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

E-BULLETIN

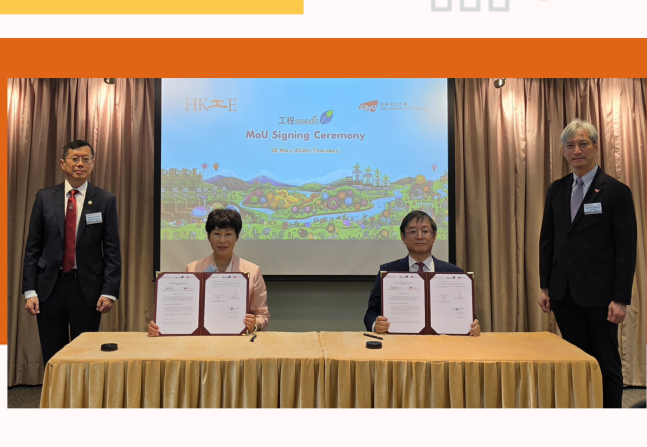
Issue 80
(Jun 2026)

Event

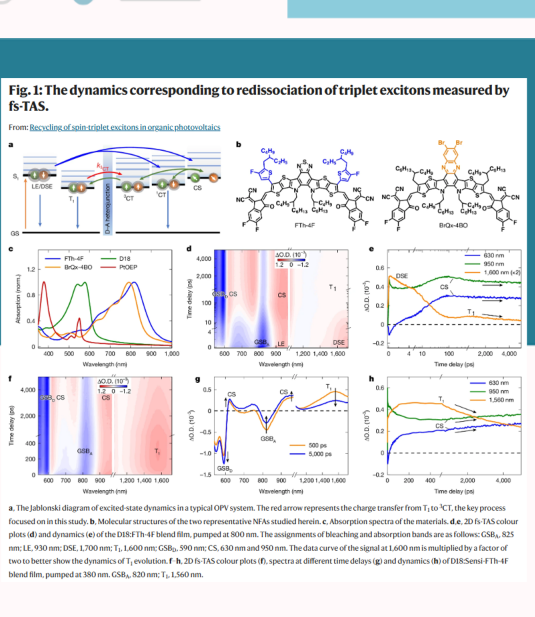
CENG and HKIE sign MoU to launch "EngSeeds" Programme

The College of Engineering (CENG) recently signed a Memorandum of Understanding (MoU) with The Hong Kong Institution of Engineers (HKIE) to co-develop the "EngSeeds" programme.

The MoU was signed by Ir Alice CHOW, President of HKIE, and Prof LU Jian, Dean of the College of Engineering, with Prof SHEK Chan Hung, Associate Dean (Undergraduate Education) of the College of Engineering, witnessing the signing to celebrate this meaningful partnership. Through this alliance, the "EngSeeds" programme will provide junior secondary school students with authentic exposure to the engineering profession, foster an early interest in STEAM, and support their future career planning.



Research

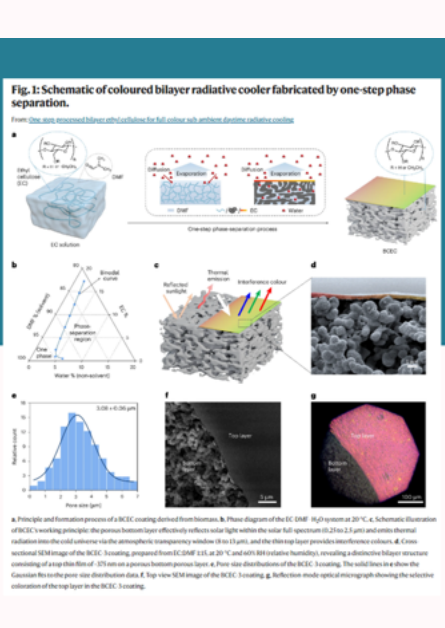


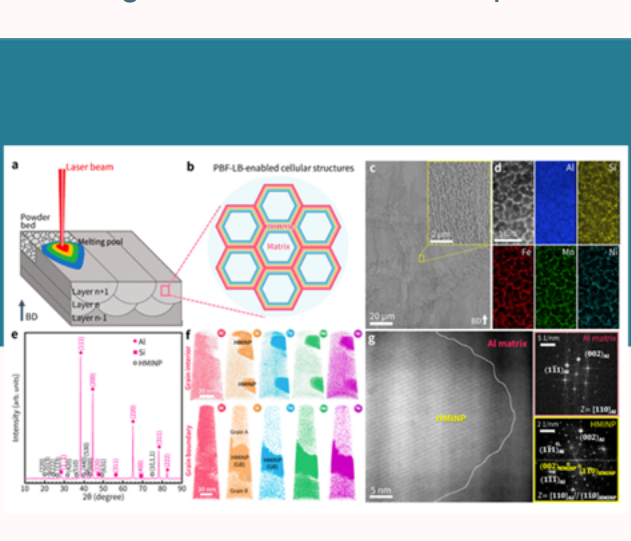
Prof Alex JEN's team publishes organic solar cell energy recovery study in Nature

