College of Engineering
香港城市大學
City University of Hong Kong

E-BULLETIN

ENGINEERING THE FUTURE:
IGNITING OPEN INNOVATION

Issue 83
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NEW FACULTY

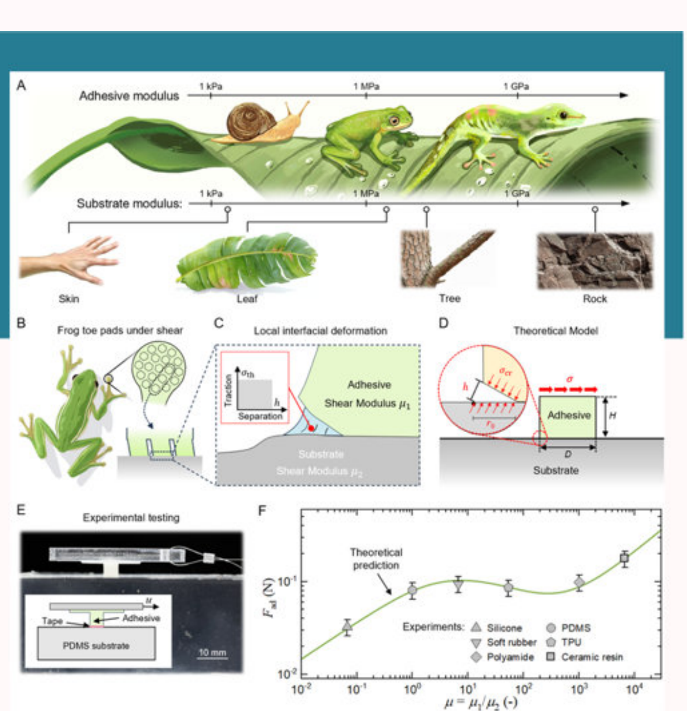
Prof XU Lingyu, Research Assistant Professor of Department of Architecture and Civil Engineering
Prof XU joined the Department of Architecture and Civil Engineering (ACE) in August 2026. He was a Research Fellow at ACE prior to taking up his current position. His research focuses on sustainable geopolymer and fiber-reinforced construction materials. He has authored over 60 publications, holds editorial roles, and receives funding from the National Natural Science Foundation of China.

Prof YANG Juncheng, Assistant Professor of the Department of Architecture and Civil Engineering
Prof YANG Juncheng is an Assistant Professor of the Department of Architecture and Civil Engineering. He holds a Master of Science in Urbanism from MIT and a doctorate in urban planning and real estate from the Harvard Graduate School of Design. His research focuses on the application and oversight of emerging technologies and AI in smart city governance.

RESEARCH

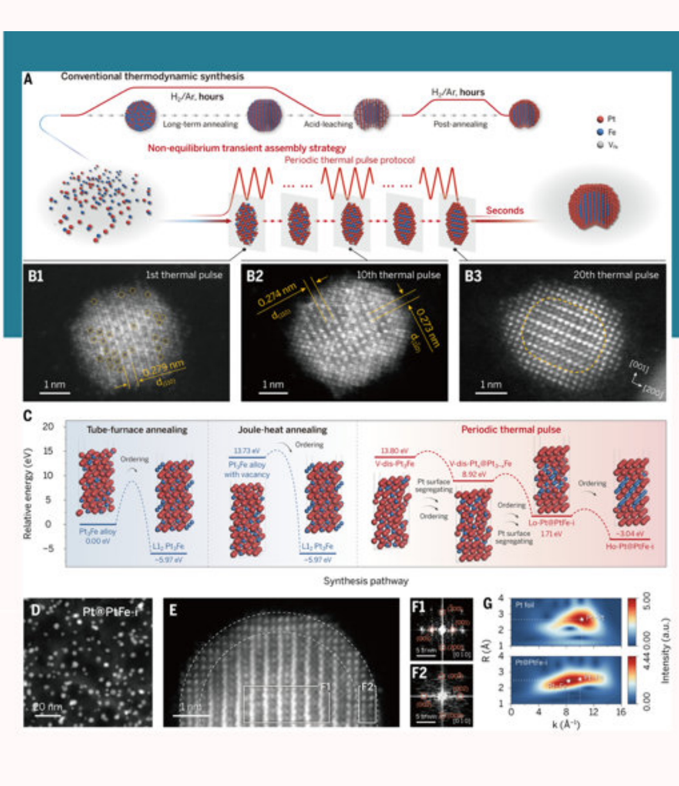
Prof Ron HUI's research on wireless power transfer technology transforms wireless charging
The pioneering wireless power transfer technology developed by Prof Ron HUI Shu-yuen's research team from the Department of Electrical Engineering has served as the foundation for Qi, the world's first international wireless charging standard. This innovation recently evolved into the advanced Qi2 standard. Thanks to Prof HUI's visionary work, wireless charging has transformed from a niche concept into a global norm.

