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

OCT 2022

NEWSLETTER

In this issue...

Message from the Dean

I am very honoured to serve as the third Dean of the School of Energy and Environment (SEE) at City University of Hong Kong (CityU).

First, I thank the Founding Dean, Prof. Johnny Chan, and the former Dean, Prof. Chak K. Chan, for establishing and building up a school with world-class faculty members and first-class supporting staff. I deeply appreciate the cordial collegial relationships, the excellent international recognition of our research, the excellent employability of our graduates, and the large industrial network achieved under their leadership.

As a researcher with extensive experience in energy and environmental engineering, I will continue to encourage interdisciplinary collaborations among colleagues within SEE and CityU, and with other top institutions worldwide so that we can meet the grand challenges facing mankind in the area of sustainable development.

We will work closely with our industrial partners to develop the innovative technologies emerging from our research labs, allowing these technologies to be translated into "products and/or processes" that benefit society.

Educating young talent is our School's core business. We will continue to enrich our programmes with intra- and extracurricular activities so that our students will be equipped with science and technology knowledge and skills, as well as the soft skills and hands-on experiences needed to excel quickly as they develop their careers.

Second, I take this opportunity to thank the university administrators for their success in branding CityU, our collaborators and industrial partners for their contributions to the SEE, and our alumni and friends for their sustained interest in the School. I also congratulate our faculty, staff, and students on their dedicated work and commendable achievements.

I am sure that you will lend me your support as you have done for the previous Deans.

I envision that the SEE will be recognised as an internationally leading hub of knowledge creation, transmission, and transfer to achieve sustainable energy, a balanced climate, and a clean environment.

Together, let us achieve the next level of success!

Prof. Guohua Chen
Dean and Chair Professor of Smart Energy Conversion and Storage
School of Energy and Environment
City University of Hong Kong

Staff Development

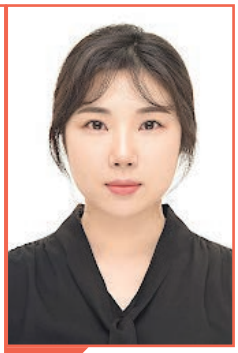
Welcoming New Faculty Members

Prof. Guohua Chen
Dean and Chair Professor of Smart Energy Conversion and Storage

Prof. Guohua Chen obtained his BEng from Dalian University of Technology in 1984 and his MEng and PhD from McGill University in 1989 and 1994, respectively. He joined the Hong Kong University of Science and Technology (HKUST) as a Visiting Scholar in 1994, became Assistant Professor in 1997, and was promoted to Associate Professor in 2002 and Full Professor in 2008. He worked as Head of Department, Chemical and Biomolecular Engineering, from 2012 to 2016. He joined the Department of Mechanical Engineering at the Hong Kong Polytechnic University (PolyU) as Chair Professor of Energy Conversion and Storage in 2017 and concurrently served as Associate Vice President (Research Support) from 2017 to 2021.

Prof. Chen has nearly 30 years of experience in research and development on projects in energy and the environment. He has published over 300 peer-reviewed journal papers. His research papers are well cited; he has more than 32,000 Google Scholar citations and an H-index of 93. He also has three US patents and ten Chinese patents. He is the recipient of the inaugural Research Excellence Award, School of Engineering, HKUST, and the winner of the Merit Award for Individual Research, Faculty of Engineering, PolyU. He is a Fellow of HKIE, AIChE and the Global Academy of Chinese Chemical Engineers. He has also been elected as a Fellow of the Canadian Academy of Engineering. He served as President, Asian-Pacific Confederation of Chemical Engineering and is now Chairman, World Chemical Engineering Council. He is Editor-in-Chief, *Process Safety and Environmental Protection*; Editor, *Separation and Purification Technology*; Associate Editor, *Canadian Journal of Chemical Engineering*; and Associate Editor, *Chinese Journal of Chemical Engineering*.