A research team led by Prof Alex JEN from the Department of Materials Science and Engineering has discovered a way to recover wasted energy in organic solar cells. Their findings have been published in *Nature* under the title "Recycling of spin-triplet excitons in organic photovoltaics". Normally, certain low-energy particles called triplet excitons are lost as heat. By engineering a special material with a narrowed energy gap, the team shows that these "lost" particles can be converted back into usable electrical charges. Adding this material to existing solar cells improves their efficiency. This breakthrough can help make future organic solar cells and light-emitting devices significantly more effective.

New plant-based coating that cools outdoor surfaces without electricity by Prof LEI Dangyuan's team features in Nature Energy

Prof LEI Dangyuan from the Department of Materials Science and Engineering and his team have recently published a paper, "One-step-processed bilayer ethyl cellulose for full-colour sub-ambient daytime radiative cooling", in *Nature Energy*. The team develops a new, plant-based, colourful coating that cools surfaces exposed to sunlight without using electricity. Created in a simple, single-step drying process, this innovative two-layer material produces vibrant colours while reflecting 97% of sunlight. Field tests in Hong Kong show it can cool objects by up to 9°C, significantly outperforming standard commercial paints.



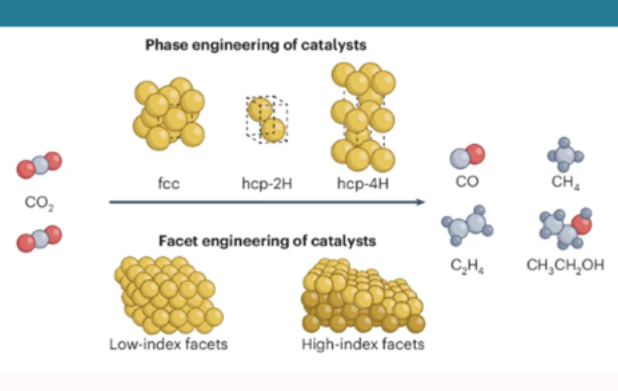


Prof LU Jian's research team introduces a strong, heat-resistant, 3D-printed aluminium alloy for aerospace and marine uses in Nature Communications

A research team led by Prof LU Jian from the Department of Mechanical Engineering has developed a highly durable, 3D-printed aluminium material. Detailed in their *Nature Communications* paper, "Strong yet ductile heat-resistant aluminium alloy by additive manufacturing", this innovation overcomes a major industry hurdle: standard aluminium typically weakens under high temperatures. This new alloy requires no additional post-processing. Straight out of the 3D printer, it is exceptionally tough at room temperature and retains its strength and structural integrity even at a scorching 400°C. Thanks to this outstanding performance, the material is already being used commercially to manufacture parts for aeroplanes and ships.

Prof SHEN Bo's team explains AI-driven nanoscale catalyst engineering to improve carbon dioxide recycling in Nature Synthesis

Prof SHEN Bo's team from the Department of Materials Science and Engineering has recently published a paper titled "Phase and facet engineering for nanoscale catalyst discovery in electrochemical CO_2 reduction" in *Nature Synthesis*, exploring how to improve carbon dioxide recycling to combat climate change. Their work focuses on nanoscale catalysts that accelerate the conversion of CO_2 into useful chemicals. To address the challenge of understanding exactly how a catalyst's shape and structure impact its performance, the study highlights innovative engineering methods and explores how artificial intelligence can help scientists rapidly discover the most effective catalyst designs for the future.

