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

E-BULLETIN

Issue 79
(May 2026)

RANKING

CityUHK rises to 14th in 2026 THE Asia University Rankings

City University of Hong Kong (CityUHK) has risen two spots to 14th place in the 2026 Times Higher Education (THE) Asia University Rankings. This progress reflects significant improvements in teaching, research environment, and research quality. Notably, CityUHK ranked first in Hong Kong for its "International Outlook", highlighting its strong global academic collaboration. Additionally, the university achieved a perfect score in the "Industry" indicator, demonstrating its exceptional success in knowledge transfer and translating research into real-world economic and societal impacts.

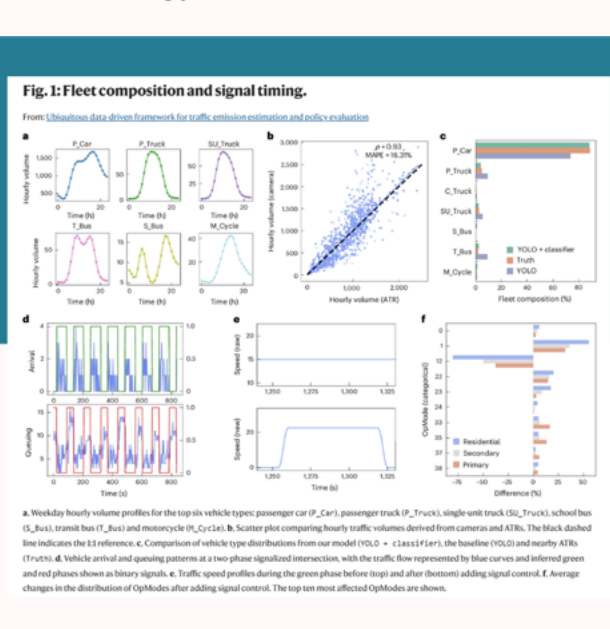
RESEARCH

CityUHK and CCTEG collaborate to advance 6G applications for enhanced coal mining safety

On 9 April 2026, City University of Hong Kong (CityUHK) and the China Coal Technology and Engineering Group (CCTEG) forged a strategic partnership to enhance mining safety through advanced communication technologies. This collaboration aims to deploy cutting-edge 6G and terahertz technologies in extreme deep-mine environments, addressing critical industry pain points such as high latency and severe signal interference. Prof CHAN Chi-hou, Chair Professor of the Department of Electrical Engineering and Director of the State Key Laboratory of Terahertz and Millimeter Waves at CityUHK, highlighted the unique challenges of underground signal propagation. He emphasised that the joint effort will focus on optimising antenna coverage and mitigating electromagnetic noise. By adapting surface-level 6G innovations for subterranean use, this partnership promises to significantly enhance communication stability, bolster industrial safety, and reduce mining accidents.

CENG drives global collaboration through CASM and SMART under SEAM@InnoHK, advancing smart manufacturing, sustainable materials, and renewable energy

The College of Engineering (CENG) is playing a leading role in the Hong Kong SAR Government's third InnoHK research cluster, "SEAM@InnoHK", with two approved research centres. The Centre for Advanced and Smart Manufacturing (CASM) is co-led by Prof LU Jian, CENG Dean, with Prof Colm DURKAN from the University of Cambridge. CASM focuses on next-generation intelligent and sustainable manufacturing, spanning quantum-level materials prediction, zero-energy cooling, cognitive manufacturing systems and advanced materials. The Sustainable Materials & Advanced Renewable Technologies Centre (SMART), co-led by Prof Alex JEN from the Department of Materials Science and Engineering and Prof Harm-Anton KLOK from EPFL, will develop AI-enabled materials design platforms and self-driving laboratories for renewable energy and sustainable materials.

