School of Energy and Environment
香港城市大學
City University of Hong Kong

OCT 2023

NEWSLETTER

In this issue...

Message from the Dean

Time flies. It has been over a year since I assumed the Deanship role in our school. This is my third message for our newsletter. Looking back over the past year, I have a few points that I would like to share with our community.

First, SEE recruited a number of top talents from around the world. **Zhiguo Yuan** was recruited from Australia as a Chair Professor. He is an internationally renowned expert in urban water management. **Charles Chunbo Xu** joined our faculty from Canada as a Chair Professor and is a world leader in advanced biorefinery. **Chi Keung Alvin Lam**, an expert on indoor air quality control, joined SEE from ACE. **Fetwa F. Abdi** came on board from Germany after the pandemic and brought his expertise on solar energy conversion and storage. **Xue Wang** became one of our SEE family members earlier this year after extensive working experience at the University of Toronto. She was elected as a Future Chemical Engineering Scholar (2023) this summer, due to her outstanding research on electrochemical catalysis for carbon neutralisation. **Yiming Qin** returned to SEE after her PhD (Harvard) and Post-doc (UCI), carrying the admirable title of "Carnegie Mellon University Civil and Environmental Engineering Rising Star" (launched at MIT) in 2022. **Zhenbin Wang**, a material expert, started his career at CityU after being jointly recruited by SEE and MSE. He is the recipient of the Chancellor's Dissertation Medal, the Gareth Thomas Materials Excellence Award, and the Henry Booker Prize.

Second, we established a double degree undergraduate programme for BEng in Environmental Science and Engineering and a BBA in Finance to nurture future leaders and meet the increasing demand for expertise in environmental engineering, green finance, and Environment Social Governance. We also streamlined our course materials for effective teaching and productive learning. Our two UG programmes have been fully accredited by HKIE.

Third, we established the Teaching Excellence Award and Early Career Teaching Award. Patrick Lee and Jason Lam, respectively, were the inaugural winners.

Our faculty members also brought home various awards, prizes, and honours. **Edwin Tso** was conferred CityU Outstanding Research Award. His team also received a 1 million-USD TeraAward for technology commercialisation, among many other awards. Eighteen of our colleagues are listed in the top two percent of the world's most influential scientists, according to Scopus and Stanford. Five faculty members enjoy the title of Clarivate Highly Cited Researchers, and twelve received GRF/ECS Research Grant Awards in 2023/23 Exercise. **Alicia An**, **Chunhua Liu**, and others also received significant research grants from the Innovation Technology Fund, and **Henry He** received a grant from the Marine Conservation Enhancement Fund. **Wei Wu** won the prestigious Excellent Young Scientist Fund Award from NSFC this year. **Zhiguo Yuan** received the Global STEM Professorship from UGC. Our faculty and students won many more prizes and awards, as our website shows.

Our school is grateful to the Great Eagle Group for donating 1 million HKD as a scholarship to nurture SEE students in the fields of sustainable development, environment, and energy, to help us build a sustainable future together.

Finally, we are very happy to celebrate the promotion of SIX faculty members. They are Michael Leung, Patrick Lee, Chunhua Liu, Sam Hsu, Edwin Tso, and Wei Wu. Two of our colleagues, Wenxiong Wang and Michael Leung, were recognised under the CityU Chair Professorship Scheme. Our congratulations also go to them for their well-deserved promotions.

In future, we will continue to strengthen our faculty by recruiting top talents in energy conversion, storage and utilisation, environmental science and engineering, and climate change and sustainability. We will make greater efforts in terms of student admissions and extend our local, national, and international networks to create more opportunities for our student exchange/attachments and for our international research collaborations. Together, we will make SEE an internationally recognised hub of excellent education, R&D, and knowledge transfer.

Prof. Guohua Chen
Dean
School of Energy and Environment
City University of Hong Kong

Staff Development

SEE Annual Gathering and Farewell Lunch with Prof. Chak K. CHAN

On 21 April 2023, the School of Energy and Environment (SEE) organised its first annual lunch gathering since the outbreak of the COVID-19 pandemic in 2020. This gathering came just in time, as Prof. Chak K. Chan, our former School Dean and Chair Professor of Atmospheric Environment, was leaving CityU at the end of April to join King Abdullah University of Science and Technology (KAUST) in Saudi Arabia. Hence, the gathering became a good opportunity for SEE members and CityU friends to meet and say farewell to Prof. Chak Chan.

During the gathering, Prof. Guohua Chen, SEE Dean, shared SEE's latest achievements with the participants and sincerely thanked Prof. Chak Chan for his significant contributions to various developments at SEE. We wished Prof. Chak Chan all the best in his new role at KAUST and are pleased to have him as our Adjunct Professor for the next three years.

Welcoming New Faculty Members

We welcome some new faculty members! Let's learn more about them!

Prof. XU Chunbao Charles
Chair Professor of Advanced Biorefinery

Prof. Xu received his first PhD degree in metallurgical engineering from the University of Science and Technology Beijing, China in 1998, and this was followed by his second PhD degree in chemical and biochemical engineering from the University of Western Ontario, Canada in 2004. After obtaining his first PhD degree, the Japan Society for Promotion of Science (JSPS) offered him a prestigious postdoctoral fellowship to conduct postdoctoral research at Tohoku University, Japan from 1998 to 2000, which was followed by a research associate appointment at Tohoku University. After obtaining his second PhD degree, he spent one year as a postdoctoral fellow at University of Alberta and Syncrude Canada Research Centre till July 2005, when he joined Lakehead University, Canada as a tenure-track Assistant Professor in chemical engineering and was quickly promoted to become a tenured Associate Professor in 2008. Prof. Xu then moved to Western University (formerly The University of Western Ontario) to accept the NSERC/FPInnovations Industrial Research Chair in Forest Biorefinery in 2011. In 2014, he became a tenured Full Professor . He then served as Associate Chair – Undergraduate of the Department of Chemical and Biochemical Engineering (2016–2017) and Associate Director of Institute for Chemicals and Fuels from Alternative Resources (ICFAR) of Western University (2021–2023). In July 2023, Prof. Xu joined City University of Hong Kong as a Chair Professor .

Prof. Zhiguo YUAN AM
Chair Professor of Urban Water Management

Prof. Yuan received his PhD degree in control engineering in 1992 from Beijing University of Aeronautics and Astronautics (Beihang University), China. He changed his research field to urban water management in 1994, when he accepted a postdoctoral research fellow position at Ghent University, Belgium. In 1998, he joined the Advanced Water Management Centre (AWMC), now the Australian Centre for Water and Environmental Biotechnology (ACWEB), at The University of Queensland, Australia. From 2001 to 2014, he served as the AWMC Deputy Director and then became the AWMC/ACWEB Director from 2015 to 2022. In May 2023, he joined City University of Hong Kong as a Chair Professor.

