

NEWSLETTER

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Dean's Message

It has been a busy academic year since the autumn of 2020. Over the past few months, with all my colleagues' persistent efforts, the School of Energy and Environment (SEE) has taken big steps forward in enhancing the students' learning experience and career preparations and advancing the school's research.

A new stream, '**Energy/Environment in Science, Technology & Advanced Research (eSTAR)**', is being introduced for the 2021 intakes of the Bachelor of Engineering in Energy Science and Engineering (BEngESE) and Bachelor of Engineering in Environmental Science and Engineering (BEngEVE). Students enrolled in eSTAR will undertake research under the supervision of SEE faculty members and take up a minor in computing, data science, innovation management and entrepreneurship, or international business. The diverse study plan allows talented students to expand their studies to include research experience and a minor in an area related to sustainability, energy, or the environment.

The School is committed to fostering the career preparations of students. The '**SEE Industry Ready Programme**' was launched with a virtual memorandum of understanding signing ceremony on 14 January 2021, with the presence of the Honorable Mr. Wong Kam-sing, Secretary for the Environment, HKSAR Government, President Way Kuo of CityU, Prof. Richard Yuen Kwok-kit, Chief-of-Staff of CityU, and Ir Dr. Vincent Cheng Sai-yau, Chairman of the SEE Advisory Committee as officiating guests. This unique programme was established in collaboration with professional bodies and companies to provide out-of-class work-related training to our undergraduates. Students will gain additional on-the-job training in areas related to the environment and energy, engineering, and science.

It brings us much pleasure to witness the vibrant research conducted at our school. According to metrics compiled by Stanford University, six faculty members, namely Prof. Johnny Chan, Prof. Michael Leung, Dr. Chunhua Liu, Prof. Wen-Xiong Wang, Dr. Lin Zhang, and me, are listed among the **top 2% of the world's most highly cited scientists**. This recognition reflects the high academic standard of our faculty and our excellent research performance. Our young faculty member, Dr. Edwin Tso, recently won the **Gold Medal with Congratulations of the Jury at Inventions Geneva Evaluation Days (IGED) 2021**, with his research on 'An Energy-free, Low-cost and High Cooling Performance Passive Radiative Cooling Technology for Building Applications'.

We are excited to have new prominent faculty members in the field of solar energy, **Prof. Alex Jen and Prof. Angus Yip**, under joint appointments. Prof. Jen is the Lee Shau-Kei Chair Professor (Materials Science) and Chair Professor, Chemistry and Materials Science and Engineering, SEE. Prof. Angus Yip is a professor at the SEE and the Department of Materials Science and Engineering. We also welcome three affiliate faculty members, namely **Prof. Kenneth Leung** (Department of Chemistry), **Prof. Alvin Lai** (Department of Architecture and Civil Engineering), and **Dr. Steven Wang** (Department of Mechanical Engineering), who are experts in energy and the environment. Their arrival will bring SEE's research to new heights, especially in the area of renewable energy.

The pandemic has posed many challenges but also brought opportunities in research and education. Dr. Carol Lin is leading a project on **reducing the transmission of the novel coronavirus and other infectious diseases using food waste derived medical textiles via electrospinning for healthcare apparel and personal protective equipment**. This project was awarded HK\$5.5M by the **Hong Kong Research Grants Council One-off Collaborative Research Fund**. In a project led by Prof. Alvin Lai and funded by the **Research Impact Fund of the RGC**, Dr. Patrick Lee and I will work on the **detection, characterisation, and disinfection of indoor bioaerosols**. This 4-year research project will contribute to the fight against COVID-19 and better prepare us for future pandemics. Dr. Lee is also developing methods with which to detect SARS-CoV-2 in water sources as part of an early COVID-19 case warning system in a project funded by the **Health and Medical Research Fund**. On the education side, online teaching has become the standard mode of teaching and learning. To ensure our students have high-quality learning experiences, we shared our insights into good practices in online teaching with the broad participation of faculty members last month.

Best,



Prof. Chak K. Chan
Dean of School of Energy and Environment
City University of Hong Kong



About the SEE Advisory Committee

Message from Ir. Dr. Vincent Cheng Chairman, SEE Advisory Committee

I am truly honoured to be the new Chairman of the School of Energy and Environment's (SEE) Advisory Committee. I know that great responsibility comes with this role, as the calls for carbon reduction and sustainable development are more urgent than ever.

I believe that answering this call will require a collaborative effort between academia and industry to devise more innovative solutions and expedite their transfer into practice, making a real impact on the environment and community in which we live. With my long experience in sustainability, I hope to help close the gap and drive more research and development breakthroughs for technical adoption by industry.

The role also provides a great opportunity for me to pass on my knowledge and to gain inspiration from our young generation for more creative ideas that benefit our shared future. I look forward to working closely with the various stakeholders to develop the School into a world-class learning platform and research institute for energy efficiency, carbon reduction and environmental protection and to groom more young talent to help solve some of the most pressing, complex problems of our times.



About Ir. Dr. Vincent Cheng

Vincent serves as a **Fellow and Director of Sustainability** at **Arup** and has dedicated himself to the transformation of the building industry according to the principles of sustainability for more than 25 years.

He has led sustainable projects that address the issues of rapid urbanisation and climate change across Asia. Exemplary projects in Hong Kong include CIC ZCB, Victoria Dockside and K11 Atelier King's Road; in particular, his work on the Kai Tak District Cooling System plays a pivotal role in the response to the city's climate action plan.

As a thoughtful and technical leader, Vincent has played an active role in shaping the sustainability agendas in various professional institutions and government committees. His lifelong dedication to sustainability earned him the Sustainability Leader of the Year in Hong Kong Sustainability Award 2018-19.

SEE Advisory Committee Members

Ir. Dr. Cary Chan

Executive Director
Hong Kong Green Building Council

Dr. Cho-Ming Cheng

Director
Hong Kong Observatory
The Government of the Hong Kong Special Administrative Region

Mr. Freeman Cheung

Senior Vice President (Environment),
Greater China
AECOM

Ir. Simon Cheung

Vice Chairman
Federation of Hong Kong Industries Group 26
(Environmental Industries Council)

Ir. T. K. Chiang

Managing Director
CLP Power Hong Kong Limited

Ir. Colin Chung

Managing Director - Property & Buildings,
China Region
WSP (Asia) Limited

Mr. Daniel Fung

Head of Strategy & Innovation and Commercial
- HK Utilities
Hong Kong and China Gas Company Limited

Mr. Brian Ho

Partner, Climate Change and Sustainability
Services
Ernst & Young

Ms. Karen Ho

Head of Corporate and Community
Sustainability
WWF - Hong Kong

Ir. Ricky Leung

Executive Director, Engineering & Technology
Airport Authority Hong Kong

Mr. Ricky Liu

Vice President - Smart Infrastructure Regional
Solutions & Services
Siemens Limited

Ir. Eric Lo

Director of Projects
Binnies Hong Kong Limited

Ir. Dr. Louis Lock

Honorary Fellow & Vice President
The Institute of Measurement & Control, UK

Mr. Raymond Poon

Deputy Director/Regulatory Services
Electrical & Mechanical Services Department
The Government of the Hong Kong Special Administrative Region

Ir. Andrew Young

Associate Director (Innovation)
Sino Group

Staff Development

We Welcome Prof. Alex Jen!

Under a joint appointment with the Department of Materials Science and Engineering (MSE) and the Department of Chemistry (CHEM), Prof. Alex Jen, Lee Shau-Keel Chair Professor (Materials Science) and Chair Professor, Chemistry and Materials Science, has recently joined SEE as a Chair Professor. MSE will continue to be his home academic unit.



Prof. Alex Jen received his Bachelor of Science from the National Tsing Hua University in Taiwan and his PhD from the University of Pennsylvania in the United States. He is a distinguished researcher with more than 940 publications, 66,000 citations, and an H-index of 130. His interdisciplinary research covers organic/hybrid functional materials and devices for photonics, energy, sensors, and nanomedicine.

The addition of Prof. Alex Jen will elevate SEE's research visibility and status, particularly in energy-related research areas.

We Welcome Prof. Angus Yip!

Under a joint appointment with the Department of Materials Science and Engineering (MSE), Prof. Angus Yip has recently joined SEE. Prof. Yip obtained his PhD in Materials Science and Engineering from the University of Washington, Seattle. His research is in the general area of solution processed optoelectronic materials and devices for energy generation and savings. His research focuses on understanding the structure-property relationships, device physics and photophysics, and device optimisation of 1) organic solar cells, 2) perovskite solar cells and 3) perovskite LEDs. He has published more than 200 scientific papers with more than 24,000 citations and an H-index of 80. He was also honoured as a 'Highly Cited Researcher' by the Web of Science Group from 2014 to 2020.



We Welcome Prof. Kenneth Leung, Prof. Alvin Lai and Dr. Steven Wang!