CityUHK Research for the Future
Professor Ron Hui Shu-yuen
International Wireless Charging Standard



New PNAS paper by Prof LINGHU Changhong explains how stiffness affects adhesion
Prof LINGHU Changhong's research team from the Department of Mechanical Engineering has published a paper titled "Why shear adhesion is not monotonically enhanced by stiffening" in the *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*. For decades, scientists debated whether making an adhesive stiffer makes it stick better or worse. This new study solves the mystery. Using computer models and real-world experiments, the team discovered that stiffness doesn't simply increase or decrease stickiness in a straight line. Instead, it follows a wavy pattern with specific peaks and valleys. This finding shows exactly how stiff an adhesive needs to be for a strong grip or an easy release, helping engineers design much better materials.

Prof LIU Bin reports in Science: rapid heating creates highly efficient, durable platinum skin catalysts for hydrogen fuel cell use
Prof LIU Bin and his team from the Department of Materials Science and Engineering have released a paper in *Science* titled "Transient assembly of precision-tuned platinum-skin intermetallic catalysts for fuel cells". In the paper, they explained a super-fast heating method to create highly efficient, low-cost catalysts for hydrogen fuel cells. Instead of using slow, traditional manufacturing techniques, their rapid heat-pulse method builds microscopic particles with an iron-platinum core surrounded by a perfectly precise, ultra-thin platinum skin. This unique structure makes the catalyst highly active. When tested, it generates massive power using very little expensive platinum and proves incredibly durable, losing almost no power even after 30,000 test cycles.



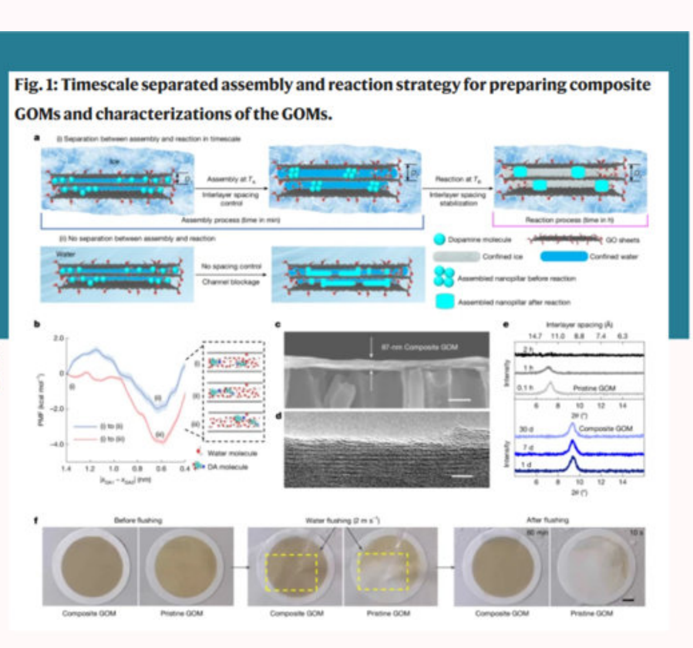


Fig. 1: Timescale separated assembly and reaction strategy for preparing composite GOMs and characterizations of the GOMs.

Prof ZENG Xiaocheng's team reveals new graphene membrane for super-fast, highly precise water purification in Nature
Prof ZENG Xiaocheng and his team from the Department of Materials Science and Engineering have recently revealed a highly advanced, super-fast water filter in their *Nature* paper "Graphene oxide-polydopamine membranes with controlled interlayer spacing". Traditional graphene filters struggle to maintain their microscopic layers in perfect alignment when wet. To fix this, the team used a freezing technique with dopamine to build sturdy "pillars" between the graphene layers, locking them in place with extreme precision. This new membrane is so precise that it can separate dissolved particles that are almost identical in size. Furthermore, it purifies water 10 to 100 times faster than standard filters, representing a major breakthrough in clean water technology.

Prof ZENG Zhiyuan's team unveils in Nature Communications rapid, sustainable method using 2D materials to extract gold from electronic waste
A paper titled "High efficiency gold extraction by 2D metallic 1T/1T′ phase transition metal dichalcogenides" by Prof ZENG Zhiyuan's team from the Department of Materials Science and Engineering was published in *Nature Communications*. The paper discussed a highly effective method for recovering gold from electronic waste using specialised two-dimensional materials. These materials, particularly one called TiS_2, can extract gold from dissolved e-waste with 99.99% efficiency in just 15 seconds. It also selectively grabs gold while ignoring other metals. To prove its real-world value, the team successfully recovered 0.15 grams of pure gold from 30 discarded computer CPUs. This discovery offers a fast, sustainable method for recycling precious metals.