Prof. Yuan's research focuses on the development of innovative solutions for urban water management and environmental biotechnology through effective integration of fundamental science and applied engineering. He won over AUD 50M in government, industry and university research funding, mostly as the lead investigator. Prof Yuan was one of the founding members of the AUD 117M Cooperative Research Centre for Water Sensitive Cities in Australia (2012–2021).

Prof. Chi Keung Alvin LAI
Professor

Prof. Alvin Lai received his bachelor B. Eng. in Building Services Engineering from Hong Kong Polytechnic University and his MPhil. from Hong Kong University. He obtained his Ph.D. from Imperial College. He spent three years working as a post-doctorate fellow in University of California, Berkeley before joining Nanyang Technology University, Singapore in December 2000. He is Associate Professor of Department of Architecture and Civil Engineering since February, 2007. His main research areas are air quality with the emphasis on airborne particles, exposure, aerosol science and technology and filtration technology.

Prof. Fatwa F. ABDI
Associate Professor

Prof. Fatwa F. Abdi is an Associate Professor at the School of Energy and Environment, City University of Hong Kong. He obtained his Bachelor's degree in Materials Science and Engineering with first-class honours from Nanyang Technological University, Singapore. He then completed his Master of Engineering degree at Massachusetts Institute of Technology, USA and a Master of Science degree from the National University of Singapore, Singapore, within the framework of the Singapore–MIT Alliance Programme. After a brief stint in the semiconductor industry, he pursued a PhD in Chemical Engineering at Delft University of Technology (TU Delft), The Netherlands, and graduated cum laude in 2013. His PhD thesis on the development of highly efficient bias-free solar water splitting received the Martinus van Marum Prize from the Royal Holland Society of Sciences and Humanities (KHMW) for the best thesis in chemistry and chemical technology in the past five years. He then joined the Institute for Solar Fuels, Helmholtz-Zentrum Berlin für Materialien und Energie, Germany, as a postdoctoral researcher. He was then promoted as a group leader/staff scientist (2015–2023) and later became the deputy head of the institute (2019–2023).

Prof. QIN Yiming
Assistant Professor

Prof. Qin obtained her PhD in Environmental Chemistry from the School of Engineering and Applied Sciences at Harvard University, an MPhil in Chemical and Biomolecular Engineering at The Hong Kong University of Science and Technology and a BSc in Environmental Science at Shandong University. Before joining the City University of Hong Kong, she worked as a Postdoc Fellow in the Department of Chemistry at the University of California Irvine. Prof. Qin's research focuses on the source and transformation of atmospheric aerosol particles and their impacts on atmospheric chemistry, air pollution and climate. She uses interdisciplinary approaches to unravel the complexities of aerosol gas–particle interactions, including analytical method development, laboratory experiments, field campaigns and machine learning. She was selected as a Carnegie Mellon University Civil and Environmental Engineering Rising Star (launched at MIT) in 2022 and to be part of the Seventeenth Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS XVII) in 2023.

Dr POON Chi Kin Lawrence
Adjunct Professor

As a leader of innovative technology and CEO adviser for applied R&D at ASTRI, Dr Poon led the overall planning and development of ASTRI's new Smart City, Smart Mobility and PropTech R&D initiatives. Before joining ASTRI in February 2023, Dr Poon had served the Hong Kong Productivity Council (HKPC) and APAS R&D Centre for more than 17 years and managed to grow the R&D team from a staff of 9 to 140+ scientists and researchers over a 10-year period. Dr Poon also led the overall planning and development of HKPC's two new divisions (i.e. the Smart City division and APAS) to steer the applied research activities and commercialisation of ASTRI's R&D results in Hong Kong and Greater Bay Area markets with a focus on AI, robotics, smart mobility, electric vehicles (EVs), autonomous driving, GeronTech and Metaverse applications. Dr Poon has won many international awards over the years in the areas of AIoT, EVs and autonomous driving, etc. He owns more than 10 patents that cover a wide range of smart city applications.

Promotion of Faculty Members

We are proud to announce the recent promotion of six faculty members in recognition of their outstanding achievements in teaching and research. Their hard work and dedication have earned them this well-deserved recognition. In the spirit of celebrating their success, let's delve deeper into their research and learn more about their noteworthy contributions.

Prof. Michael K. H. LEUNG

Associate Provost (Academic Affairs)
Shun Hing Education and Charity Fund Professor of Energy and Environment
Chair Professor of Renewable Energy

Prof. Michael Leung started his academic career as a Lecturer in the Department of Manufacturing Engineering and Engineering Management at the City University of Hong Kong (CityU) in 2000. In 2002, he joined the Department of Mechanical Engineering at The University of Hong Kong as a Research Assistant Professor and later became an Assistant Professor. In 2010, he joined the School of Energy and Environment (SEE) at CityU as an Associate Professor. In 2015, he became a Professor. He served as an Associate Dean in SEE in 2012-2018.

Prof. Leung is elected to be the Representative (China) in the International Solar Energy Society (ISES)/Board of Directors 2022-23. Prof. Leung is also a Registered Professional Engineer, Chartered Engineer, Fellow Member of HKIE, Past Chairman of HKIE Education and Examinations Committee, Past Chairman of the Energy Institute (Hong Kong Branch) and Editor of Applied Energy and HKIE Transactions.

Prof. Patrick LEE

Professor

Patrick Lee is a Professor in the School of Energy and Environment. His academic background is in biochemical engineering, environmental engineering and environmental microbiology. He began his independent career in 2011 after completing his PhD and postdoctoral training at the University of California, Berkeley. He was the Associate Dean for Undergraduate Studies of the School from 2017 to 2021. Together with members of his research group, Prof. Lee is interested in solving biologically related energy and environmental problems. In particular, he often works at the interface of fundamental and applied sciences. While he is interested in understanding microbiology at the molecular and cellular levels, it is also his goal to use these fundamental findings in engineering applications to solve real-world problems. Prof. Lee's research group is currently studying microbes in indoor and outdoor air, different environmental systems, and how to harness bacteria and their molecular parts to effectively produce renewable biobased chemicals. His group has expertise in wet lab and computational techniques to manipulate and model bacteria. In addition to investigating single bacteria, his group is also interested in complex microbial communities. Through his research and education efforts, Prof. Lee strives to create a healthier, greener and more sustainable future for all.