It is with great pleasure to welcome three affiliate faculty members, namely, Prof. Kenneth Leung, Prof. Alvin Lai and Dr. Steven Wang.

Prof. Kenneth Leung is an expert in marine science. His research interests encompass marine pollution, ecotoxicology, environmental risk assessment, environmental quality benchmarks, marine ecology, biodiversity conservation and ecological restoration using eco-engineering.

Prof. Alvin Lai's expertise is in indoor air pollution. His main research areas are air quality with the emphasis on airborne particles, exposure, aerosol science and technology and filtration technology.

Dr. Steven Wang's research focus is to initiate practical engaged solutions to the real-world issues that combine different disciplines. In particular, he aims to tackle the energy and environmental problems using experimental and theoretical approaches.



(From left to right) Prof. Kenneth Leung, Prof. Alvin Lai and Dr. Steven Wang

CityU Long Service Award 2020

SEE is delighted to extend its warmest congratulations to Prof. Michael Leung (Professor) and Ms. Prisca Wong (Executive Officer I), who received the Long Service Award from the Human Resources Office on behalf of CityU. We are grateful for their contributions to the School and University over the years.

To reduce social contact under COVID-19, no award presentation ceremony was conducted this year. Prof. Chak K. Chan, Dean and Chair Professor of Atmospheric Environment, presented the awards.

Congratulations!

Spotlight

Dr. Patrick Lee
Associate Dean (Undergraduate Studies)
Associate Professor
Recipient of the President's Award 2020



Biography

Dr. Patrick Lee is interested in solving energy and environmental problems related to biology. His academic background is in biochemical engineering, environmental engineering, and microbiology, and he often works at the interface of fundamental and applied sciences. Although Dr. Lee is interested in understanding microbiology at the molecular and cellular levels, he also aims to apply fundamental findings in engineering applications to solve real-world problems. His research involves the use of experimental and computational systems biology approaches to study complex microbial communities or microbiomes. Dr. Lee also applies molecular and engineering techniques to engineer model and non-model bacteria to produce value-added products.

Research Interests

- Biotechnology and microbiology
- Environmental microbiome
- Production of value-added products

Research Achievements/ Industrial Collaborations

- Special Recognition Award, World Cultural Council (WCC), 2018
- Achievement Award, Bioenergy Society of Singapore, 2018
- Outstanding Supervisor Award, City University of Hong Kong, 2018
- The President's Awards, City University of Hong Kong, 2016
- Natural Sciences and Engineering Research Council Postdoctoral Fellowship, Canada, 2009

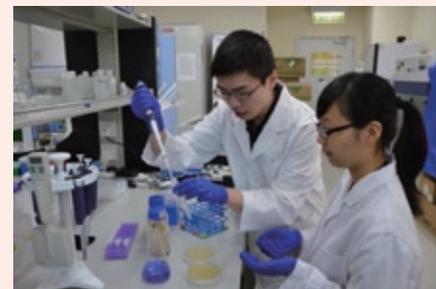
1. When did you join SEE, and why?

I joined SEE in January 2011, so I have been part of SEE for more than 10 years. It has been an amazing journey to see SEE develop and mature over the years. SEE had no undergraduate students when I first joined. We welcomed the first class of students in 2012, and it was a big moment to see the first class of students graduate 4 years later. It is rewarding to have built a programme from scratch, and our efforts have enabled graduates to pursue careers in industry or graduate school. The first class had relatively few students. I can still remember their names and faces! SEE now has two undergraduate programmes and many more students. Each student is unique in many ways!



2. What are your main teaching activities, and do you have a motto that helps you stay so passionate about teaching?

I have been teaching courses related to bioenergy and wastewater treatment engineering. I also recently began to teach an environmental engineering laboratory course. I believe that teaching is more than simply imparting knowledge; it is inspiring a positive transformation. I hope that this transformation will bring the students a lifetime of benefits, regardless of what they choose to pursue after graduation.



3. What are your research interests and recent research? How do they impact our future?



Dr. Patrick received special recognition diplomas from the World Cultural Council (WCC) in 2018. Hundreds of guests attended the ceremony to celebrate the success of the scholars from CityU.

My research is in the biological sciences, particularly microbiology. We apply experimental and computational techniques within a systems biology framework to solve energy and environmental problems. In our energy projects, on one hand, we are trying to learn how bacteria have evolved with such great efficiency; on the other hand, we are trying to engineer bacteria to produce chemicals and fuels. The two topics are interrelated because an understanding of the fundamental mechanism of the activity of a single bacterium or groups of bacteria can help us to better engineer them into cell factories. In our environmental projects, we are

investigating how a complex group of bacteria can function together in various systems, such as indoor and outdoor air. Indoor air has obvious and significant health implications. Overall, our research contributes to sustainability and a healthier environment for future generations.

4. As the Associate Dean (Undergraduate Studies), what would you like to tell the students?

I want to tell the students that I am their biggest cheerleader. I am happy to cheer them on during their time at SEE and beyond! During my time in charge of undergraduate studies, we have strengthened the curricula and provided a greater variety of learning activities both inside and outside the classroom. We are counting on our graduates to help slow climate change and build a more sustainable society!

Dr. Lin Zhang Assistant Professor

One of six SEE faculty members listed among the top 2% of the world's most highly cited scientists



Biography

Dr. Lin Zhang studied at Peking University, where he received a Bachelor's degree in Mechanical Engineering and a double Bachelor's degree in Economics. He then moved to Switzerland, where he earned his Master's degree in Management and PhD in Economics at ETH Zurich. Before joining CityU, he was a postdoctoral researcher at the Center of Economic Research at ETH Zurich. He was also associated with the Energy Science Center, Simulation Lab, and the Competence Center for Research in Energy, Society, and Transition in Switzerland. In addition to his position at SEE, Dr. Zhang has a joint appointment with the Department of Public Policy, College of Liberal Arts and Social Sciences of the City University of Hong Kong. With his research, Dr. Zhang aims to develop improved quantitative modelling approaches for the design, evaluation, and upgrading of sustainable energy policies at the local, regional, and global levels. He has received research grants from the Swiss Federal Office of Energy, the Swiss National Science Foundation, the Research Grants Council in Hong Kong, and the European Environmental Agency, among others. He has served as a reviewer for more than 20 SSCI-listed journals and as an international conference committee member. Dr. Zhang was recently appointed to the International Association for Energy Economics (IAEE) Strategic Committee for Publications.

Research Interests

- Energy and environmental economics
- Efficiency and productivity analysis
- Energy policy and sustainable development
- Computable general equilibrium modelling

Research Achievements/ Industrial Collaborations

- Top 2% of the world's most highly cited scientists (according to metrics compiled by Stanford University)
- International Association for Energy Economics (IAEE) Strategic Committee for Publications
- Outstanding reviewer for international journals including *Economic Modelling* and the *Journal of Environmental Management*
- Top 10% of authors on SSRN (the largest social science research network) by total new downloads
- External expert reviewer for the Competition Commission of Hong Kong
- Global Top 500 young economists for Lindau Nobel Laureate Meetings on Economic Sciences
- Industrial collaboration on energy efficiency with Towngas

1. What is your main research focus?

My primary research focuses on energy and sustainability economics. My work uses economic methods to seek policy solutions to sustainability through interdisciplinary lenses. My recent research explores how firms use internal carbon measures to maintain their competitiveness and business sustainability and how the government supports such initiatives with market instruments for sustainable economic growth in the post-pandemic era.

2. What is your research vision?

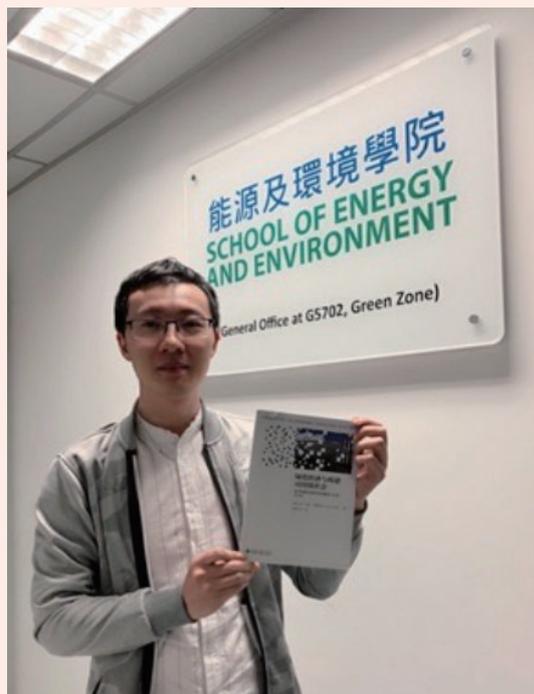
In my ultimate pursuit of regional sustainable development, I have dedicated myself to understanding and unpacking the mechanism of social and economic externalities that arise from energy and environmental issues. My work has helped the Swiss government in the design of its nuclear phase-out policy. I hope that my research can be useful in the design of policies to achieve carbon neutrality in Hong Kong, the Greater Bay Area, and our country.