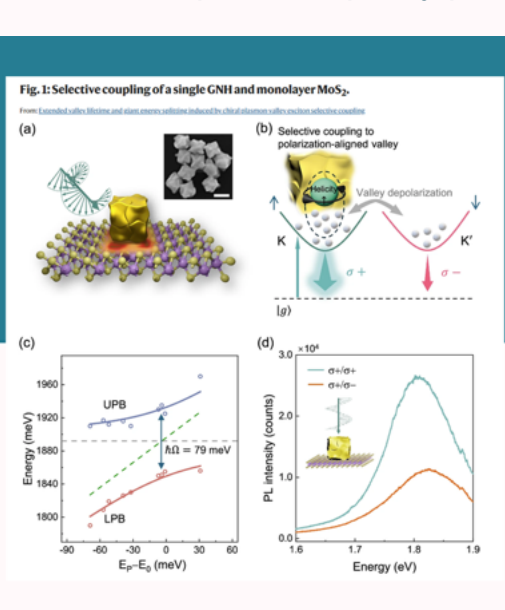


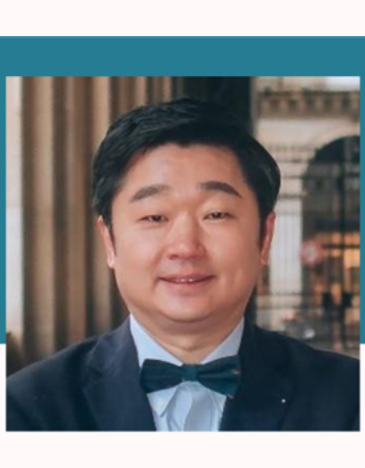
Prof HU Songhua's innovative crowdsourced data model featured in Nature Sustainability

Prof HU Songhua's research team from the Department of Architecture and Civil Engineering in collaboration with MIT presents the first city-scale microscopic traffic emission model built entirely on urban crowdsourced data and AI. Integrating camera feeds, mobile locations, and floating car data, this framework reconstructs high-resolution vehicle operations. Featured in *Nature Sustainability* and *MIT News*, the model enables near real-time policy evaluation. For example, simulating Manhattan's congestion pricing revealed a 16–22% reduction in emissions, highlighting the immense value of fine-grained, data-driven transportation policy planning.

Prof LEI Dangyuan's research team publishes major finding in Nature Communications on using light to improve data storage in tiny materials

A research team led by Prof LEI Dangyuan from the Department of Materials Science and Engineering recently published a paper in *Nature Communications* titled "Extended valley lifetime and giant energy splitting induced by chiral plasmon-valley exciton selective coupling". Their research tackles a major hurdle in next-generation computing. While future computers can use tiny, atom-thick materials to store data, keeping this information stable at room temperature has always been difficult. To solve this, the researchers pair a specific material (MoS_2) with a special light-trapping structure. This unique interaction effectively separates energy levels, significantly extending the lifespan of the stored information. This finding paves the way for faster, more efficient ways to encode and store our digital data.



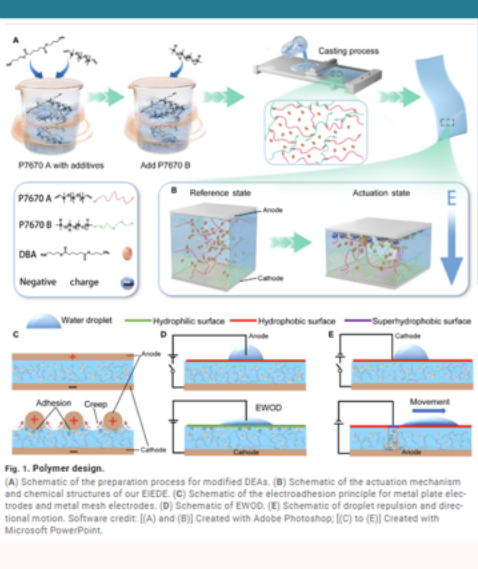


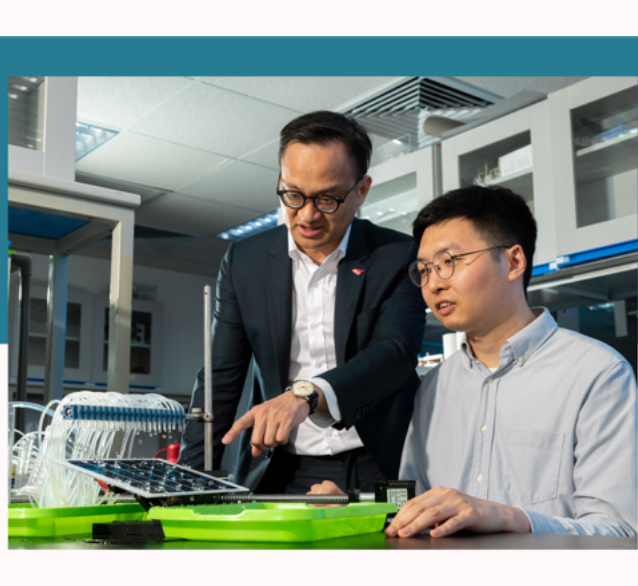
Prof LUO Jianxi secures ITF Seed Fund to develop AI tools for practical massive capacity DNA data storage systems