Prof. Chunhua LIU

Professor

Prof. Chunhua Liu received his BEng and MEng degrees in automatic control from Beijing Institute of Technology, China, in 2002 and 2005, respectively. In 2009, he received his PhD degree in electrical and electronic engineering from The University of Hong Kong. From March 2010 to August 2013, he served as Postdoctoral Fellow at the Department of Electrical and Electronic Engineering, The University of Hong Kong. From September 2013 to August 2014, he served as Assistant Professor and then became an Honorary Assistant Professor in 2015 at The University of Hong Kong. Prof. Liu joined the School of Energy and Environment at CityU as an Assistant Professor in August 2015. His research interests cover the electrical energy and power technologies for smart energy conversion, integration, distribution and use, and include electric motors, drives and generators; electric vehicle technologies, vehicle-to-home, vehicle-to-vehicle, vehicle-to-grid; smart grid and microgrid technologies; sustainable and renewable energy systems; wireless power-transfer technologies; and smart devices for robotics. He has an all-round understanding of electrical and electronic engineering and has completed over 30 projects in the abovementioned areas in addition to his corresponding abundant publication record.

Prof. Sam HSU
Associate Professor

Prof. Sam H.-Y. HSU obtained his PhD degree under the supervision of Prof. Kirk S. SCHANZE at the University of Florida with a focus on the photophysical behaviours of functional metallopolymer materials for solar energy and optoelectronic applications. He then received two-year postdoctoral and research associate appointments with Prof. Allen J. Bard and Prof. Edward T. Yu at the Center for Electrochemistry as well as the Department of Electrical and Computer Engineering at The University of Texas at Austin, respectively. He completed many outstanding multidisciplinary projects during his postdoc and research associate work. His expertise stretches from material design to new related disciplines involving material characterisation and diverse applications, such as solar fuels, organic and inorganic photovoltaic cells, wastewater treatment and food waste management. Prof. Sam H.-Y. HSU's research interests involve material design, synthesis, processing, imaging and spectroscopy in addition to energy and environmental applications. He aims to explore the fundamental properties and dynamic interactions of organic and inorganic materials for the development of efficient energy-conversion and energy-saving processes. He has keen interests in photoinduced charge transfer processes, interfacial electron transfer, electrochemical hydrogen generation and photoredox reactions for electricity generation, solar fuel production, electrochemiluminescence (ECL), wastewater treatment and food waste management. His investigations of material phenomena and device performance rely heavily on experimental and theoretical concepts from energy and environmental engineering, such as photophysics, electrochemistry, photoelectrochemistry using scanning photoelectrochemical microscopy (SECM) imaging, ultrafast transient absorption (TA), time-resolved photoluminescence spectra (TRPL) and so forth. The current research interests in his group include the following: (1) energy engineering (e.g. solar fuels, photovoltaics, ECL and optoelectronic devices); (2) environmental engineering (e.g. wastewater treatment, food waste treatment and organic matter degradation); (3) material design (e.g. alloy, organometallics, biomaterials, nanomaterials, perovskites and metallopolymers); and (4) dynamic interfacial interactions using photophysical, photochemical, electrochemical and photoelectrochemical techniques.

Prof. Edwin TSO
Associate Professor

Prof. Tso received his Bachelor's degree in Mechanical Engineering (First class), an MPhil degree in Environmental Engineering and a PhD degree in Mechanical Engineering from The Hong Kong University of Science and Technology (HKUST) in 2010, 2012 and 2015, respectively. He was awarded the Fulbright–Research Grant Council (RGC) Hong Kong Research Fellowship in 2014, and studied at the University of California, Berkeley in 2015. After he came back to Hong Kong from Berkeley, he was a Research Associate at the Department of Mechanical and Aerospace Engineering (MAE), HKUST from 2015–2016. He was then promoted to the rank of Research Assistant Professor (2016–2018) before he joined CityU in September 2018 as an Assistant Professor. He was also a Junior Fellow at the HKUST Jockey Club Institute for Advanced Study from 2016-2018 when he was at HKUST. Prof. Tso's research interest covers thermofluids, heat transfer, energy and built environment, and energy-efficient building technologies, particularly in the fields of adsorption technology, thermal diodes/switches, nanofluids/hybrid nanofluids, thermochromic smart windows and passive radiative cooling using numerical simulations as well as advanced experimental techniques. Prof. Tso is also active in entrepreneurship and technology transfer and was involved in setting up a start-up company in 2012. He focuses on understanding the fundamentals of heat transfer, energy conversion and engineered material science to integrate theory with experiments in creating innovative solutions for enhancing thermal management, the built environment, space cooling and refrigeration, micro-droplet manipulation and energy-efficient building technologies. Thus, Prof. Tso's research has had a great, global impact by addressing the biggest needs and issues of our world.

Prof. Wei WU
Associate Professor

Prof. Wei Wu received his Bachelor's degree from the Department of Building Environment and Energy Engineering at Huazhong University of Science and Technology in 2010. He obtained his PhD degree from the Department of Building Science at Tsinghua University in 2016. In 2013, Prof. Wu was a visiting scholar at the Center for Environmental Energy Engineering at the University of Maryland. Since 2016, he has served as a guest researcher in the Energy and Environment Division at the National Institute of Standards and Technology. In July 2018, he joined the City University of Hong Kong as an Assistant Professor in the School of Energy and Environment. Prof. Wu's research interests are focused on building energy and sustainability technologies (BEST) that can achieve carbon neutrality, including advanced heat pumps, novel working fluids, thermal energy storage, advanced thermal management and renewable energy. He has obtained or filed 18 patents and has published a Springer book titled *Absorption Heating Technologies: Efficient Heating, Heat Recovery and Renewable Energy*. Prof. Wu is listed in Stanford University's Top 2% Most Highly Cited Scientists Worldwide index. He received the Willis H. Carrier Young Researchers Award by the International Institute of Refrigeration (IIR), the Distinguished Associate Award by the National Institute of Standards and Technology (NIST), the Excellence Young Scholar Award by the International Society of Energy and Built Environment and the Academic New Talent of Tsinghua University.

Research Success

SEE has 12 Faculty Members Who Were Awarded GRF/ECS Research Grants During the 2023/24 Exercise

The Research Grants Committee (RGC) released the results of its 2023/24 General Research Fund (GRF) and Early Career Scheme (ECS) exercise on 30 June 2023. We are pleased to note that the School of Energy and Environment (SEE) has 12 faculty members who were awarded GRF/ECS research grants this year and secured total research funds exceeding HK$11M.