3. Congratulations on being listed among the top 2% scientists on a global list compiled by the prestigious Stanford University. What drives you towards success?

I feel so honoured to be ranked in the top 2% with a group of excellent scholars at our school and worldwide. I will continue to do my best to contribute to frontier research. One of the most important factors that has driven me to success is the comfortable research environment here. I have full freedom to choose my topics of interest and have never been forced to conduct any projects in which I have no interest. This leaves me room to think deeply about the needs of our society and devise excellent research ideas. The full support I receive from the school and my colleagues is another important factor. For example, some data essential to my research are only available in other academic units. Prof. Chak K. Chan, Dean, and Ms. Janet Cheung, Director of Administration, helped me to obtain the access I needed in just one day. The School is very supportive to its young faculty members.

4. Do you have any advice to students who wish to establish a career as a researcher or professor?

Research is performed to explore new possibilities. This is a career full of challenges and uncertainties, as well as failure and frustration. I believe in the Chinese saying 'ten years for a sword'. It took four years before the first chapter of my doctoral thesis was accepted for publication in the top journal of energy economics. If you think you can do something, stick to it, and eventually you will get the results you want.



Dr. Lin Zhang published a translated book by Peking University Press. The title of this book is 'Greening Economy, Graying Society' (綠化經濟與構建可持續社會).

Research Success

Dr. Edwin Tso's innovative research grabs gold in Geneva

'An Energy-Free, Low-Cost and High Cooling Performance Passive Radiative Cooling Technology for Building Applications' led by Dr. Edwin Tso, Assistant Professor, received the Gold Medal with Congratulations of the Jury at Inventions Geneva Evaluation Days (IGED) 2021. IGED, held from 10 to 14 March 2021, is a special edition of the International

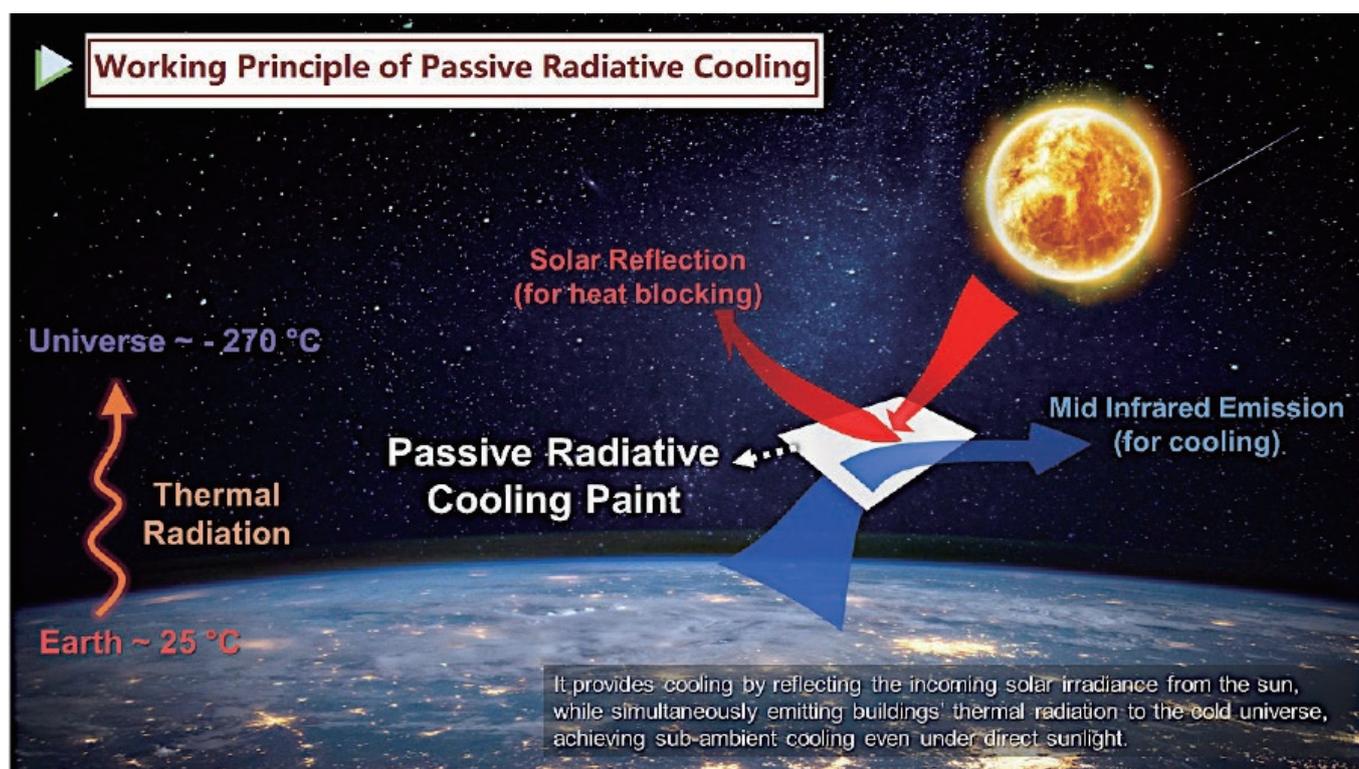
Exhibition of Inventions of Geneva due to the pandemic. It is one of the biggest global events showcasing innovations and inventions from around the world. The award obtained by Dr. Tso, at such a high international level, demonstrates the excellence of the research carried out at SEE.

To provide a sustainable and energy-saving solution to the consumption of electricity in buildings, Dr. Tso has developed a passive radiative cooling paint, using the universe as a cooling source. Unlike traditional air-conditioning systems, the passive radiative cooling paint is an energy-free and refrigerant-free cooling technology that reflects incoming solar irradiance, while emitting thermal radiation to the cold universe and achieving sub-ambient cooling.

This self-cooling technology possesses many advantages, such as a simple structure, easy manufacturing, and low cost. Directly coating this paint on a building's roof or exterior walls will reduce its surface temperature and save on air-conditioning energy. The technology can be used for cooling automobile, in self-cooling textiles and painting roads to mitigate heat from land.



About the project:



Research to Combat COVID-19 SEE-led Covid-19 project secured HK\$5.5M Collaborative Research Fund

Dr. Carol Lin, Associate Professor, is coordinating a project on reducing the transmission of the novel coronavirus and other infectious diseases using food waste-derived medical textiles via electrospinning for healthcare apparel and personal protective equipment (PPE).

Since the outbreak of the COVID-19 pandemic, there is a great need of personal protective equipment (PPE) to reduce the risk of viral transmission in health care settings. Severe shortages in the global supply chain of PPE were observed due to an unprecedented surge in global demand and a massive increase in medical waste caused by the enforcement of infection control measures. Therefore, technology-integrated biorefineries have focused on a material recovery approach to resolve the twin problems of the global waste burden and severe PPE shortage, and research and development is urgently needed in this evolving area.



"PPE is currently a hot topic," said Dr. Lin, whose project attracted HK\$5.5M in the one-off collaborative exercise. "It is probably the most discussed and emotive subject for front-line healthcare workers who work with patients with the coronavirus disease." The aim is to develop food waste-derived non-woven medical textiles via electrospinning for healthcare apparel to limit the transmission of Covid-19. Electrospinning is a manufacturing technique using electric force to draw together charged nano-fibre threads. The fabricated non-woven medical textiles will be examined by standard methods to ensure the performance of the textiles meet the expected standard for medical mask materials. "Technology-integrated biorefineries focus on the material recovery approach to resolving the twin problems of the global waste burden and severe PPE shortages. This is an evolving area where research and development is urgently needed," Dr. Lin explained.

Dr. Carol Lin, an expert on microbial fermentation and bioprocessing, will lead this project in collaboration with nine leading scientists from the disciplines of aerosol dynamics, infectious disease transmission risk and epidemiology, medical textile materials, sustainability, and waste valorisation at four major research universities in Hong Kong and the top epidemiology hospital in Guangzhou. SEE faculty members Prof. Chak K. Chan, Dr. Shauhrat Chopra, Dr. Walid Daoud, and Dr. Edwin Tso, together with four external collaborators from The University of Hong Kong, The Hong Kong Polytechnic University, The Hong Kong University of Science and Technology, and Southern Medical University in Guangzhou, are co-principal investigators on this project.



Advanced bioaerosol project to eliminate COVID-19 and other pathogens secures HK\$6.15M from Research Impact Fund

Prof. Chak K. Chan and Dr. Patrick Lee of SEE, together with Prof. Alvin Lai, have secured funding from the Research Impact Fund of the Hong Kong Research Grants Council to work on the detection, characterisation, and disinfection of indoor bioaerosols. This 4-year research project, entitled 'Rapid Detection and Synergetic Disinfection of Bioaerosols Using Far UVC and Negative Air Ions: Mechanistic and Field Studies', will contribute to the fight against COVID-19 and enhance our preparedness for future pandemics.