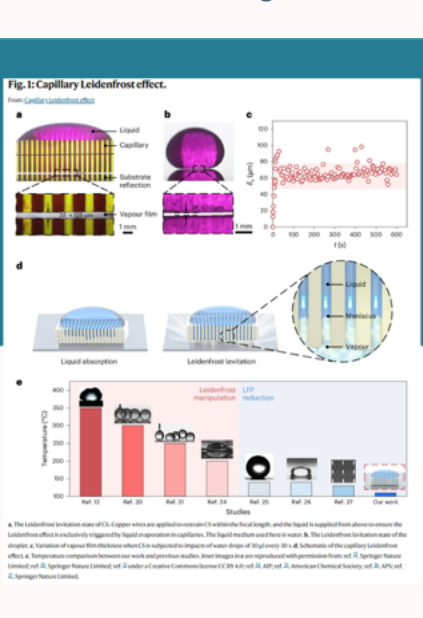


Prof TSAI Din-ping's research team explores challenges and opportunities of using ultra-thin metalenses to revolutionise optics in Nature Review Electrical Engineering

Prof TSAI Din-ping's research team from the Department of Electrical Engineering and his collaborator at Nanjing University have recently published a paper titled "Challenges and opportunities of metalenses" in *Nature Reviews Electrical Engineering*. The paper explores metalenses, ultra-thin, flat components that use tiny structures to replace bulky lenses. While they have the immense potential to revolutionise optical devices, bringing them from the laboratory to everyday use involves overcoming challenges related to size, efficiency, and manufacturing. By improving materials and production methods, researchers are actively addressing these challenges, paving the way for smaller, better, and highly versatile optical systems.

Prof TSAI Din-ping and team report in Science Advances on nature-inspired optical corner detection for faster and more energy-efficient visual data processing

A research team led by Prof TSAI Din-ping from the Department of Electrical Engineering, along with his collaborators, has recently published a paper titled "Optical corner detection with azimuthal Hilbert transform metasurfaces" in *Science Advances*. The paper describes a nature-inspired approach to processing visual information. Inspired by how animals quickly recognise their surroundings by spotting geometric features, the team develops tiny, specialised optical surfaces that can instantly detect the corners of multiple objects. By compressing complex visual data, this innovative method enables faster and more energy-efficient information processing, paving the way for next-generation smart cameras and motion-tracking technologies.

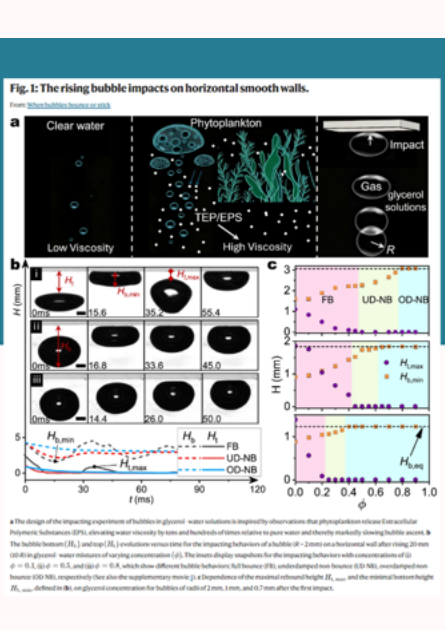


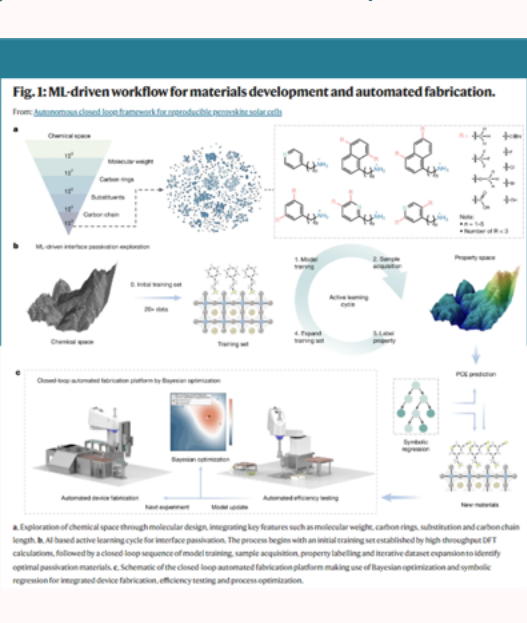
Prof Steven WANG's team unveils in Nature Physics novel capillary Leidenfrost effect, achieving low-temperature solid levitation and continuous self-propulsion

A paper titled "Capillary Leidenfrost effect" by Prof Steven WANG's team from the Department of Mechanical Engineering has been published in *Nature Physics*. The paper describes a new way to make solid objects levitate and move on their own over hot surfaces. Unlike traditional methods that require temperatures around ~200°C, this new solid-based system achieves stable levitation at just 110°C without needing complex surface designs. The team successfully demonstrates an 8-meter continuous self-propulsion and load delivery, proving this effect works across natural, engineered, and metallic materials.