Project Investigator (PI)	Project Title
Prof. Henry He	Toxicokinetics and Toxicodynamics of an Emerging Group of e-Waste Pollutants Liquid Crystal Monomers in Zebrafish
Prof. Jason Lam	The Mechanistic Investigation and Operando Analysis of the Catalytic Synergy in Mixed-phase MoS_2 for Highly Selective Electrocatalytic Reduction of NO3(-)
Prof. Patrick Lee	Elucidating the Influences of Environmental Pollution on Microbial Ecosystems and Biotransformation Functions in Pearl River Estuary Sediments in Dry and Wet Seasons
Prof. Carol Lin	Dual Regulation of Light and Carbon Source Facilitate Sustainable Microalgae-based Wastewater Treatment for Remediating High-Concentration Emerging Pollutants
Prof. Chunhua Liu	Noncontact Electromechanical Energy-Conversion System: A Novel Wireless Electromagnetic Actuator for Direct Manipulating Apparatus
Prof. Sai Kishore Ravi	Photosynthetic Biohybrids with Carbon Dots for Solar Hydrogen Production from Wastewater
Prof. Jin Shang	Selective Gas Adsorption by Single-Atom Extraframework Transition Metal Sites Regularly Arranged Inside Porous Crystalline Matrices
Prof. Edwin Tso	Coral-inspired and Colored Daytime Passive Radiative Coolers Using Photoluminescent Carbon Dots for Cooling Power Recovery in Building Applications
Prof. Jian Wang	Noble Metal-Free Mn/Co-Based Oxygen-Evolving Catalysts for Acidic Water Electrolysis: Operando Study, Dynamic Reconstruction Modulation, and Electrolyzer Test
Prof. Xue Wang	Efficient Electrochemical Reduction of Carbon Monoxide to High Concentrated Multi-Carbon (C2+) Alcohol
Prof. Angus Yip	Simulation-guided Design and Fabrication of High-performance Perovskite/Organic Tandem Solar Cells
Prof. Lin Zhang	Climate Financing of Ongoing and Intensified Climate Change: Evidence from Tropical Cyclones in the Coastal Cities in China

SEE Faculty Member and PhD Alumnus Won the Gold Prize in the TERA-Award Smart Energy Innovation Competition

The co-founders of i²Cool Limited, Prof. Edwin Tso (Associate Professor) and PhD alumnus, Dr Martin Zhu, have been awarded the Gold Prize in the prestigious TERA-Award Smart Energy Innovation Competition in recognition of their revolutionary electricity-free cooling technology, for which they will receive USD 1M as the winners.

i²Cool Limited has dedicated over six years to research and development in passive radiative cooling technology. In 2021, they officially launched their first product, an innovative cooling paint, iPaint, which effectively reduces surface temperatures without the need for electricity. Unlike traditional paint, which absorbs sunlight and heat, iPaint deflects and dissipates solar heat to the surrounding space using the mid-infrared wavelength range.

Profs Alex JEN, Yun Hau NG, Angus YIP and Xiaoling ZHANG Received the 2022 Clarivate Highly Cited Researchers Award

Clarivate's prestigious Highly Cited Researchers Award recognises scientists and social scientists who have made a significant impact in their respective fields. To be named a highly cited researcher, an individual must belong to the top 1% of researchers in the world who have published multiple highly cited papers. In 2022, 6,938 researchers from 69 countries and regions were conferred with this honour.

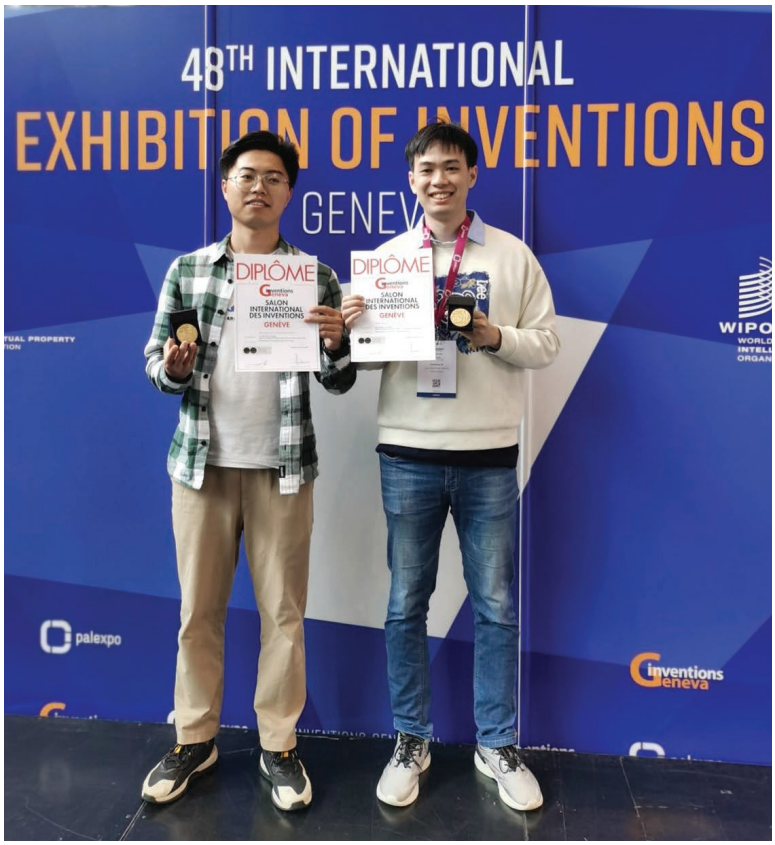
Clarivate recently held an award ceremony at City University of Hong Kong (CityU) on 29 March 2023 to commend 29 CityU scholars for their achievement in being named highly cited researchers, which has placed CityU's citation rankings at 50th in the world. Adjusted for faculty size, CityU leads Hong Kong and Asia with the highest percentage of the world's most highly cited researchers.

Prof. Wei Wu's Team Won Two Gold Medals at the International Exhibition of Inventions Geneva

At the 48th International Exhibition of Inventions Geneva (IEIG), Prof. Wei Wu and his PhD students (Mr Fuxiang Li and Mr Haosheng Lin) from the School of Energy and Environment (SEE) won two gold medals with their inventions: "Energy-free PV Cooler and Water Harvester" and "Power-to-water Battery." These inventions are promising for renewable energy harvesting and storage in addition to conversion towards carbon neutrality. Applications for United States patents have been made for both inventions.

The IEIG is the world's largest exhibition of innovations, which had more than 1,000 inventions from 40 countries and regions on display in 2023. The awards won by Prof. Wu's team demonstrate SEE's excellence in high-quality research and innovation on the global stage.

Prof. Wu's research interests are focused on building energy and sustainability technologies (BEST) towards carbon neutrality, including advanced heat pumps, novel working fluids, thermal energy storage, advanced thermal management and renewable energy uses.



(Left to right) Prof. Wei Wu's PhD students, Mr Fuxiang Li and Mr Haosheng Lin.

Silver Medal at the International Exhibition of Inventions Geneva

At the 48th International Exhibition of Inventions Geneva (IEIG), Prof. Edwin Tso and his PhD students (Mr Lin Kaixin and Miss Du Yuwei) from the School of Energy and Environment (SEE) won a silver medal for their invention: "Electricity-free Cooling Ceramic featuring Advanced Applicability," which has the potential to curb the need for air-conditioners and therefore reduce energy demands.