Current methods of sampling bioaerosols cannot rapidly and effectively detect microorganisms of all sizes, especially viruses that are less than a micron in diameter.

To address these shortcomings, the research team will attempt to couple advanced aerosol technology with molecular biology techniques such as nucleic acid-based methods to enable the rapid and accurate detection of targeted microorganisms. Nucleic acid-based methods are now used to test humans, but the team will use them to analyse air samples.

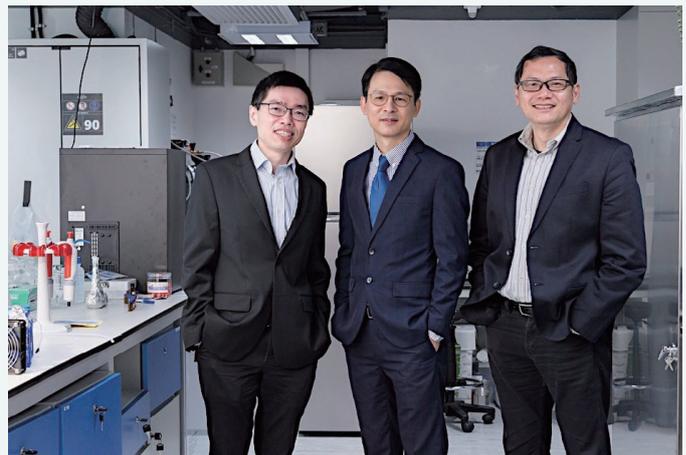
These new methods will be deployed to profile the bioaerosol compositions in various indoor settings throughout Hong Kong.

In addition, the team will combine far ultraviolet C light (Far UVC light) and negative air ions to harness the synergistic effects between the two to achieve greater than 99.9% removal of bacteria and viruses.

Far UVC was recently shown to be more effective in the disinfection of microorganisms and, most importantly, safer than conventional UVC, a known disinfectant that inactivates viruses and bacteria. Negative air ions can also inactivate microorganisms.

After the novel disinfection process has been developed in the laboratory, field tests will be conducted in diverse buildings throughout Hong Kong to verify its effectiveness under real-life conditions. The team will investigate how the ambient transformation of bioaerosols can influence the effectiveness of disinfection via laboratory experiments that mimic typical indoor conditions.

Prof. Chak K. Chan has more than 30 years of research experience in air pollution and aerosol science, and Dr. Lee's research interest lies in biologically related environmental problems. They are both co-principal investigators on this project.





Dr. Patrick Lee's research efforts to detect SARS-CoV-2 in water sources

Dr. Patrick Lee is currently conducting another project related to the COVID-19 pandemic. By applying his research group's expertise in molecular biology and high-throughput sequencing, Dr. Lee and his colleagues in the Department of Infectious Disease and Public Health are developing methods to detect SARS-CoV-2 in water sources as an early COVID-19 case warning system in a project funded by the Health and Medical Research Fund.

SEE faculty members are listed among the top 2% of the world's most highly cited scientists

According to metrics compiled by Stanford University, more than 140 CityU faculty members are listed among the top 2% of the world's most highly cited scientists, which reflects the high academic standards standard of our faculty and our excellent research performance. Among them, six SEE faculty members are recognised on the list of Top Scientists (i.e., top 2% in the world in their own areas of specialty). They are (in alphabetical order) Prof. Chak K. Chan, Prof. Johnny Chan, Prof. Michael Leung, Dr. Chunhua Liu, Prof. Wen-Xiong Wang, and Dr. Lin Zhang.

This latest report was prepared by a team of experts led by Prof. John Ioannidis of Stanford University. Their publicly available database provides continually updated information on the work of the world's top scientists, including standardised information on citations, the h-index, the co-authorship-adjusted hm-index, citations of papers in various authorship positions, and a composite indicator.



Faculty members awarded funding from the Environment and Conservation Fund

SEE has continued to succeed in the recent funding exercise of the Environment and Conservation Fund (ECF). The funded principal investigators are Dr. Alicia An, Prof. Chak K. Chan, Dr. Jason Lam and Dr. Theodora Nah.

Details of the funded projects are listed below:

Project Title	Principal Investigator
<ul style="list-style-type: none"> Investigation of nanobubble flotation to remove micro/nano plastic from Sewage Treatment Works (STWs) in Hong Kong The 4th International Forum on Asian Water Environment Technology (IFAWET-4) 	Dr. Alicia An
Application of machine learning techniques in predicting primary and secondary organic aerosols	Prof. Chak K. Chan
Electrocatalytic degradation of refractory organics in active landfill leachate to enhance the sequencing batch reactor (SBR) denitrification process	Dr. Jason Lam
Characterization of the spatial and seasonal distributions of ambient ammonia and its relationship with PM2.5 pollution in Hong Kong	Dr. Theodora Nah

HK\$0.8M funding received from the Electrical and Mechanical Services Department, HKSAR Government

Dr. Edwin Tso and Prof. Michael Leung recently received HK\$0.8M in funding from the Electrical and Mechanical Services Department of the HKSAR Government for a research project entitled 'Study on Performance of Plate-tube Chiller'.

Dr. Sam Hsu's research featured on the inside back cover of *Journal of Material Chemistry A*

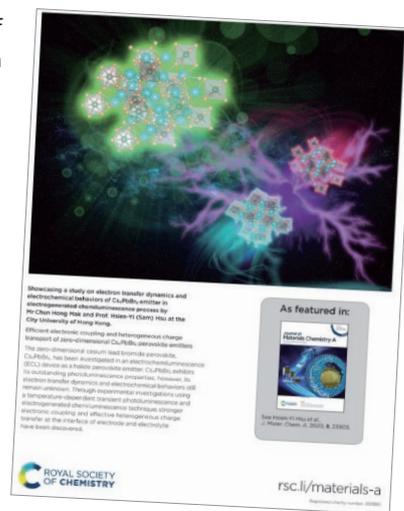
Dr. Sam Hsu, Assistant Professor, reported that the effective heterogeneous charge transfer of zero-dimensional Cs_4PbBr_6 emitters at the interface of the electrode and electrolyte results in red-shifted chemiluminescence (ECL) emission in the presence of benzoyl peroxide as the co-reactant. The results have been published and are featured on the inside back cover of the *Journal of Material Chemistry A*, a top general journal.

The development of zero-dimensional perovskite emitters opens a new avenue in the field of emerging optoelectronic and biosensing technologies, including but not limited to ECL devices, ECL immunoassays, organic light-emitting diodes, light-emitting electrochemical cells, and other forms of bio-related detection.

Cs_4PbBr_6 exhibits outstanding photoluminescence properties, but its electron transfer dynamics and electrochemical behaviours remain unknown. Dr. Hsu's team has discovered stronger electronic coupling and effective heterogeneous charge transfer at the interface of the electrode and electrolyte of Cs_4PbBr_6 via a combination of photophysical and electrochemical techniques. Briefly, Dr. Hsu's team fabricated the 0-D Cs_4PbBr_6 perovskite emitters through detailed studies of exciton transport and electrochemical dynamics with the use of temperature-dependent



transient photoluminescence and electrogenerated ECL techniques, respectively. Stronger electronic coupling of Cs_4PbBr_6 emitters arises from the overlap of electronic wavefunctions, indicating the increased possibility for the generation of electrochemiluminescence. At the electrode-electrolyte interface, the diffusion coefficient and heterogeneous electron transfer of Cs_4PbBr_6 are more efficient than those of typical CsPbBr_3 , as determined by a series of electrochemical methods. In summary, the enhanced performance of perovskite emitters can be achieved using dimensionality engineering, thus providing new insights into the development of next-generation luminescent materials for practical applications in the emerging field of electronic and photonic technology.



Dr. Sam Hsu's research published in and featured on the inside front cover of *Advanced Functional Materials*

A three-fold improvement in the efficiency of solar-to-hydrogen energy conversion could facilitate solar energy harvesting technology, according to environmental scientists at CityU.

This research outcome could contribute to tackling the global energy shortage and provide new insights into the development of solar-to-fuel materials for photocatalytic applications in the emerging field of hydrogen technology.

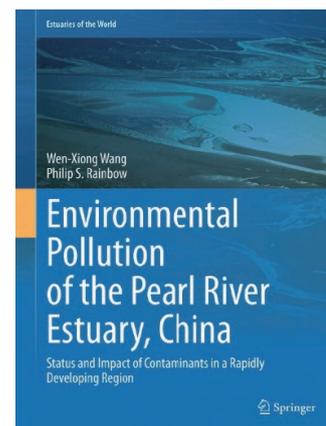
The research team, led by Dr. Sam Hsu Hsien-Yi, Assistant Professor of SEE, has developed novel lead-free bismuth-based hybrid organic-inorganic perovskites with a semiconductor heterojunction structure.