A Nature Communications paper by Prof Steven WANG and Prof LIEW Kim Meow's research team reveals physical rules that predict whether bubbles bounce or stick

A research team led by Prof Steven WANG from the Department of Mechanical Engineering and Prof LIEW Kim Meow from the Department of Architecture and Civil Engineering has published their study, "When bubbles bounce or stick", in *Nature Communications*. Their work solves a long-standing mystery about the physical rules governing the collision of bubbles with solid surfaces. Using high-speed cameras and computer simulations, the team creates a universal model that successfully predicts whether a rising bubble will bounce or stick. This open-source discovery has highly practical applications for improving many everyday natural and industrial processes.





Prof ZENG Xiaocheng's research team reveals automated AI system for advanced solar cell manufacturing in Nature

Prof ZENG Xiaocheng from the Department of Materials Science and Engineering, along with his team, published a breakthrough study titled "Autonomous closed-loop framework for reproducible perovskite solar cells" in *Nature*, detailing an automated, AI-driven system for creating advanced solar cells. By replacing slow, manual trial-and-error methods with machine learning and robotic manufacturing, the system quickly identifies a new material that enables highly efficient, durable solar panels. Crucially, this smart system makes the production process nearly five times more reliable and consistent than human fabrication, setting a new benchmark for solar technology.

Faculty Achievement

Prof Takashi HIBIKI honoured with prestigious Japanese Nuclear Energy Award

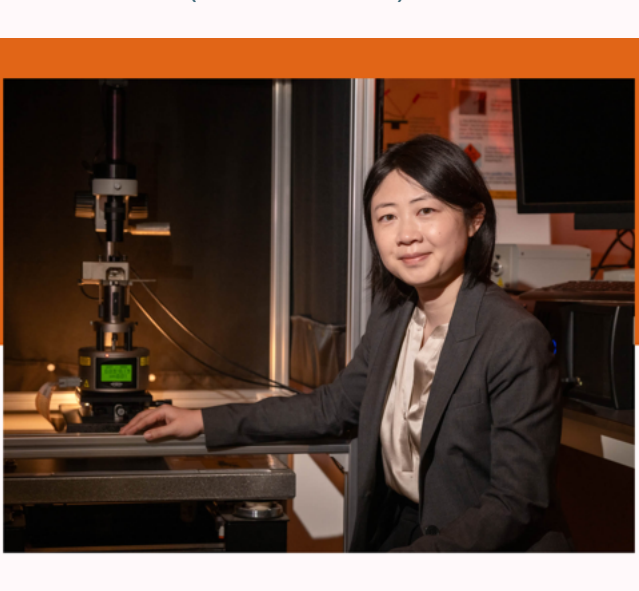
Prof Takashi HIBIKI from the Department of Mechanical Engineering received the prestigious Technical Merit Award from the Atomic Energy Society of Japan for his pioneering research in nuclear thermal-hydraulics and reactor safety. He is recognised for developing over 150 critical equations that improve global simulation codes, such as ANSYS Fluent, and for advancing measurement techniques and experimental databases. His contributions have significantly enhanced nuclear reactor safety predictions, further cementing CityUHK's international leadership in nuclear engineering and thermal-fluid science.

Congratulations to Prof Derrick JIANG's team for winning Best Paper Award at CIEEC 2026

A research team comprising Prof Derrick JIANG, Dr Ben ZHANG, Dr ZHOU Jiayu and Mr ZHU Zhaozheng from the Department of Electrical Engineering, and their Mainland collaborators, have won the Best Paper Award for their paper "A Node-Level Pulse Density Modulation-Based Control for Wireless Power Transfer in Networked AUV Energy Supply Systems" at the 2026 IEEE 9th International Electrical and Energy Conference (CIEEC 2026).

Prof JIN Di wins 2026 Croucher Innovation Award

Congratulations to Prof JIN Di from the Department of Materials Science and Engineering for receiving the prestigious Croucher Tak Wah Mak Innovation Award 2026. This honour recognises her outstanding research and includes HKD5M in funding over five years. Prof JIN's research focuses on studying how human joints naturally lubricate themselves to create better treatments for osteoarthritis. By combining molecular simulations, machine learning, and experimental approaches, she aims to design advanced bio-inspired materials to help patients.