The IEIG is the world's largest exhibition of innovations, which had more than 1,000 inventions from 40 countries and regions on display in 2023. The awards won by Prof. Tso's team demonstrate SEE's excellence in high-quality research and innovation on the global stage.

Prof. Henry HE Received the Marine Conservation Enhancement Fund (MCEF) to Trace the Migration of e-Waste Pollutants to Finless Porpoises

Prof. Henry He recently received HK$976,000 funding from the Marine Conservation Enhancement Fund (MCEF) for his two-year project, "Migration of a Novel Class of Organic Light-Emitting Materials (OLEMs) from e-Waste to Finless Porpoises", which will trace the migration of a variety of organic light-emitting materials from electronic devices/waste to finless porpoises, also known as "江豚" living in Hong Kong and Pearl River Estuary (PRE) waters. This study will provide critical information for evaluating the current pollution status and the emerging threat of OLEMs towards the precious sentinel marine mammal. The research outcomes will also benefit policy-making related to the recycling, disposal and management of e-wastes in the Hong Kong and PRE-region, which will contribute to the conservation of marine mammals and the ecosystem in the Greater Bay Area.

As part of the environmental impact assessment study by the Hong Kong Offshore Liquefied Natural Gas Terminal Project, both the MCEF and Fisheries Enhancement Fund (FEF) were set up by Castle Peak Power Company Limited (CAPCO), The Hongkong Electric Company, Limited (HK Electric) and Hong Kong LNG Terminal Limited (HKLTL) to support environmental enhancement initiatives for marine ecology and conservation, fisheries resources and sustainable development of the fishing industry in the vicinity of the project area, in Hong Kong's western waters and further afield in the PRE.

A finless porpoise (江豚).

Prof. Jin-Soo KIM Shares His Expert Insights into El Niño's Impact on Hong Kong's Weather

In a recent interview with *Sing Tao Daily*, Prof. Jin-Soo Kim shared his expert insights into Hong Kong's weather, with a particular focus on the El Niño and La Niña phenomena. During the interview, Prof. Kim also provided valuable tips for Hong Kong residents on how to cope with the "heat stress at work warning". Prof. Kim's research team has been studying the recent heat waves in Hong Kong and found that they were accompanied by higher humidity, which is a trend that is expected to worsen in the future. Prof. Kim recommended that further research should be conducted to explore humidity perspectives, such as the wet-bulb temperature, to better understand and prepare for the impact of heat and humidity on Hong Kong's weather patterns.

A12 每日雜誌 DAILY MAGAZINE 31.05.2023 星期三 星島日報

氣溫創新高 勞工農戶擔憂

厄爾尼諾+全球暖化

倡優化預警機制

■《預防工作時中暑指引》及工作暑熱警告本月生效，勞工界反映有改善空間。

聯合國世界氣象組織（WMO）早前指出，在厄爾尼諾現象和氣候暖化疊加推動下，幾乎肯定2023年至2027年的全球氣溫會升至歷史新高，呼籲人類做好應對準備。本港天文台亦預料，今年秋季或之前，會出現厄爾尼諾現象，並因應極端酷熱天氣推出新提示。即將迎來前所未有的高溫，勞工界別和農戶各有擔憂，前者剛實施中暑指引，仍待優化，有組織建議設1周預警機制，讓業界提前準備；後者現時已面對反常天氣，希望政府檢討援助機制。 每日雜誌組

有工友在早上11時已中暑

農民盡失預算 無法種植

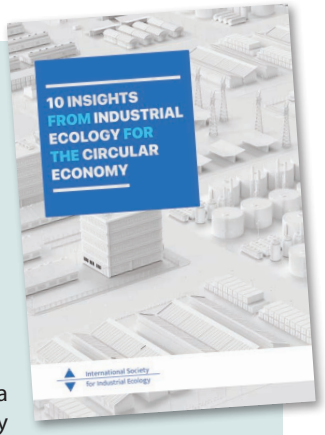
內地發津貼抗酷熱天氣

厄爾尼諾對香港溫度及雨量的影響（1972年至2022年）

全球海平面溫度（℃）

全球海表層水溫創新高

Prof. Shauhrat S. Chopra Collaborates on an Insightful White Paper on the Circular Economy

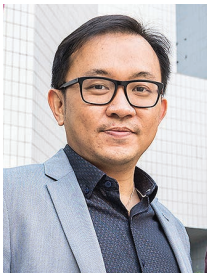


Prof. Shauhrat S. Chopra, Assistant Professor at the School of Energy and Environment (SEE), joined forces with an international group of industrial ecology experts to publish a white paper, "10 Insights from Industrial Ecology for the Circular Economy" on 26 June 2023. Led by Dr Stijn van Ewijk at University College London, the report calls for scientists to become more involved in the development of policies and systems for a sustainable, circular economy. As the publisher, the International Society for Industrial Ecology (ISIE) has provided a video summary with additional details.

This pioneering collaboration among leading researchers from the United Kingdom, European Union, China and the United States, including our own faculty member, has produced a guide to the circular economy that outlines the essential principles for policymakers and industries to ensure that it does not become just another buzzword. Industrial ecology has long focused on sustainability, minimising waste and designing eco-friendly systems; hence, their experience and knowledge are invaluable in shaping the future of the circular economy.

This white paper emphasises the need for a scientific approach to the circular economy and urges political leaders and companies to work with industrial ecologists to develop evidence-based policies using the available expertise.

Prof. Yun Hau Ng Joins Sustainable Materials and Technologies (Elsevier) as an Associate Editor



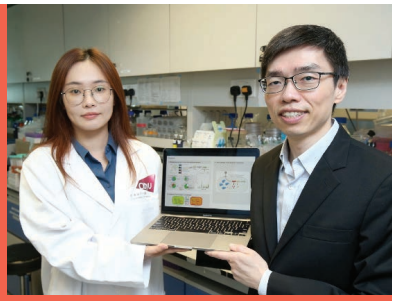
Prof. Yun Hau Ng, Professor at the School of Energy and Environment (SEE), began working as Associate Editor for *Sustainable Materials and Technologies (SM&T)* on 1 June 2023. SM&T is an international, cross-disciplinary journal published by Elsevier with an impact factor of 10.681. *SM&T* publishes original full-length research articles in applied or fundamental sciences concerning the nano-, micro-, meso- and macro-scale aspects of materials and technologies for sustainable development with special attention to contributions that reduce the knowledge gap between materials and system designs. With its broad and wide scope, *SM&T* acknowledges the interdisciplinary nature of scientific research on sustainable development. The journal provides a scientific platform for physicists, mathematicians, chemists, material scientists, engineers, biophysicists, biomedical engineers and tissue engineers among other technical experts to contribute their innovative work and combine their different disciplines within sustainability science and technologies.