The heterojunction structure could serve as a driving force to enhance charge carrier transportation, which would improve hydrogen production under visible-light irradiation without the addition of co-catalysts such as platinum or ruthenium.

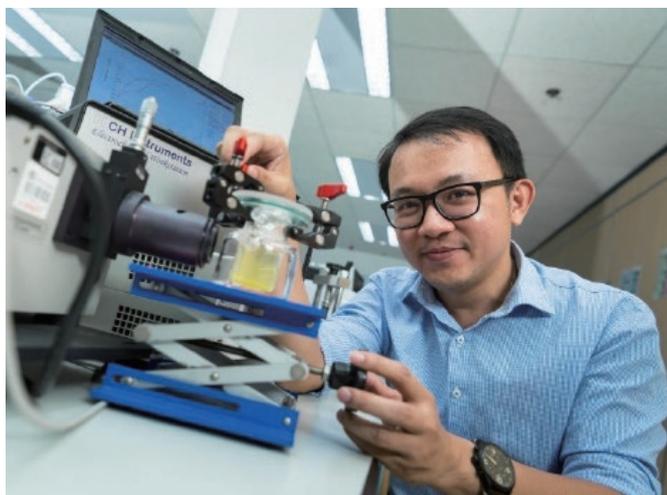
The findings have been published in the prestigious international journal *Advanced Functional Materials* under the title 'In-situ formation of bismuth-based perovskite heterostructures for high-performance co-catalyst-free photocatalytic hydrogen evolution'. Notably, this work has been highlighted and featured on the inside front cover of *Advanced Functional Materials*.

Prof. Wen-Xiong Wang has published a new book with Springer Nature

Prof. Wen-Xiong Wang recently published a book entitled 'Environmental Pollution of the Pearl River Estuary, China: Status and Impact of Contaminants in a Rapidly Developing Region' with Springer Nature. The book offers an overview of environmental pollution in an estuary with an adjacent human population of more than 70 million and rapid economic growth.



Research on a novel photocatalyst: Turns carbon dioxide into methane fuel with light



Dr. Yun Hau Ng, Associate Professor, in collaboration with researchers from Australia, Malaysia, and the United Kingdom, has developed a new photocatalyst that can produce methane fuel (CH_4) selectively and effectively from carbon dioxide using sunlight.

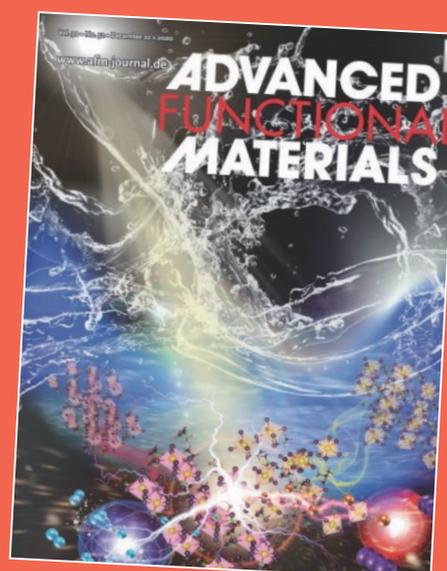
Carbon dioxide (CO_2) is a major greenhouse gas that contributes to global warming. The conversion of carbon dioxide into energy would 'kill two birds with one stone' by addressing two environmental issues.

These findings were recently published in the scientific journal *Angewandte Chemie*, in an article entitled 'Metal-Organic Frameworks Decorated Cuprous Oxide Nanowires for Long-lived Charges Applied in Selective Photocatalytic CO_2 Reduction to CH_4 '.

The research was funded by CityU, the Hong Kong Research Grant Council, and the Australian Research Council.

Dr. Hsu is the sole corresponding author of this paper. Other co-authoring CityU members include Tang Yunqi, the first author, and Stanley Mak Chun-hong and Liu Rugeng, all of whom are PhD students of SEE, and Prof. Wang Zuankai of the Department of Mechanical Engineering. The other co-authors are based in Fudan University; the Graduate School at Shenzhen, Tsinghua University; and the University of Rennes.

The new technology developed by Dr. Hsu's team can improve by three-fold the efficiency of solar-to-hydrogen energy conversion.

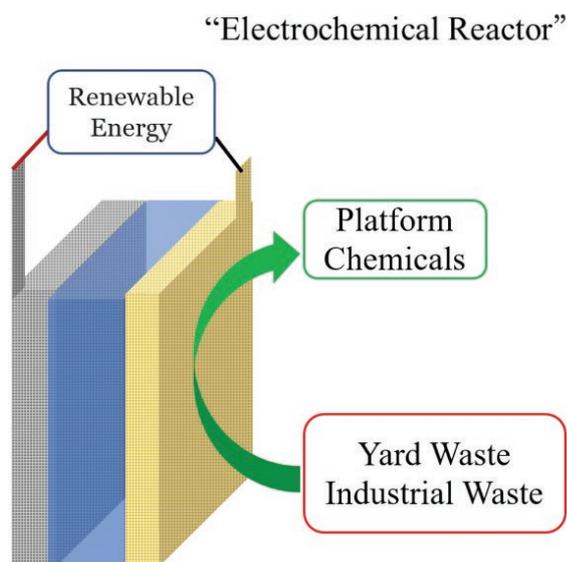


Research Stories

The Midas touch: Turning waste into resources — by Dr. Jason Lam

Petroleum products are indispensable to our everyday lives. Almost all daily necessities, such as fuels, plastic products, detergents, and even medicines and cosmetics, are by-products of petroleum. However, a reliance on fossil resources will accelerate climate change. Hence, it is critical to minimise the use of fossil resources and increase the use of renewable alternatives. Hong Kong has therefore set a goal of achieving carbon neutrality by 2050 and introducing negative carbon emission energy sources such as green hydrogen energy.

But where will industrial raw materials be obtained? As the proverb goes, 'One man's trash is another man's treasure'. Dr. Jason Lam, Assistant Professor, has successfully converted crude glycerol, a form of waste from biodiesel production, into lactic acid for the production of biodegradable polylactic acid. This means that all kinds of biodegradable petroleum by-product substitutes can be manufactured without the use of petroleum. The entire production process can be powered by electricity catalysed in an environmentally friendly manner. The electrochemical reaction conditions are milder than those of traditional thermal catalysis reactions, which can effectively reduce costs. Furthermore, the distribution of products can be controlled by regulating the voltage and increasing the diversity of products and revenue and thus the prospects for industrialisation. Dr. Lam will continue to study methods to reduce the cost of converting waste into resources so that fossil fuels can someday be completely replaced.



Oysters and seafood safety — by Prof. Wen-Xiong Wang

Due to the growing use of renewable energy and Oyster farming has a history of more than 2000 years in China. Oysters are delicious and are enjoyed in Southeast Asian countries, and they also have significant cultural value.

Oysters have amazing seawater filtering ability and therefore easily accumulate pollutants and heavy metals. Oysters in the Pearl River Estuary (PRE) are widely contaminated. The content of cadmium, a form of heavy metal, in their soft tissues often exceeds the food safety standard (i.e., 2 mg of cadmium per kilogram of oyster meat), thus threatening the sustainability of oysters. Thus, it is crucial to determine the source of cadmium. Prof. Wen-Xiong Wang of SEE, and his team have conducted many studies of the water quality in the PRE. They found that the cadmium concentration in this water area is not particularly high. However, because eight river mouths converge in the PRE, the influx of a large amount of fresh water dilutes the seawater and boosts the bioavailability of cadmium in the seawater (i.e., cadmium is more easily absorbed by oysters in seawater with a lower salt content). Also, low-salinity water is favourable to the growth of oysters and increases their seawater absorption. Therefore, the special geographical environment of the PRE results in an increased cadmium content in the oysters' soft tissues.

In future, Prof. Wang and his team will focus on seeking a means to reduce the cadmium content in the soft tissues of oysters. The research, although challenging, will have great significance in protecting human health and oysters in the PRE.



Crassostrea hongkongensis, a species of oyster named after Hong Kong that grows in Lau Fau Shan, Hong Kong and the PRE.

Fun facts about battery charging — by Dr. Denis Yu

Efficiency is a core value in Hong Kong. Even our escalators are the fastest in the world. However, 'the faster, the better' does not apply to everything, including battery charging. Most of the latest models of mobile phones have a fast charging function that reduces the charging time from three hours to around one hour. However, fast charging also shortens the battery life.

Fast charging works simply by increasing the current sent to the battery to fill its capacity more quickly. However, because the battery has internal resistance, a larger current will cause greater energy loss and generate heat energy, thus heating the battery during fast charging. According to a laboratory study conducted by a team led by Dr. Denis Yu, Associate Professor, conventional charging increases the battery temperature by about 3°C to 4°C, whilst fast charging

increases it by about 8°C to 9°C. The chemical substances inside the battery cause more side reactions due to the high temperature and shorten the battery life. Therefore, users should pay attention to the environment and the phone's status when charging, reduce the use of fast charging, and properly protect the battery. Dr. Yu and his research team are developing new battery materials to safely and effectively increase battery capacity and charging speed with a view to extending battery life.