Prof LUO Jianxi from the Department of Systems Engineering has secured an Innovation and Technology Fund (ITF) seed fund of HKD1.09M to develop an AI-driven DNA data storage solution. While storing data in DNA offers massive capacity and lasts much longer than traditional hard drives, the technology is currently difficult to implement. To overcome these hurdles, the project will develop AI tools to efficiently pack data into DNA, read it back accurately, and easily search for specific information. By testing this system with real-world data, such as multimedia files, the project aims to make high-capacity, long-lasting DNA storage a practical reality.

Prof LU Jian's research team unveils multifunctional "smart rubber" with record-high electroadhesion in Science Advances

A team led by Prof LU Jian from the Department of Mechanical Engineering has invented a "smart rubber" that responds to electrical signals in remarkable ways. Published in *Science Advances*, the paper titled "Electroactive interface-enhanced dielectric elastomer with ultrahigh electroadhesion and multifunctional droplet actuation" discusses how this new material breaks old limits by combining three superpowers. When electrified, it becomes incredibly sticky—holding objects nearly 500 times better than current commercial versions. It can also stretch significantly further and precisely control how water droplets move across its surface. These improvements overcome long-standing limits and open new possibilities for soft robots, smart surfaces, and droplet control systems.



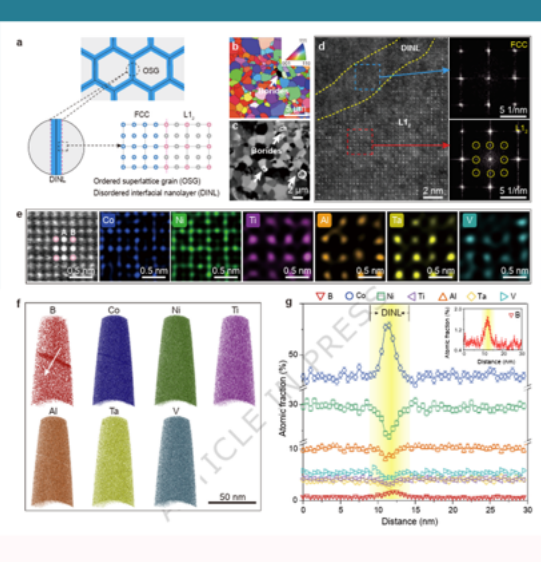


Nature Sustainability features Prof Steven WANG's innovative "Liquid Droplet Mops"

Prof Steven WANG from the Department of Mechanical Engineering, together with his collaborator at Imperial College London, has developed a new technology that uses very little water to effectively remove dust and pollutants, saving resources while improving energy performance. Published in *Nature Sustainability*, their innovative study titled "Liquid Droplet Mops" directly addresses a growing challenge in the global solar energy industry: dust buildup on solar panels reduces efficiency, and conventional cleaning methods consume large amounts of water.

Prof WU Gengbo's research team publishes high-dimensional wireless multiplexing research in Light: Science & Applications

Prof WU Gengbo from the Department of Electrical Engineering has published a research paper in *Light: Science & Applications* titled "High-dimensional multiplexing through vortex electromagnetic wave manipulation by space-time-coding metasurfaces". The work is a collaboration with CityUHK's State Key Laboratory of Terahertz and Millimeter Waves, as well as researchers from the University of Alberta and the University of Electronic Science and Technology of China. The study introduces a new metasurface technology that can simultaneously transmit multiple data channels using a single device. By combining different wave properties, the system simplifies design, reduces hardware needs, and greatly increases wireless communication capacity for future networks.