Prof. Lin Zhang is Invited to Serve as the Editor of *The Energy Journal*

Following an invitation from Prof. Michael Pollitt (Vice President of International Association for Energy Economics and Professor of Business Economics at the University of Cambridge) and Prof. Adonis Yatchew, (Editor-in-Chief of *The Energy Journal* and Professor of Economics at the University of Toronto), Prof. Lin Zhang will start his term as the Editor of *The Energy Journal* from 1 January 2024.

In their invitation letter, Prof. Pollitt and Prof. Yatchew recognised Prof. Lin Zhang, Associate Professor at the School of Energy and Environment (SEE), as a "distinguished energy economist". *The Energy Journal* is the flagship publication of the International Association for Energy Economics (IAEE), which is the world's largest energy economics, finance and business community. The journal publishes only six issues annually, with approximately 10 articles per issue. The Centre national de la recherche scientifique (CNRS) in France ranks *The Energy Journal* as one of the top four journals in the fields of environment, agriculture, natural resources and energy.

New Insights into Viruses–Bacteria Interactions in Man-made Environments



A growing proportion of the global population lives in urbanised cities, and maintaining hygiene in these man-made environments, especially indoors, is of great importance for the health of the occupants. In a new study published in *Nature Communications*, the research group led by Prof. Patrick Lee, Professor at the School of Energy and Environment, has shed light on the complex biological interactions between viruses and bacteria in these man-made environments.

Their study shows that the diversity, composition, metabolic functions and lifestyle of viruses vary according to the conditions of each man-made environment. Furthermore, viruses frequently interact with bacteria to potentially aid the survival of bacteria in these nutrient-poor man-made environments. These results imply that customised strategies must be developed to reduce human exposure to harmful bacteria and viruses in these environments and better protect their occupants' health.

Significant ITC Funding for Groundbreaking Research Projects

SEE has been awarded substantial funding from the Innovation and Technology Commission (ITC), totaling HK$6.6M, for two pioneering projects led by our esteemed faculty members.

"Study and Development of Novel and Next-Generation Self-Cooling Building Materials using Daytime Passive Radiative Cooling Technology" led by Prof. Edwin Tso, Associate Professor of SEE

This project, backed by HK$4.8M and additional provisions for postdoctoral researchers for three years, aims to revolutionize the construction, property management, and renewable energy industries. The research focuses on the creation and commercialization of innovative self-cooling building materials that have the potential to reduce energy consumption by up to 20% and improve solar cell efficiency by more than 5%.

"Development of a Scalable Electrometallurgical Treatment Strategy to Extract and Capture Valuable Metals from Waste Printed Circuit Boards (WPCBs)" lead by Prof. Jason LAM, Assistant Professor of SEE

Funded by HK$1.8M and additional support for postdocs for three years, this project seeks to develop an environmentally friendly method for the efficient recovery of metals from electronic waste. The project proposes an innovative kg-scale electrochemical reactor to recover metals from waste printed circuit board (WPCB) stocks.

The projects demonstrate researcher's dedication to addressing global challenges in energy efficiency and waste management, and align well with school's mission to develop sustainable technologies that will shape a greener future.

Academic Development

SEE and CB Launch 5-Year Double Degree Programme, Responding to Growing Demand for Green Finance and ESG Professionals

The School of Energy and Environment (SEE) and the College of Business (CB) have teamed up to introduce a new double degree programme in Bachelor of Engineering in Environmental Science and Engineering and Bachelor of Business Administration in Finance. This programme, which is set to commence from the academic year 2024/25, is hosted by SEE.

In response to the escalating importance of green finance, carbon emission trading in the financial industry, and the rising demand for professionals skilled in Environmental, Social, and Governance (ESG) matters, this programme has been designed to cater to the growing need for professionals who have a solid understanding of environmental issues and the business acumen to make strategically sound financial decisions. This unique merge of Environmental Science with Finance offers our students a distinctive opportunity to gain in-depth knowledge in both fields, and nurtures graduates with career-readiness in professionals with ESG/sustainability skills.

On 18 July 2023, we celebrated the launch of this double degree programme with a vibrant event attended by Prof. Guohua Chen, Dean of the School of Energy and Environment and Chair Professor of Smart Energy Conversion and Storage, and Professor Jeong-Bon Kim, the then-Dean of the College of Business and Chair Professor of Accountancy.

The SEE and the Great Eagle Group Signed a MOU to Launch a Scholarship Programme to Cultivate a New Generation of Sustainable Development Talent

In the Memorandum of Understanding (MOU) signing ceremony between the School of Energy and Environment (SEE) and the Great Eagle Group held on 20 April 2023, we were honoured to have Mr Alexander Lo, Executive Director of Great Eagle Holdings Limited, Prof. Matthew Lee, Vice President (Development & External Relations) of CityU, Prof. Chen Guohua, Dean and Chair Professor of Smart Energy Conversion and Storage of SEE, Dr Amie Lai, General Manager-Sustainability of Great Eagle Holdings Limited, and another nine representatives from the Great Eagle Group and CityU witness the establishment of the "Great Eagle Group Scholarship" programme at the CityU campus. This MOU signifies the commitment by SEE and the Great Eagle Group to join hands and nurture SEE students in the fields of sustainable development, environment and energy, and to build a sustainable future together.

The SEE is very honoured to receive a donation of HK$ 1M from the Great Eagle Group to launch the "Great Eagle Group Scholarship" programme. This is the largest scholarship donation amount received by SEE in the School's history. The donation will provide 40 scholarships of HK$ 25,000 each to a maximum of eight SEE students annually, commencing in the 2022/23 academic year.

Mr Alexander Lo, Executive Director of Great Eagle Holdings Limited, said, "this year marks the Great Eagle Group's 60th anniversary and we are delighted to launch the scholarship programme during this significant milestone. The programme gives recognition to students with outstanding academic achievements to support their pursuits. The Group places great importance on sustainable development. The programme reflects our commitment to cultivating talents in the industries, also providing young people with opportunities to empower them to develop their potential and shape a sustainable future together".

Prof. Matthew Lee, Vice President (Development & External Relations) of CityU, said, "CityU is committed to promoting sustainability on campus and beyond. We are delighted to join hands with the Great Eagle Group to nurture a new generation of energy professionals and promote sustainable development. Together we will bring positive impacts to our society and the world at large".

Prof Guohua Chen, Dean and Chair Professor of Smart Energy Conversion and Storage, SEE, thanked the Great Eagle Group for their generous donation. He pledged that the School would make the best use of this donation and join hands with the Great Eagle Group to build a "sustainable future".