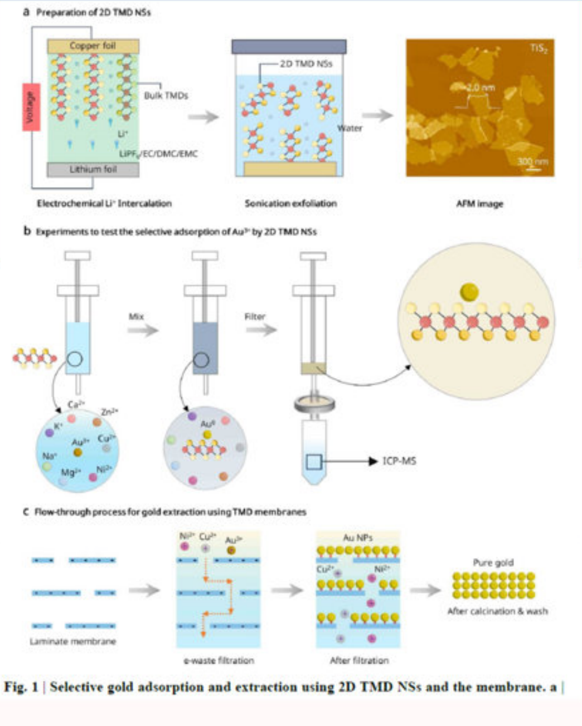
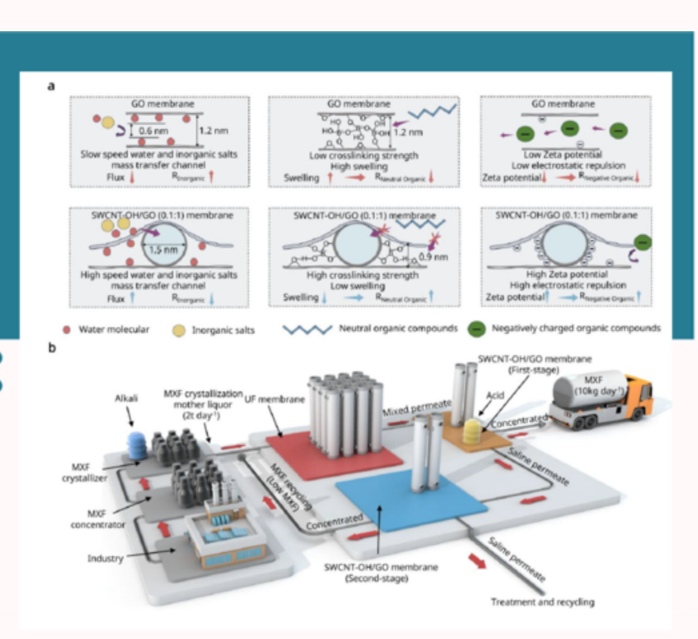


Fig. 1 | Selective gold adsorption and extraction using 2D TMD NSs and the membrane.



Prof ZENG Zhiyuan presents durable carbon membrane for recovering antibiotic moxifloxacin from salty industrial wastewater in Nature Communications
A *Nature Communications* paper titled "Robust SWCNT-OH/GO membranes for scalable recovery of moxifloxacin from high-salinity organic wastewater" by Prof ZENG Zhiyuan's team from the Department of Materials Science and Engineering reveals a highly efficient, durable filter made from carbon nanotubes and graphene. While traditional filters often struggle to separate valuable chemicals from salty industrial wastewater and are difficult to manufacture at scale, this new membrane solves these problems by allowing water and salt to pass through quickly while trapping moxifloxacin, a valuable antibiotic. In large-scale industrial tests, the new filter successfully recovered 10 kilograms of the drug every day, offering a practical and sustainable solution for treating wastewater.

FACULTY ACHIEVEMENT

Prof LEI Dangyuan and Prof Alex WONG from CENG elected Young Members of HKAE
Congratulations to two outstanding scholars from the College of Engineering (CENG) on their election to the Young Member Section of the Hong Kong Academy of Engineering (HKAE). Their innovation work shows the strength and impact of our research.

- Prof LEI Dangyuan from the Department of Materials Science and Engineering was recognised for his innovative work in Scalable passive daytime radiative cooling metamaterials and high-throughput plasmonic photothermal printing technologies.
- Prof WONG Man Hon Alex from the Department of Electrical Engineering for his pioneering research on superoscillatory microscope and metasurfaces for electromagnetics.

CityU
Congratulations!
Two CENG scholars elected as new Young Member of HKAE
Professor LEI Dangyuan
Professor WONG Man Hon Alex

Prof LI Wen Jung elected member of EAE
Congratulations to Prof LI Wen Jung, Vice-President (Talent and International Strategy) and Chair Professor in the Department of Mechanical Engineering, who has been elected as a member of the European Academy of Engineering (EAE). Prof LI is recognised for his contributions to artificial intelligence, micro- and nano-systems, robotics, and biomedical engineering.