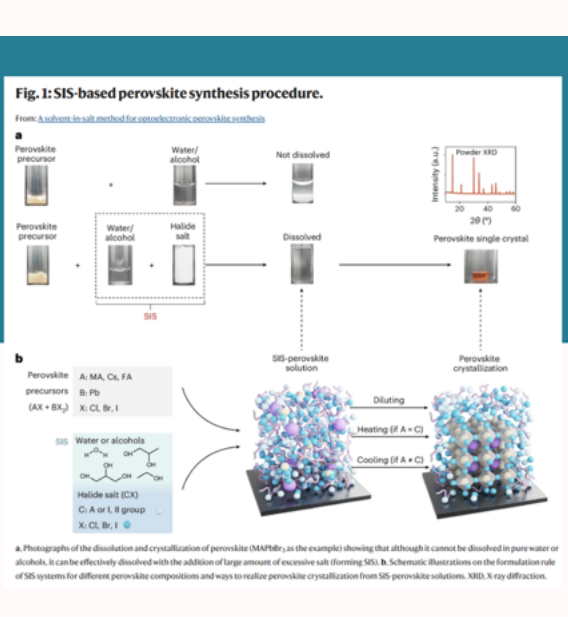


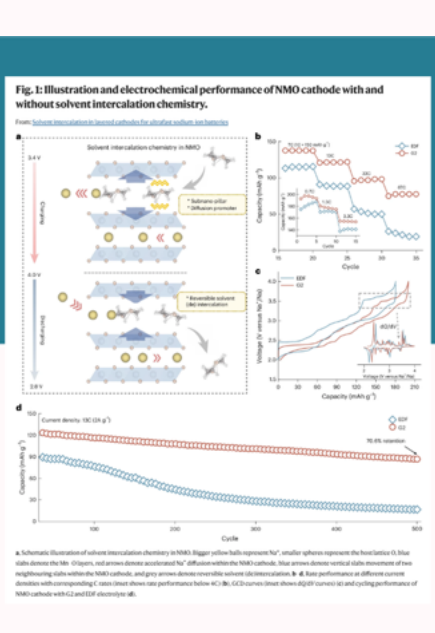
Prof YANG Tao's research team reports new metal alloy with exceptional fatigue resistance in Nature Communications

Prof YANG Tao and his team from the Department of Materials Science and Engineering have published a new study in *Nature Communications*, detailing a highly durable new metal alloy. Titled "Increasing fatigue resistance in ordered intermetallic alloys with multi-element symbiosis", the paper outlines a unique multi-element structure that strengthens the material at the atomic level. This innovation prevents crack formation and propagation, significantly extending the alloy's lifespan under repeated stress. These next-generation materials are poised to make a major impact in high-stress industries, including aerospace, automotive, and nuclear energy.

Prof ZENG Xiaocheng's research team reveals greener water and salt method to safely mass-produce optoelectronic perovskite crystal devices in Nature Synthesis

Prof ZENG Xiaocheng from the Department of Materials Science and Engineering and his team publish a study titled "A solvent-in-salt method for optoelectronic perovskite synthesis" in *Nature Synthesis*. Traditionally, manufacturing perovskites requires toxic, restrictive chemicals. To solve this, the team has invented a "solvent-in-salt" method that uses simple water or alcohol mixed with common salts. This highly concentrated salt mixture dissolves the necessary ingredients perfectly at room temperature. The resulting crystals are not only environmentally friendly and safe to mass-produce, but they also conduct electricity exceptionally well, paving the way for better, greener electronic devices.



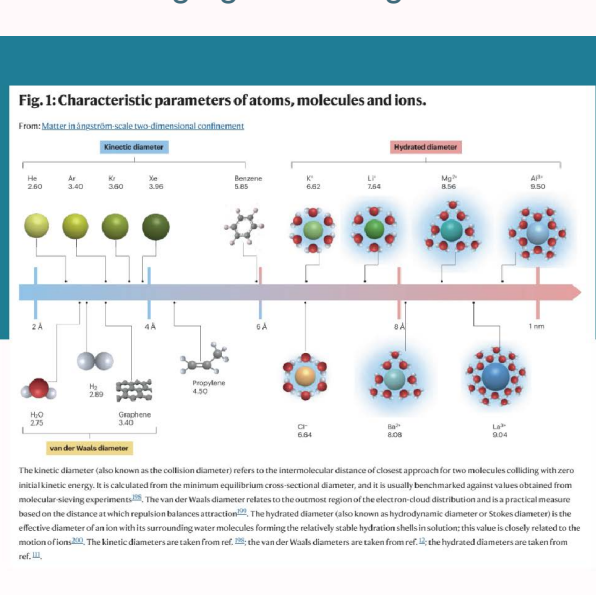


Prof ZENG Xiaocheng unveils novel solvent intercalation technique for next-generation ultrafast sodium-ion batteries in Nature Energy

