for College Students

Recognized as one of the most prestigious structural design contests for college students in mainland China, the National Structural Design Contest for College Students encourages participants to develop innovative solutions for modern engineering challenges through collaboration. This year's competition, the 17th National Structural Design Contest, took place at Guangzhou University. Representing Hong Kong as the sole invited team, Fung Tsoi Ying, Leung Hei Yan, and Man Kwun Po, all third-year civil engineering students, participated under the guidance of Dr. Ada Law from November 8 to 10, 2024.

The theme of this year's competition was 'Structural Stability of High-Rise Structures', reflecting the increasing prevalence of such structures in mainland China's urban landscapes. With 121 teams from universities across China taking part, the competition required teams to construct their models using provided materials within a tight 12-hour timeframe spread over 2 days. The models underwent rigorous testing to assess their structural integrity, including monitoring horizontal displacement and acceleration under varying loads.

During the competition, our team had the opportunity to interact with and exchange ideas with other top-tier teams from different universities. They also enjoyed building new friendships and sharing HKU souvenirs. Witnessing the diverse yet effective models crafted with precision by other teams was truly enlightening for our students. It served as a reminder of the importance of striving for excellence in engineering solutions and provided inspiration for their future endeavors in the field.

Overall, the National Structural Design Contest was a valuable and eye-opening experience for our students, showcasing their dedication to the field of civil engineering and their commitment to excellence in their work.





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Department of Civil Engineering eNews (September and October 2024)

Staff Awards

The HKIE Best Transactions Paper Prize 2024

Professor Francis Au (right), Dr. Yingqi Liu (first one from the left, PhD 2021) and Mr. Ho Kit Siu (second one from the left, BEng 2019, MSc(Eng) 2023) have been awarded the HKIE Best Transactions Paper Prize 2024 for the paper titled "Long-term performance of hybrid MiC buildings considering concrete creep and shrinkage."



Figure 1. A group photo taken during The Prize Presentation Ceremony on September 13, 2024 (Friday).

HKU Scholars in the Top 1% ranked by Clarivate Analytics

The following researchers are ranked by Clarivate Analytics in the top 1% worldwide by citations in their research fields:

- Dr. Xiao Li;
- Prof. Xiao-yan Li;
- Prof. Wei Pan;
- Prof. Kaimin Shih;
- Prof. Wai Yuen Szeto;
- Prof. Chuyang Tang;



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- Prof. Sze Chun Wong;
- Prof. Jun Yang; and
- Prof. Tong Zhang.

For full details, please access the webpage via this link:
<https://hub.hku.hk/local/top1pc/top1pc.jsp?year=2024>

World Top 2% Scientists by Stanford University's List 2024

The following researchers are ranked by Stanford University's List 2024 in the top 2% Scientist worldwide in their research fields:

By career long (2023):

- Prof. Francis Au;
- Prof. A.W. Jayawardena;
- Prof. Albert Kwan;
- Prof Mohan Kumaraswamy;
- Prof. Wei Pan;
- Prof. Kaimin Shih;
- Dr. Ray Su;
- Prof. Wai Yuen Szeto;
- Prof. Leslie George Tham;
- Prof. Chuyang Tang
- Prof. Sze Chun Wong;
- Prof. Jun Yang;
- Dr. Hailong Ye;
- Prof. Quentin Zhongqi Yue; and
- Prof. Tong Zhang.

By single year (2023):

- Prof. Francis Au;
- Prof. Ji Chen;
- Dr. May Chui;
- Dr. Jintao Ke;
- Prof Mohan Kumaraswamy;
- Prof. Albert Kwan;
- Dr. Xiao Li;
- Prof. Wei Pan;
- Prof. Kaimin Shih
- Dr. Ray Su;
- Prof. Wai Yuen Szeto;
- Prof. Chuyang Tang;
- Prof. Sze Chun Wong;
- Prof. Jun Yang;
- Dr. Hailong Ye;



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- Dr. Jing Yu; and
- Prof. Quentin Zongqi Yue; and
- Prof. Tong Zhang.

For full details, please access the webpage via this link:
<https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/7>

Staff News

Adjunct Professor A. W. Jayawardena authored his 4th book and it is published by Cambridge Scholars Publishing.

For full details, please access the webpage via this link
<https://www.cambridgescholars.com/product/978-1-0364-1100-8>

Professor W. Pan, Head of Department, was elected Fellow of the Hong Kong Institution of Engineers on September 6, 2024.