Prof SO Hing Cheung earns NAAI and EAE memberships for exceptional global contributions to artificial intelligence and machine learning
Prof SO Hing Cheung from the Department of Electrical Engineering has achieved remarkable international recognition, having been elected a Member of the National Academy of Artificial Intelligence (NAAI) and the European Academy of Engineering (EAE). These dual honours recognise his exceptional scholarly achievements, outstanding professional leadership, and profound contributions to advancing artificial intelligence globally.

CSRSWTC 2026
2026 Cross Strait Radio Science and Wireless Technology Conference
July 10-12, 2026, Harbin, China
Best Papers

EE scholars shine at CSRSWTC 2026
Researchers in the Department of Electrical Engineering (EE) have secured two prestigious Best Paper Awards at the IEEE-sponsored 2026 Cross Strait Radio Science and Wireless Technology Conference (CSRSWTC), standing out among 563 accepted papers. Prof LUK Kwai Man and Dr ZHAO Liangliang were honoured for their paper, "A Low-Profile and Ultrawideband Tightly Coupled Dipole Array (TCDA)". Additionally, Dr WANG Shi Tong, Prof ZHU Lei, and Prof Steve WONG received the award for "A Circuit-Free Harmonic-Absorptive Antenna Technique Based on Direct Resistive Loading". CSRSWTC has been a premier platform for radio science and wireless communications since 1998. Congratulations to all winners.

STUDENT ACHIEVEMENT

CENG student receives CityUHK-Lucy Cavendish College Taught Master's Degree Scholarship
Five students in the College of Engineering (CENG) are awarded the prestigious CityUHK-Lucy Cavendish College Taught Master's Degree Scholarship 2026/27. This scholarship covers tuition, maintenance (including accommodation), health surcharge, visa fees, and airfare.

Department	Student	Programme
Electrical Engineering	Mr KAPYA Zachariah	Bachelor of Engineering in Computer and Data Engineering
Mechanical Engineering	Mr LI Ruibo	Bachelor of Engineering in Aerospace Engineering
Materials Science and Engineering	Miss SUTEDJO Avrilia	Bachelor of Engineering in Materials Science and Engineering
Materials Science and Engineering	Miss ZHANG Ruoqi	Bachelor of Engineering in Materials Science and Engineering
Systems Engineering	Mr Ernest PANG	Bachelor of Engineering in Intelligent Manufacturing Engineering

CityU Department of Architecture and Civil Engineering
Congratulations!
ACE Surveying students:
Cheung Wing Yu, Mak Yan Hei, and Wong Lok Sum
awarded
the Second Prize in
the Student Category at
the 1st Guangdong-Hong Kong-Macao Greater Bay Area BIM Application Competition and
the 7th Guangdong Provincial BIM Application Competition 2025.

ACE surveying students take home second prize at major Greater Bay Area BIM Competition
Congratulations to Miss CHEUNG Wing Yu, Miss MAK Yan Hei, and Miss WONG Lok Sum, surveying students from the Department of Architecture and Civil Engineering (ACE). Supervised by Dr Calvin KEUNG, the trio won the Second Prize in the Student Category at the 2025 joint 1st Guangdong-Hong Kong-Macao Greater Bay Area and 7th Guangdong Provincial BIM Application Competitions. Impressively, they were among the students from just two Hong Kong institutions to earn this distinguished recognition.

EE team bags ecosystem contribution award in OSR's Prometheus Programme
A team from the Department of Electrical Engineering (EE) has received the Ecosystem Contribution Award in the Prometheus Programme, organised by the Shenzhen-based cybersecurity firm Open Security Research (OSR). Supervised by Prof Ray CHEUNG, the team comprising Dr SHEN Shiyu, Dr YANG Hao, and Miss JIN Shutong was recognised for their innovative project, "Optimising Computational Efficiency Using Sparse-Packed Bootstrapping".

IET
YPEC
YOUNG PROFESSIONALS EXHIBITION & COMPETITION
19 July 2026

EE's postgraduate researchers crowned champions at IET YPEC 2026 for grid-scale storage project
A team of postdoctoral and PhD researchers from the Department of Electrical Engineering, Dr WEI Zhengqi, Mr LU Fengwang, and Mr WANG Shaocong, has won the championship in the Postgraduate Section of the IET Young Professionals Exhibition & Competition (YPEC) 2026. Supervised by Prof Henry CHUNG, their winning project is titled "Second-Life Battery Valorization: Autonomous Energy Router for Grid-Scale Storage". Organised by the Institution of Engineering and Technology (IET), YPEC serves as a dynamic platform for young professionals from various sectors to showcase their engineering and technological innovations.