Fun facts about battery charging A new cooling solution to reduce energy consumption — by Dr. Edwin Tso

In recent years, people's demand for indoor air-conditioning and cooling has continued to increase, worsening the problem of energy depletion. The compressor in a traditional indoor cooling system consumes a large amount of energy and requires refrigerants, which

have negative effects on the environment. In Hong Kong, energy consumption for indoor air-conditioning and cooling accounts for more than 20% of all energy consumption in buildings. Therefore, environmentally friendly air-conditioning and cooling technologies will play a vital role in saving energy and reducing emissions in Hong Kong and the world and help alleviate the energy crisis.

In view of this, Dr. Edwin Tso, Assistant Professor, has led a team to develop a new form of passive radiative cooling. This method involves a coating that can effectively reduce the indoor temperature by several degrees Celsius. The application of this coating to building surfaces is akin to the installation of an air conditioner with zero electricity consumption and carbon emissions. Furthermore, this coating is inexpensive and easy to produce. It can be easily mass-produced and widely used. For the benefit of society, SEE will continue to work on the technology transfer of this green cooling solution and promote the development of energy-efficient building technologies.

Academic Development



Launch of 'eSTAR'

SEE recently launched a new stream, Energy/Environment in Science, Technology & Advanced Research (eSTAR), in our two existing undergraduate programmes, namely Bachelor of Engineering in Energy Science and Engineering (BEngESE) and Bachelor of Engineering in Environmental Science and Engineering (BEngEVE), for implementation from Semester A 2021-22, applicable to normative 4-year degree students of the 2020-21 entry and thereafter. With eSTAR, it is expected that students will further be equipped with cutting-edge skills and knowledge in emerging fields.

Given the unchanged study period of 4 years, students who opt for eSTAR are guaranteed to (i) undertake research, i.e. guided study and/or special project, and (ii) take a minor study in one of the four designated areas, namely Computing, Data Science, Innovation Management and Entrepreneurship, and International Business. We believe the research component of eSTAR would provide students with opportunities to work with our eminent professors in a one-to-one setting to pursue advanced knowledge while the minor study is intended to complement student's major study in BEngESE/BEngEVE.

Launch of the SEE Industry Ready Programme for Undergraduate Students – Ready to be our future leaders!



A unique programme for nurturing talent in the energy, environmental and sustainability industries was officially launched by CityU after the signing of memoranda of understanding (MOUs) with a range of renowned industry partners in Hong Kong.

Established by SEE at CityU, the SEE Industry Ready Programme has received overwhelming support from industry to provide various types of out-of-classroom work-related training to SEE undergraduates to broaden their job knowledge and skills in the energy, environmental, and sustainability fields.

Officiating guests at the virtual MOU Signing Ceremony on 14 January included Mr. Wong Kam-sing, Secretary for the Environment, HKSAR Government; President Way Kuo of CityU; Prof. Richard Yuen Kwok-kit, Chief-of-Staff of CityU; Prof. Chak K. Chan, Dean of SEE; and Ir Dr. Vincent Cheng Sai-yau, Chairman of the SEE Advisory Committee. Joining them in the online ceremony were more than 50 senior executives of the industry partners.

In his address, Mr. Wong congratulated the programme on its fruitful outcomes. He spoke of his delight at seeing the collaboration between academics and industry to train young people to handle the challenges presented by climate change and improve the environment.

President Kuo expressed his gratitude for the tremendous support provided by the collaborative partners of the Programme. 'The collaboration between SEE and a wide range of industry partners illustrates CityU's strategic efforts to offer an interdisciplinary curriculum. I am confident that our students, industry partners, and Hong Kong will all benefit from the Programme in the long run', President Kuo said in his opening remarks.

'SEE aspires to enhance students' employability by equipping them with the most sought-after skills and knowledge in the job market, such as training on BEAM affiliates, WELL building standards, retro-commissioning, and energy audits. In SEE, we strive to nurture talented and innovative young professionals who can contribute to a sustainable future', Prof. Chan said in his welcoming remarks.

At the signing ceremony, SEE alumni shared how they have benefited significantly from the systematic training provided by the School and its industry partners. Ms Chiu Lau-ching was excited to discuss her opportunity to work for a property management company as a summer intern after joining the Programme. This opportunity enabled her to understand the daily operations of a chiller plant and the energy-saving strategies applied in the building. Her outstanding performance during the summer internship enabled her to secure a job offer from the same company as an assistant engineer upon graduation.

The ceremony signifies the concerted efforts of CityU and industry in nurturing future pillars in the areas of energy, environment and sustainability.

Seven collaborative organisations and companies signed MOUs with the School online, including Allied Sustainability and Environmental Consultants Group Ltd, BEAM Society Ltd, the Building Services Operation and Maintenance Executives Society, CLP Power Hong Kong Ltd, the Federation of Hong Kong Industries (Group 26) (Environmental Industries Council), the Hong Kong Green Building Council, and the Hong Kong Institute of Qualified Environmental Professionals Ltd.

SEE Industry Ready Programme @CLP — Energy Audit Programme

By Ir Tony Chan, Account Manager, CLP Power Hong Kong Limited

Knowledge transfer is among the greatest challenges facing the engineering industry at a time of rapid change and constantly evolving technology. It has been my pleasure to be a part of the process as one of CLP's mentors in a successful academic partnership with CityU for SEE undergraduates via the CLP Energy Audit Programme, the first initiative of the SEE Industry Ready Programme.

Since 2018, this inspiring programme has offered classes for knowledge sharing and practical, on-site, hands-on training in Energy Management and Energy Audits. The participants are given the opportunity to carry out energy audits for customers and to put into practice the theory they have learnt in the classroom. Our students benefit greatly from putting their training to practical use, not just by carrying out audits and identifying energy management opportunities but also by communicating directly with customers to deliver more tailored and effective results.

During the programme, our students made clear progress and were able to make better preparations before site visits and ask more relevant questions during the energy audits to improve the customers' experience and outcomes. After each site visit, we met with the participants over tea and coffee and conducted an informal review to strengthen their understanding of the process. Their thought-provoking questions led to extended reading and learning for students and mentors alike. I am delighted that so many participants have gone on to join the energy efficiency and conservation (EE&C) industry after graduating from university. I believe they will make a significant contribution to Hong Kong's future EE&C development and knowledge transfer.



SEE Industry Ready Programme @WWF-HK — Citizen Scientists

With the launch of the SEE Industry Ready Programme, SEE is excited to collaborate with WWF-Hong Kong (the World Wide Fund for Nature), an international non-governmental conservation organisation founded in 1961 in Switzerland and established in Hong Kong in 1981 with a mission to stop the degradation of the planet's natural environment and to build a future in which humans thrive with nature.



A team of SEE undergraduates were selected as Citizen Scientists of WWF-HK to learn about the invasive species problem in Hong Kong and to be a part of the WWF's efforts to solve it in a sustainable manner. From February to April 2021, Citizen Scientists from SEE will collect field data at the Mai Po Nature Reserve for techno-economic analysis. The study concerns the volume (in weight) that could be collected within a specific time period and the speed at which the Mikania will grow in the same location for the next 'harvest' or collection. The data will be essential for deciding the endues application.

Establishment of the VTech Innovation & Sustainability Award

To promote awareness of sustainability and innovative solutions for a sustainable future, we are pleased to announce the establishment of the 'VTech Innovation & Sustainability Award' via a generous donation from the VTech Group of Companies (VTech). VTech, the global leader in electronic learning products, is a strong advocate of innovation and sustainability. The Award is presented to students whose final-year project best contributes to a sustainable economy via innovative research in environmental management, climate change adaptation and mitigation, or green manufacturing and logistics.



Faculty sharing session on good practices and experiences in online teaching

CityU has started implementing online teaching and learning for more than a year due to the COVID-19 pandemic and this new normal is challenging yet rewarding.

SEE spares no effort to enhance teaching and learning. As online teaching has become more popular, SEE faculty members conducted a sharing session on 18 February 2021 to discuss good practices and experiences in online teaching. The session served as an excellent platform for the participants to share their insights and to be exposed to new thoughts.

Dr. Denis Yu, Associate Professor, led a discussion on good practices and experiences in online teaching. He pointed out the technical issues and potential pitfalls that should be avoided to ensure the quality of students' learning experience. Dr. Yu stressed the importance of enhancing interactions between faculty members and students, as well as in drawing students' attention and maintaining students' interest.

Conducting quizzes and examinations, and invigilation could be challenging in the online setting. Special care has to be provided to ensure academic honesty. There are several examination strategies and the faculty members discussed their pros and cons.