A research team led by Prof ZENG Xiaocheng from the Department of Materials Science and Engineering explains a significant advancement in energy storage in *Nature Energy*. Their study, titled "Solvent intercalation in layered cathodes for ultrafast sodium-ion batteries", introduces a novel reversible solvent intercalation technique in layered cathodes, specifically sodium manganese oxide, designed for ultrafast sodium-ion batteries. Unlike traditional batteries, in which only sodium ions intercalate, this method allows solvent molecules to act as diffusion promoters and structural pillars, thereby significantly enhancing cathode redox kinetics. Remarkably, the battery delivers a capacity of 77.4 mAh/g with just a 30-second charge and maintains over 70% capacity after 500 cycles, paving the way for next-generation ultrafast-charging technologies.

Materials Science and Engineering research team explores extraordinary behaviour of matter in atom-sized 2D spaces in Nature Reviews Chemistry

A research team led by Prof ZHANG Wenjun and Prof ZENG Xiaocheng from the Department of Materials Science and Engineering published an article titled "Matter in ångström-scale two-dimensional confinement" in *Nature Reviews Chemistry*. The paper explores how ordinary matter behaves in extraordinary ways when squeezed into incredibly tiny, flat spaces—specifically, down to the size of a single atom. Thanks to advances in new two-dimensional materials, scientists can now create these ultra-confined environments. The authors explain how these tiny spaces are built, how they force molecules to change their structures, and how particles uniquely move through them.



FACULTY ACHIEVEMENT

Prof Arindam BASU elected AAIS Fellow 2026

Prof Arindam BASU from the Department of Electrical Engineering has been elected a Fellow of the International Academy of Artificial Intelligence Sciences (AAIS) 2026. This honour recognises his outstanding contributions to research and innovation in artificial intelligence. AAIS is an international organisation that promotes the development and real-world use of AI across science, engineering, and industry. It brings together leading researchers, institutions, and entrepreneurs worldwide to advance AI technologies and applications that drive innovation and societal impact.

Electrical Engineering team wins Best Paper Award at 2025 IEEE ZPEC for wireless power research

A research paper titled "Comprehensive Study of Detuning Effects in SS-Compensated Wireless Power Transfer Systems", co-authored by Dr ZHU Gangwei, Prof WU Jiayang, Prof TAN Siew Chong and Prof Ron HUI from the Department of Electrical Engineering, has won the Best Paper Award at the 2025 IEEE International Zhejiang Power Electronics Conference (ZPEC). Hosted by Zhejiang University and co-sponsored by the IEEE Power Electronics Society, the China Power Supply Society, and leading industry partners, ZPEC aims to bridge the gap between academia and industry. The conference focuses heavily on the practical applications of emerging power electronics technologies.

ALUMNI ACHIEVEMENT

MUDP graduates shine at HKIUD Urban Design Awards 2025

Congratulations to the Master of Urban Design and Planning (MUDP) graduates from the Department of Architecture and Civil Engineering for receiving the Hong Kong Institute of Urban Design (HKIUD) Urban Design Awards 2025.

Miss PENG Jiawei (Class of 2025)	Gold Award in the Student Research/ Publication Category Supervisor: Prof LI Xin
Mr WANG Xuze (Class of 2025)	Best Student Award Supervisor: Prof Gianni TALAMINI
Miss HU Jinyi (Class of 2024)	Best Student Award Supervisor: Prof Gianni TALAMINI

STUDENT ACHIEVEMENT

ACE student WU Kejun wins CIBSE Hong Kong Region Student Award for academic excellence

Congratulations to Ms WU Kejun from the Department of Architecture and Civil Engineering (ACE) for winning the CIBSE Hong Kong Region Student Award 2025-26. The award recognises students for their exceptional academic performance and leadership potential in building services engineering. CIBSE stands for the Chartered Institution of Building Services Engineers.

PhD Student YANG Yuzhi wins Best Presentation Award at IEEE APEC 2026 for wireless power

PhD student Mr YANG Yuzhi from the Department of Electrical Engineering has won the Best Presentation Award at the IEEE Applied Power Electronics Conference and Exposition (APEC) 2026. He earned this recognition for his paper, "Real-Time Adaptive ZVS Angle Control in Wireless Power Transfer Systems Based on Simple Voltage Sampling", co-authored and supervised by Prof TAN Siew Chong, Prof Ron HUI, and Prof WU Jiayang.