Professor CY Tang's group published a series of papers in the prestigious journal *Nature Communications*:

- Highly porous metal-organic framework (MOF) nanosheets have shown promising potential for efficient water sorption kinetics in atmospheric water harvesting (AWH) systems. However, the water uptake of single-component MOF absorbents remains limited due to their low water retention. To overcome this limitation, Dr. Zhang Lingyue, a Research Assistant Professor working with Professor CY Tang, developed a strategy for fabricating vertically aligned MOF nanosheets on hydrogelmembrane substrates (MOF-CT/PVA) to achieve ultrafast AWH with high water uptake, achieving 91.4% saturation within 15 min. This construction approach significantly enhances the water vapor adsorption, offering a potential solution for the design of composite MOF-membrane harvesters to mitigate the freshwater crisis. More details can be found in the *Nature Communications* paper: Zhang, L.; Li, R.; Zheng, S.; Zhu, H.; Cao, M.; Li, M.; Hu, Y.; Long, L.; Feng, H.; Tang, C. Y.*, Hydrogel-embedded vertically aligned metal-organic framework nanosheet membrane for efficient water harvesting. *Nature Communications* **2024**, *15*, 9738. <https://www.nature.com/articles/s41467-024-54215-z>
- Chlorinated organic pollutants widely exist in aquatic environments and threaten human health. Catalytic approaches are proposed for their elimination, but sluggish degradation, incomplete dechlorination, and catalyst recovery remain extremely challenging. The work by Dr. Xiao Qian, a postdoc working with Professor CY Tang, demonstrates efficient dechlorination using ferrous oxide/graphene oxide catalytic membranes with strong nanoconfinement effects. The catalytic membrane shows complete dechlorination of dichloroacetic acid to chloride, with nearly 100% reduction



efficiency within a record-breaking 3.9 ms, improving the first-order rate constant by more than six orders of magnitude compared to current catalysis. More details can be found in the *Nature Communications* paper: Xiao, Q.; Li, W.*; Xie, S.; Wang, L.; Tang, C. Y.*, Ultrafast complete dechlorination enabled by ferrous oxide/graphene oxide catalytic membranes via nanoconfinement advanced reduction. *Nature Communications* **2024**, 15, 9607. <https://www.nature.com/articles/s41467-024-54055-x>

- Nanofiltration (NF) membranes are commonly supplied in spiral-wound modules, resulting in numerous drawbacks for practical applications (e.g., high operating pressure/pressure drop/costs). Vacuum-driven NF could be a promising and low-cost alternative by utilizing simple components and operating under an ultra-low vacuum pressure (<1 bar). Nevertheless, existing commercial membranes are incapable of achieving practically relevant water flux in such a system. Mr. Gan Bowen, a PhD student supervised by Professor CY Tang, fabricated a silk-based membrane with a crumpled and defect-free rejection layer, showing water permeance of $96.2 \pm 10 \text{ L m}^{-2} \text{ h}^{-1} \text{ bar}^{-1}$ and a Na_2SO_4 rejection of $96.0 \pm 0.6\%$ under cross-flow filtration mode. In a vacuum-driven system, the membrane demonstrates a water flux of $56.8 \pm 7.1 \text{ L m}^{-2} \text{ h}^{-1}$ at a suction pressure of 0.9 bar and high removal rate against various contaminants. Through analysis, silk-based ultra-permeable membranes may offer close to 80% reduction in specific energy consumption and greenhouse gas emissions compared to a commercial benchmark, holding great promise for advancing a more energy-efficient and greener water treatment process and paving the avenue for practical application in real industrial settings. More details can be found in the *Nature Communications* paper: Gan, B.; Peng, L. E.; Liu, W.; Zhang, L.; Wang, L. A.; Long, L.; Guo, H.; Song, X.; Yang, Z.*; Tang, C. Y.*, Ultra-permeable silk-based polymeric membranes for vacuum-driven nanofiltration. *Nature Communications* **2024**, 15, 8656. <https://www.nature.com/articles/s41467-024-53042-6>

Professor S.C. Wong has been reappointed as a Member of the Environment and Conservation Fund Committee and Chairman of its Practice and Action Projects Subcommittee, effective from October 16, 2024, to October 15, 2026.

Professor S.C. Wong has been appointed as a Council Member of the Hong Kong Metropolitan University, effective from October 1, 2024, to September 30, 2027.

In Memoriam of Professor Hon Chuen Chan (陳漢銓)

Professor Chan Hon Chuen, former Head of Department of Civil Engineering, passed away on October 16, 2024 at the age of 93.



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Prof. Chan obtained his bachelor degree in Civil Engineering from HKU in 1960 and obtained his Ph.D degree in structural engineering from Imperial College London in 1965.

Professor Chan worked in our department for 31 years from 1968 until his retirement in 1999. From 1994 to 1998, he was appointed Head of Department.

Professor Chan specialized in structural engineering, his main research interests were in the areas of higher order finite element method, shearwalls and corewalls, and plate and space structures.

His presence and wisdom will be dearly missed by all who had the privilege of knowing him.