(From right) Prof. Matthew Lee, Vice President (Development & External Relations) of CityU; Mr Alexander Lo, Executive Director of Great Eagle Holdings Limited; Prof. Chen Guohua, Dean and Chair Professor of Smart Energy Conversion and Storage, School of Energy and Environment of CityU; and Dr Amie Lai, General Manager-Sustainability of Great Eagle Holdings Limited.

About the Great Eagle Group

The Great Eagle Group was founded by the late Mr Lo Ying Shek in 1963 and was listed on the Hong Kong Stock Exchange in 1972 (Stock Code: 41). The Group's principal holdings include the Champion Real Estate Investment Trust (Champion REIT) (Stock Code: 2778) and Langham Hospitality Investments (LHI) (Stock Code: 1270), which were listed in Hong Kong in 2006 and 2013, respectively. As a Hong Kong developer, the Group also owns and manages an extensive international hotel portfolio under "The Langham" and affiliate brands. Founded and headquartered in Hong Kong, the Group develops, invests in and manages high-quality residential, office, retail and hotel properties across Asia, North America, Australasia and Europe.Prof. Matthew Lee, Vice President (Development & External Relations) of CityU, said, "CityU is committed to promoting sustainability on campus and beyond. We are delighted to join hands with the Great Eagle Group to nurture a new generation of energy professionals and promote sustainable development. Together we will bring positive impacts to our society and the world at large".

Prof Guohua Chen, Dean and Chair Professor of Smart Energy Conversion and Storage, SEE, thanked the Great Eagle Group for their generous donation. He pledged that the School would make the best use of this donation and join hands with the Great Eagle Group to build a "sustainable future".

Student Success

VTech Innovation & Sustainability Award (2022/23)

The School of Energy and Environment (SEE) is thrilled to announce the recipients of the "VTech Innovation & Sustainability Award". This Award is made possible by a generous donation from the VTech Group of Companies (VTech) and is intended to recognise outstanding students who have demonstrated exceptional performance, innovation and impact with their final-year project (FYP) related to sustainability. We congratulate the following students on their remarkable achievement.

Award	Student	Project Title	Project Supervisor
Champion	Fung Kwun Hin	Improve the Bio-degradation of the Refractory Substrate in Wastewater via Electrochemical Treatment	Prof. Jason Lam
1st runner-up	Au Wing Chi	Performance Evaluation of Hybrid Forward and Reverse Osmosis (HFRO) System: Prevention of Membrane Fouling Through Unrejected Ammonia	Prof. Alicia An
2nd runner-up	Himawan Michael	The Relationship between Environmental, Social and Corporate Governance (ESG) and Financial Performance: A Study Based on Companies Listed in Hang Seng Index	Prof. Lin Zhang
Honourable Mentions	Hu Yi	Electrocatalytic Treatment of Organic Substrates to Value-added Renewable Chemicals	Prof. Jason Lam
	Lo Yee Lam	Direct CO_2 Capture from Air by Zeolite-based Adsorbents	Prof. Jin Shang

On 31 May 2023, the five selected students presented their FYP to the judging panel at the VTech headquarters: Dr Allan Wong (Chairman & Group CEO of VTech), Mr Kent Cheung (Managing Director of VTech Contract Manufacturing Services), Mr Andrew Hui (Vice President of Product Development of VTech Electronic Learning Products), Prof. Patrick Sit (Associate Dean (Undergraduate Studies) of SEE, CityU) and Mr Andrew To (Associate Director of Development Office, CityU). An award ceremony was held immediately after their individual oral presentations.

Back row (from left):
Mr Andrew Hui, Mr Andrew To, Mr Kent Cheung, Ms Shereen Tong (Group Chief Financial Officer of VTech), Dr Allan Wong, Prof. Patrick Sit, Miss Queenie Wong (Development Officer of Development Office, CityU).

Front row (from left):
Miss Au Wing Chi, Mr Himawan Michael, Mr Fung Kwun Hin, Mr Hu Yi and Miss Lo Yee Lam.

PhD Student Received the Distinguished PhD Student Award for Energy and Built Environment

Congratulations to Mr Zhixiong Ding, a PhD student under the direction of Prof. Wei Wu, Associate Professor, School of Energy and Environment (SEE), for receiving the Distinguished PhD Student Award under the Excellent Young Researcher Award category of Energy and Built Environment at the third International Chinese Conference on Energy and Built Environment. Mr Ding's research focuses on absorption-based thermochemical energy storage. Specifically, his research contributes to higher energy storage efficiency, higher energy storage density and lower charging temperature, which are of great significance for using solar energy and achieving carbon neutrality.

As an international platform for global Chinese scholars that impacts the energy and built environment community, the 3rd International Chinese Conference on Energy and Built Environment received more than 1,400 participants from all over the world. Mr Ding was selected as one of the three winners of the Distinguished PhD Student Award after completing strict peer reviews and competitive onsite interviews.

SEE Undergraduate Student Won the Gold Award in the 13th Challenge Cup Chinese University Student Entrepreneurship Competition

Congratulations to Mr Choi Man Ho Ivan, a final-year student in the BEng Environmental Science and Engineering programme at the School of Energy and Environment (SEE), for winning the Gold Award in the "Ecological Conservation and Sustainable Development" category of the 13th Challenge Cup Chinese University Student Entrepreneurship Competition with his project, "Electricity-free Cooling Technology".

SEE Postgraduate Student Won the Silver Award in the 13th Challenge Cup Chinese University Student Entrepreneurship Competition

Congratulations to Miss Du Yuwei, a PhD student at the School of Energy and Environment (SEE) under the supervision of Prof. Edwin Tso, for winning the Silver Award in the "Ecological Conservation and Sustainable Development" category of the 13th Challenge Cup Chinese University Student Entrepreneurship Competition with her project, "Thermochromic Smart Windows".

Outstanding Final-year Project Award (2022/23)

The School of Energy and Environment (SEE) is absolutely delighted to announce that the following students have been chosen as the recipients of the Outstanding Final-Year Project Award for the 2022/23 year. This Award is given to students who have achieved exceptional performance in their final-year projects in terms of their (i) technical or scholarly quality, (ii) originality, creativity and innovation, and (iii) impact.

Award	Student	Project Title	Project Supervisor
Winner	Chan Yee Wan	Ethylamine Oxidation Mediated by Nitrate Photolysis in Atmospheric Particles	Prof. Chak K. Chan
1st runner-up	Fung Kwun Hin	Improve the Bio-degradation of the Refractory Substrate in Wastewater via Electrochemical Treatment	Prof. Jason Lam
2nd runner-up	Au Wing Chi	Performance Evaluation of Hybrid Forward and Reverse Osmosis (HFRO) System: Prevention of Membrane Fouling Through Unrejected Ammonia	Prof. Alicia An

On 19 May 2023, a judging panel consisting of Prof. Guohua Chen (Panel Chair), Prof. Michael Leung and members of the School Advisory Committee reviewed 10 shortlisted projects. The panel was greatly impressed by the students' high-quality work, as well as their excellent articulation and presentation skills. The projects were conducted with a practical and relevant approach to Hong Kong's environment and have enormous potential to be scaled up and applied in the real world. Overall, the judging panel was thoroughly impressed with the quality of the submissions and the potential impact they could have on the community.