Education is about student learning. Faculty members are enthusiastic in improving their teaching methodology to maintain the quality of teaching and learning, even when the class are conducted online.

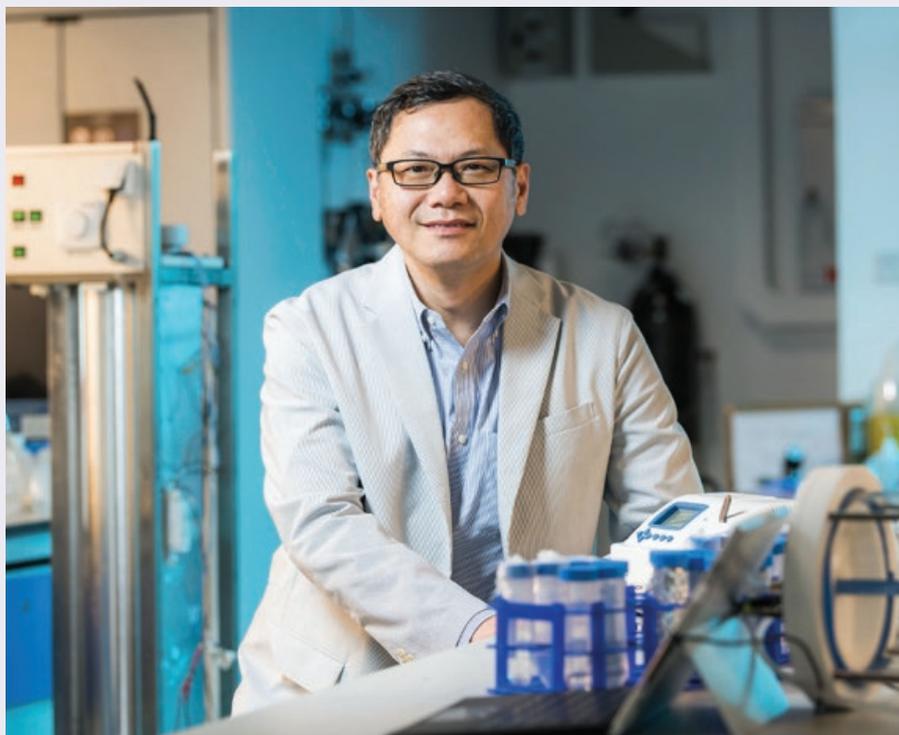
CIWEM accreditation of MSc in Energy and Environment

SEE is pleased to announce that our MSc Programme in Energy and Environment has been accredited by the Chartered Institution of Water and Environmental Management (CIWEM) from September 2016 until 2026, in addition to the current accreditation by the Institution of Gas Engineers and Managers (IGEM).

The CIWEM is the only Royal Chartered professional body based in the United Kingdom that is dedicated to the water and environment sector; it represents and supports a community of thousands of members globally and is devoted to the improvement of water and environmental management and associated social and cultural issues. Accreditation of our programme means that our graduates will have partially satisfied the academic requirement of the CIWEM and will only need equivalent professional experience to apply for Chartered Engineer (CEng) or Chartered Environmentalist (CEnv) status under the Engineering Council and Society for the Environment (SocEnv) in the United Kingdom after acquiring the 14 Mandatory Competencies of the CIWEM. Those with CEng status can then apply as a Chartered Engineer in Chemical, Civil, Environmental and Mechanical Engineering disciplines at the Hong Kong Institute of Engineers (HKIE) via the Reciprocal Recognition Agreement (RRA).

Students enrolled in our programme are eligible for free student membership in the CIWEM. Upon graduation, our graduates can transfer from student membership to graduate membership. The CIWEM also has a local branch in Hong Kong, the only one in Asia, which offers numerous events, technical visits, workshops, and opportunities for professional development.

Staff Achievement



Prof. Chak K. Chan is appointed to the Green Tech Fund Assessment Committee (GTFAC)

Prof. Chak K. Chan, Dean and Chair Professor of Atmospheric Environment, has been appointed as a member of the Green Tech Fund Assessment Committee (GTFAC) of the Hong Kong Environmental Protection Department for a 2-year term beginning 1 January 2021. The GTFAC, chaired by the Director of Environmental Protection, comprises members from various sectors, including academia, industry, green groups, and relevant government departments. It is responsible for assessing applications for the Green Tech Fund (GTF) and monitoring the progress of funded projects. The GTF aims to provide funding support to research and development projects that can help Hong Kong decarbonise and enhance environmental protection.

Prof. Michael Leung is appointed to a Named Professorship

Under the CityU Named Professorship Scheme of CityU, Prof. Michael Leung has been appointed to the Shun Hing Education and Charity Fund Professorship in Energy and Environment. The Scheme signifies commitment to excellence in research and professional education for the benefit of society and aims to attract world-class scholars to advance research and professional education at the University.



About Shun Hing Education and the Charity Fund Professorship in Energy and Environment:

Prof. Michael Leung is a Professor of SEE, CityU. He also serves as the Director of the Ability R&D Energy Research Centre. His current research interests include solar photocatalysis, marine antifouling, fuel cells, and advanced refrigeration and air conditioning. He has published more than 150 journal papers and 15 books or book chapters and has been granted seven patents. He was listed as a Highly Cited Researcher in 2018 by Clarivate Analytics, which recognises world-class researchers for their exceptional research performance. He is also listed in The Most Cited Scholar in Energy Science and Engineering by Shanghai Ranking Consultancy, in collaboration with Elsevier. Other recent awards include the CityU President's Award (2016), the Technology Project Award (City-level) by the Shenzhen City

Technology and Innovation Committee (2017), and the Hong Kong Awards for Industries (2018 and 2019). Professor Leung has received over HK\$40 million in research funding as Principal Investigator from The Innovation and Technology Fund, The Research Grants Council, the Environment and Conservation Fund, the National Natural Science Foundation of China, and others. He is serving in the Editorial Board of Applied Energy and HKIE Transactions. Professor Leung is also a Registered Professional Engineer, Chartered Engineer, Chairman of the HKIE Education and Examinations Committee of Hong Kong Institution of Engineers, and Past Chairman of the Energy Institute (Hong Kong Branch).



Dr. Lin Zhang is appointed to the International Association for Energy Economics Strategic Committee for Publications

Dr. Lin Zhang, Assistant Professor, was invited by Prof. Michael Pollitt, Vice President of the International Association for Energy Economics (IAEE) and professor of Business Economics at the University of Cambridge, to join the IAEE Strategic Committee for Publications. Dr. Zhang will lead the working group in reviewing the development of the *Energy Journal*, the association's flagship journal since 1980.

Prof. Angus Yip was interviewed on the TV programme 'Future Scope'

Prof. Angus Yip was recently interviewed on the TV programme 'Future Scope'. Future Scope is a news programme about the future of various industries. In the interview, Prof. Yip shared his views and research on incorporating a new type of solar panel into buildings. The interview was aired on TVB Channel 85, the Finance and Information Channel, on 4 February 2021.



Dr. Edwin Tso on air at TVB 'Innovation GPS'

Dr. Edwin Tso, Assistant Professor, was interviewed by TVB to showcase his innovation on 'Energy-Free, Low-Cost and High Cooling Performance Passive Radiative Cooling Technology for Building Applications'. The interview was aired at Channel 85 TVB Finance & Information Channel – 'Innovation GPS', on 17 March 2021.

Hong Kong has more than 50,000 buildings that consume 90% of its total electricity, with air-conditioning systems consuming around 30%. Using the universe as a cooling source, a passive radiative cooling paint is developed, providing a sustainable and energy saving solution to the consumption of electricity in buildings. Unlike traditional air-conditioning systems, the passive radiative cooling paint is an energy-free and refrigerant-free cooling technology that reflects incoming solar irradiance, while emitting thermal radiation to the cold universe, thereby achieving sub-ambient cooling.

In the TV programme, Dr. Tso shared his views on this self-cooling technology for it possesses many advantages, such as simple structure, easy manufacturing, and low-cost. Directly coating this paint on a building's roof or exterior walls will reduce its surface temperature, achieving air-conditioning energy saving. This self-cooling technology can also be used for cooling automobiles, or in self-cooling textiles, as well as for painting roads to mitigate the heat island effect.





Dr. Carol Lin was invited to be a keynote speaker at the Nature Forum on Plastics and Sustainability

Dr. Carol Lin was invited to be a keynote speaker at the Nature Forum on Plastics and Sustainability. The forum had an overwhelming turnout of 864 live attendees who actively took part in sharing their views and insights.

Dr. Yun Hau Ng was invited to be a speaker at the Hydrogen Economy Conference 2020

Dr. Yun Hau Ng delivered a talk entitled 'Sunlight-Driven Water Splitting for Clean Hydrogen Production' at the Hydrogen Economy Conference (HEC) 2020 jointly organised by the Hong Kong Green Strategy Alliance (HKGSA), the Hong Kong Environmental Industry Association Ltd (HKEnvIA), the Hong Kong Association of Energy Service Companies (HAESCO), and the Business Environment Council (BEC).