Prof LI Wen Jung elected to CAE

Prof LI Wen Jung from the Department of Mechanical Engineering has been elected an International Fellow of the Canadian Academy of Engineering (CAE). This prestigious honour recognises his distinguished contributions to micro-/nanotechnology, AI-enabled sensing and sensor-based motion analytics.

A highly distinguished scholar, Prof LI is also a Member of the National Academy of Artificial Intelligence (US) and a Distinguished Overseas Scholar of the Chinese Academy of Sciences. Furthermore, he is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and the American Society of Mechanical Engineers, and a former President of the IEEE Nanotechnology Council. Over the years, he has actively championed global collaboration and innovation in emerging engineering technologies.

Congratulations to Prof TSAI Din-ping for winning 2026 Top Ten Advances in Metamaterials in China (Basic Research)

Prof TSAI Din-ping from the Department of Electrical Engineering and his collaborator, Prof SHI Shengxian from Shanghai Jiaotong University, have recently won the 2026 Top Ten Advances in Metamaterials in China (Basic Research) award for their paper, "Dispersive Meta-lens Thermometry for High-temperature Measurements", published in Nature Communications. The award was presented at the 5th China Metamaterials Conference, which focuses on advancing metamaterial theory, fabrication, and device applications while fostering vital collaboration between academia and industry to drive technological innovation in China.

Student Achievement

ACE students shine at ICE HKA G&S Model Building Competition 2026

Congratulations to the following students from the Department of Architecture and Civil Engineering for their achievements in the Model Building Competition 2026 organised by the Institution of Civil Engineers Hong Kong Association Graduates and Students Division (ICE HKA G&S).

Best presentation award	**Team: The Badgermoles** Mr ESTILONG Samuel James Villaflor Mr FAN Sing Yau Mr NG Ka Wai Terry Mr NG Yau Yat Carson
Second runner-up	**Team: City Rebar Fixing Union** Miss DAO Suet Tsun Miss LAI Wing Yiu Mr LI Kin Man Mr LOAK Chun Lam Mr TAI Kwan Chak Mr Matthew WONG

PhD student SUN Yiqing wins Rising Star Award for Women in Microwaves at IEEE MTT-S International Wireless Symposium 2026

PhD student Miss SUN Yiqing, supervised by Prof CHAN Chi Hou and Prof WU Gengbo from the Department of Electrical Engineering, has won the Rising Star Award for Women in Microwaves at the IEEE Microwave Theory and Technology Society (MTT-S) International Wireless Symposium 2026 for her paper titled "Integrated Sensing and Communication Enabled by a Space-Time Metasurface Antenna".

PhD student WANG Zhihui honours with Best Paper Award at META 2026

Congratulations to PhD student Mr WANG Zhihui from the Department of Electrical Engineering for winning the Best Paper Award at the 2026 Conference on Metaphotonics (META). Supervised by Prof TSAI Din-ping, Mr WANG's award-winning paper is titled "Achieving intensity asymmetry in nonlinear wavefront shaping with a nonlocal meta-lens". The conference was held as part of the Optics & Photonics International Congress.

CityUHK Underwater Robotics Team awarded First Runner-up at 2026 MATE ROV Hong Kong Regional

The CityUHK Underwater Robotics Team has achieved an impressive milestone by securing the First Runner-up at the IET/MATE Hong Kong Regional of the MATE ROV Competition 2026. With this outstanding performance, the students have officially qualified to compete at the prestigious 2026 MATE ROV Competition World Championship in Canada this June. The dedicated team operates under the supervision of Prof Ray Cheung from the Department of Electrical Engineering.

Department	Team Members
Electrical Engineering	Miss SIT Yan Tung (Team Leader) Mr Maximilian Nicholas HENDRAWAN Mr JIN Zichen Mr KAPYA Zachariah Muya Mr KONG Pak Hei Mr KWOK Shing Tung Mr LEE Ka Fai Mr LI Yu Sum Mr LO Tsz Chung Miss LUI Cheuk Lam Mr MAK Nok Hin Mr PUN Ming Ho Mr Emmanuelle Sebastian SANJAYA Mr TSE Ka Ho
Architecture and Civil Engineering	Mr WONG Tsz Hong
Computer Science	Miss Latisha Besariani HENDRA Miss MA Jun Xian Leona
Materials Science Engineering	Miss Helena Gabrielle SUSILO
Mechanical Engineering	Mr CHEUNG Pui Lam Mr JOE Anthony Kar Tong Miss Gracia Catalina SUSILO Miss TSANG Hing Lai
Physics	Mr MOK Kit Long