The judging panel, SEE faculty members and students in a Zoom meeting on 19 May 2023.

Student Activities

SEE Green Innovation Competition 2023
Campus Tour for Shortlisted Secondary School Teams

SEE hosted the "SEE Green Innovation Competition 2023" campus tour on 3 June 2023. Joining us were the shortlisted teams from the Canadian International School of Hong Kong, Diocesan Boys' School, Hong Kong International School, Maryknoll Convent School (Secondary Section), St. Paul's School (Lam Tin), Stamford American School Hong Kong and West Island School.

The tour began with a welcome session and an opportunity to meet with advisers, followed by two lab demonstrations and a library tour. The two demonstrations presented the latest research on "Water Energy Nexus", a novel 2D–3D membrane technology for water to capture H_2 and CO_2 by Prof. Alicia AN's research group in addition to the award-winning demonstration of intelligent "skin" materials for building decarbonisation and thermochromic smart window-building technology by Prof. Edwin TSO's research team. The tour ended with a visit to Run Run Shaw Library, where the participants browsed the collection of books and resources on sustainability and environmental science.

The SEE extends its appreciation to all the students and teachers who joined us on that hot and sunny Saturday morning. The tour enabled the knowledge transfer of innovative solutions related to various energy, environment and sustainability issues. The School was excited to receive the extended proposals from the teams and see the impact of their ideas in July. All shortlisted teams presented their ideas and findings at the finalists' presentation and SEE Showcase Day on 29 July 2023 on the CityU campus.

A group photo with the SEE advisers.

Demonstration of "Water Energy Nexus", a novel 2D–3D membrane technology for water to H2 and CO2 capture by Prof. Alicia AN's research group.

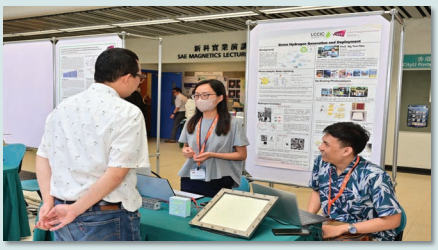
A group photo following the demonstration of intelligent "skin" materials for building decarbonisation and thermochromic smart window-building technology by Prof. Edwin TSO's research team.

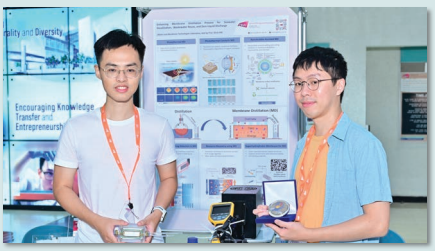
Green Innovation Challenge Competition 2023 & SEE Showcase Day

The School of Energy and Environment (SEE) hosted the first-and-ever Green Innovation Challenge Competition 2023/Showcase Day on 29 July 2023! It was a great pleasure to announce the results after the intense finals round where 10 teams presented their inspiring ideas for a more sustainable future.

The first prize went to Project "GreenPack" by the St. Stephen's Girls' College team: KO Ching Yan, CHEUNG Sze Yan, LEUNG Cheuk Ning and YANG Yawen. The second prize was awarded to Project "Biodegradable Container for Liquid Fertilizer" by a team from Diocesan Boys' School: NG Cheuk Yin and CHAN Yu Chun. The third prize went to Project "Mollusk Farm for Microplastic Management" by another team from Diocesan Boys' School: LEUNG Sze Long, CHOW Pui Evan, FONG Ethan and LEE Jin Wung Max. Two consolation prizes were also awarded: the first went to Project "Foodwaste Digestor" by KAO Zoe from West Island School. The second consolation prize went to Project "Microalgae water-filled Window" by the Maryknoll Convent School (Secondary Section) team: TSOI Lok Yi Cherrie, LEUNG Hoi Yan and TIAN Sze Kei.

The Green Innovation Challenge Competition was followed by an expert talk on how green innovation can change Hong Kong, an admission talk and a student sharing session. In addition, the SEE Showcase Day was held where a range of faculty research was exhibited to the public.





CityU Alumni Association of School of Energy and Environment
Membership Application Form

General Information

Graduate Year: _____

Name of Most Recent Programme:

❍ Doctor of Philosophy (Ph.D.)
❍ Master of Philosophy (M.Phil.)
❍ Bachelor of Engineering (BEng) in Energy Science and Engineering
❍ Master of Science (MSc) in Energy and Environment

Personal Particulars

Name: _____ (English) _____ (Chinese as applicable)

Nickname: _____ Gender: _____ Mobile phone No.: _____

Email address: _____ WeChat ID: _____ (Optional)

Current Status

❍ Full-time employment ❍ Part-time employment ❍ Self-employment ❍ Employment seeking

❍ Further Studies ❍ Others (please specify):

Employment Status (optional)

Name of employer: _____ Year of service: _____

Department : _____ Current job title: _____

I have read Personal Data (Privacy) Notice – Use of Personal Data and agree to those terms:

Applicant's signature: _____ Date: _____

Personal Data (Privacy) Notice – Use of Personal Data

People who supply data in their application to the CityU Alumni Association of School of Energy and Environment Limited are advised to note the following points, pursuant to the Personal Data (Privacy) Ordinance:

1. Personal data provided in this application form will, during the entire process, be used solely for this purpose, and in this connection, the data will be handled by the Association's staff or by any committee members of the Association who is directly involved in the administration of this application.
2. After the applications have been processed and the relevant exercise completed:

a. the application papers/eForm of successful candidates will become part of the file which the Association open for each member.

3. Under the provisions of the Person Data (Privacy) Ordinance, applicants have rights to request access to, and to request the correction of, their personal data. Applicants wishing to access or make corrections to their data should send email to the see.enquiry@cityu.edu.hk

Declaration

1. I have noted the general points pursuant to the Personal Data (Privacy) Ordinance.
2. I authorise the CityU Alumni Association of School of Energy and Environment Limited or any other office that is directly involved in the administration of this application to use, check and process my data as required for my application.
3. I understand upon successful application, my data will become a part of my member record and may be used for all purposes as prescribed under relevant rules and regulations, as long as I remain member of this Association.

General Enquiry
Email: see.enquiry@cityu.edu.hk
Address: G5703, 5/F, Yeung Kin Man Academic Building, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong

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