Dr. Shauhrat Chopra was invited to share his opinion on 'Climate Crisis and Sustainable Development'

Dr. Shauhrat Chopra was invited by Hong Kong SDG Hub to be one of the speakers at the Virtual Human Library and share his opinion on 'Climate Crisis and Sustainable Development' and his work towards Sustainable Development Goals (SDGs) on 6 November 2020. The School of Energy and Environment is among the strategic partners of the 'Climate Action Recognition Scheme' under Hong Kong SDG Hub, which aims to promote the United Nations' Sustainable Development Goals and raise awareness of the climate crisis via entrepreneurship programmes and mass public events.

Prof. Chak K. Chan was invited to deliver the Closing Remarks at the Royal Society of Chemistry Faraday Discussions, United Kingdom

Prof. Chak K. Chan, Dean and Chair Professor of Atmospheric Environment, was invited to deliver the Closing Remarks at the Royal Society of Chemistry Faraday Discussions on 'Air Quality

in Megacities'. The discussions were held online from 17 to 20 November 2020.

The Faraday Discussions are unique international scientific conferences that focus on rapidly developing areas of chemistry and their interfaces with other scientific disciplines.

Dr. Lin Zhang hosted a webinar on 'Energy Transition in China: Technology, Policy and Society'

Dr. Lin Zhang recently hosted a webinar for the International Association for Energy Economics on 'Energy Transition in China: Technology, Policy and Society'. Dr. Zhang invited three distinguished speakers from the United States and China to discuss the efforts China has made in its transition towards a green economy. With a focus on the energy market for green technologies, which is of particular importance in the green transition, this webinar presented factors that drive energy transition from both the supply and demand sides and explored the challenges, opportunities, and prospects of energy transition in China. The webinar showed how renewables, storage technologies, and decreasing costs affect the energy market from the supply side and how the Distributed Photovoltaic Poverty Alleviation project and the nationwide energy-saving week campaign drive the transition from the demand side. The development of China's national emission trading scheme and its implications for green transition were also discussed. This webinar was well received.

Dr. Edwin Tso delivered a talk in the 2020 Public Lecture and Forum Series of the 'Science in the Public Service' Campaign

Dr. Edwin Tso recently delivered a talk entitled 'Future Advanced Energy Efficient Building Technologies' under the 'Science in the Public Service' (SIPS) Campaign. Through Dr. Tso's sharing, the audience learnt about new future cooling schemes that could be used in buildings and the current challenges facing energy-efficient building technologies. SIPS is a joint campaign by the government and other organisations to promote scientific work and the application of technology to the provision of services for the general public. A series of public forums and talks on the theme of 'Science in Everyday Life' were held from August to November 2020.

Student Achievements and Activities



SEE celebrated the Classes of 2019 and 2020 at its first-ever Virtual Graduation Ceremony



With in-person graduation ceremonies cancelled after waves of COVID-19, SEE celebrated the most significant accomplishment of 250 graduates via an online broadcast of its first-ever virtual graduation ceremony on Vimeo and Tencent on 4 February 2021.

At the ceremony, Prof. Chak K. Chan, Dean of SEE and Presiding Officer, remarked on the new opportunities created by the pandemic and encouraged the graduates to prepare for these opportunities: 'The pandemic has not only changed our lives, but also created new opportunities in adapting to the new normal. I encourage SEE graduates to prepare for these imminent opportunities from global Green Recovery and governmental and industrial efforts to re-energise the economy and tackle the environmental and health challenges related to the pandemic'.

After the presentation of graduates and Outstanding Final-Year Project Awards (2019-20), Dr. Wang Lingyun (postgraduate programme) and Miss Chan Hei Tung (undergraduate programme) spoke on behalf of their respective groups of fellow graduates.

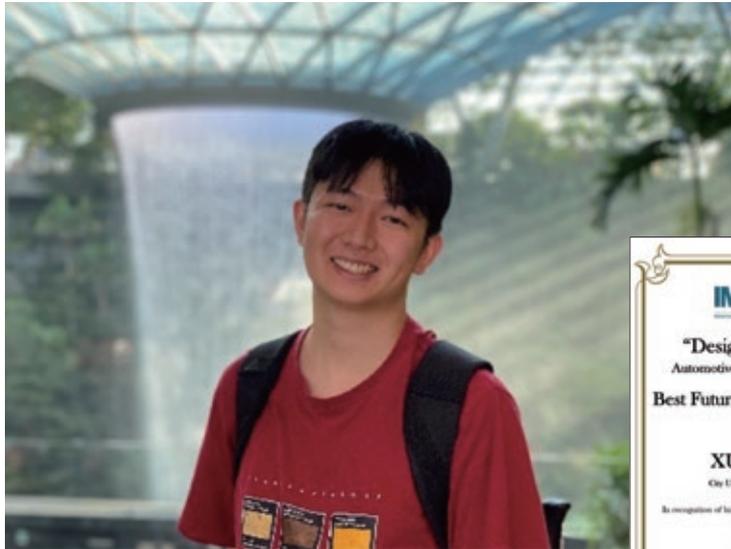




BEngESE Student won 'The Best Futuristic Design Award'

Mr. Xue Lichen, a final-year student majoring in Energy Science and Engineering, won the Best Futuristic Design Award in the 'Design the Future' Automotive Design Competition organised by International Motor Show (HK) Management Ltd. The awarded design is known as the 'Maglev Self-driving Electric Vehicle Design'.

To encourage creativity and innovation in younger generations and to promote automotive designs and relevant research and development, International Motor Show (HK) Management Limited rolled out the 'Design the Future' Automotive Design Competition for Hong Kong tertiary students. The competition encouraged participants to create distinctive cars for 2050 in Hong Kong.



Dean's List (Semester A, 2020-21)

According to University regulations, undergraduate students will be placed on the Dean's List if they earn 12 credit units or more with a grade point average (GPA) of 3.7 or above, with no failures over the previous semester.

SEE is pleased to announce that the following undergraduate students have been placed on the Dean's List for Semester A 2020-21.

Name	Cohort	Name	Cohort
Chan Wing Yin	2017	Xiao Jingyi	2018
Choi Pui Ling	2017	Xue Yujia	2018
Mak Shing Wai	2017	Lo Yee Lam	2019
Mak Wai Yu	2017	Shum Chak Pong	2019
Poon Rui Jun	2017	Singh Animesh	2019
So Wai Ling	2017	Choi Man Ho	2020
Xue Lichen	2017	Jiang YINUO	2020
Aw Ho Yin	2018	Kioe Felix	2020
Park Minjee	2018	Wang Yingyi	2020
Tong Chun	2018		

Students' Stories

CLP Year-long Internship

Tam Tsz Chung, BEngESE Student



Working as a 1-year intern in CLP has been inspiring for me. It has provided me with a golden opportunity to work not only in the engineering field but also in the business field, which has helped me to pursue my future career pathway.

In the engineering aspect, I am tasked with many responsibilities, such as energy audits and electric vehicles. Being under multiple challenges pushes my drive to equip myself with energy-related knowledge when I face many unfamiliar problems. More importantly, I have performed many site inspections, which help me to look at the entire heating, ventilation, and air conditioning system. This experience allows me to suggest more energy management opportunities when conducting energy audits with our customers.

In the business field, I have gained insights into communicating with other stakeholder. I can therefore suggest some considerate solutions to the businesses. I have also participated in the organisation of many events, such as the RCx charter programme, which has sharpened my problem-solving skills. I cherish these learning opportunities provided by SEE because they help me understand the knowledge more thoroughly.

Internship in Jones Lang LaSalle

CHAN Ying Yu, BEngESE Student

Jones Lang LaSalle (JLL) is a real estate services company that provides investment management services worldwide. JLL also provides energy saving solutions, for instance, site assessment, retro-commissioning project and energy audit.

In summer 2020, I joined the SEE Retro-commissioning (RCx) Training Programme and was nominated to JLL as summer intern. Being a Technical Assistant, I was assigned to prepare retro-commissioning plans and proposals, funding applications and quotations. These are all brand-new challenges for me, but I enjoy the journey and new chapter. Recently, I have been preparing for an energy audit project for the Cyberport, a RCx project related to Cathay Pacific cargo terminal and a site assessment for DHL. All these projects provide me with valuable experience. To conduct the projects, I study the HVAC system of different sites, measure and analyze the operational with much care. The skills and experience I have acquired through the internship will be vital for my future career.



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.) Bachelor of Engineering (BEng) in Energy Science and Engineering
 Master of Philosophy (M.Phil.) 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 Personal 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 authorize 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

Phone: +(852)-3442-2410 / 3442-2414

Fax: +(852)-3442-0688

Email: see.enquiry@cityu.edu.hk

Address: G5702, 5/F, Yeung Kin Man Academic Building, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong SAR