Dr. Jung-Eun Chu
Assistant Professor



Dr. Jung-Eun Chu is an atmospheric and climate scientist. Her research topics include extreme weather events such as tropical cyclones and tornadoes, high-resolution earth system modelling, monsoon dynamics and atmospheric aerosols. She is particularly interested in advancing the scientific understanding of the impact of climate change and employing cutting-edge methodologies to better translate state-of-the-art science for climate change adaptation.

Dr. Chu obtained her PhD in Atmospheric Sciences from Pusan National University in South Korea. During her PhD, she gained extensive experience in the field of atmospheric and climate science through her studies on monsoon dynamics, aerosol light absorption, climate modelling and machine learning. Then, she joined the IBS Center for Climate Physics (ICCP) led by Dr. Axel Timmermann and studied the relationship between large-scale climate variability and small-scale weather extremes, focusing on the activity of tornadoes in the US. Prior to joining CityU, she worked as an assistant project leader at ICCP with the goal of understanding past to future tropical cyclones activities using ultra-high-resolution earth system model simulations.

Dr. Jin-Soo Kim
Assistant Professor

Dr. Jin-Soo Kim obtained his Bachelor and Master degrees from Seoul National University, South Korea, in 2010 and 2013, respectively. For three years, he worked as a researcher at the Korea Institute of Ocean Science and Technology and Pohang University of Science and Technology for alternative service in an agency appointed by the Korean administration for Military Manpower Administration. He received his PhD in Climate Dynamics in 2019 from Pohang University of Science and Technology and won the Best Thesis Award in the field of Natural Science. His doctoral dissertation focused on two-way interactions between the terrestrial ecosystem and the climate system, including El Niño-Southern Oscillation-related carbon cycle, Arctic warming-related frost damage and physiological forcing on Arctic amplification.

Prior to joining SEE, he worked on fire dynamics as a Postdoctoral Researcher at the University of Edinburgh and Senior Researcher at the University of Zurich. Dr. Kim's research focuses on climate system science, earth system modelling, the terrestrial carbon cycle, carbon-climate feedback and fire dynamics.

Dr. Sai Kishore Ravi
Assistant Professor

Dr. Ravi obtained his PhD from the Department of Materials Science and Engineering at the National University of Singapore (NUS). His doctoral research was on biohybrid energy conversion/storage devices; he studied natural biological complexes in plants and bacteria from a materials science perspective and investigated ways of exploiting light-harvesting and charge-transport mechanisms in the natural systems for energy and optoelectronic applications. After graduation, he continued at NUS as a post-doctoral researcher, working on semi-artificial photosynthesis. As part of his PhD and postdoctoral research at NUS, Dr. Ravi designed semi-artificial device architectures for photovoltaics, photocapacitors and tactile sensors. His research papers have been published in prestigious journals such as *Advanced Materials*, *Advanced Energy Materials*, *Advanced Functional Materials*, *Energy & Environmental Science*, *Nature Communications and Science Advances*. He has won NUS's Annual Best Publication Award in Material Science for 2016, 2017 and 2018.

Dr. Ravi's research aims to bridge materials science and bioscience in the design of functional devices for clean energy and clean water technologies by using biogenic, biohybrid and bioinspired materials, blurring the line between "natural" and "artificial". His research experience extends to developing functional materials for air filtration, solar desalination and atmospheric water harvesting. For his work on the Nanofibrous Air Filter, he won the Prestigious Engineering Achievement Award 2018 awarded by the Institution of Engineers, Singapore (IES). The air filter has been patented (US 10,682,602 B2) and licensed to an Indian multinational company.

Dr. Ravi has also served as Associate Editor for renowned journals such as *Advanced Materials*, *Advanced Energy Materials*, *Advanced Energy & Sustainability Research*, *Advanced Materials Technologies and Energy Technology*.

Thank you, Prof. Chak K. Chan!

A group photo was taken at the "Thank you & Welcome" session with Prof. Chak K. Chan (the then Dean), Prof. Johnny Chan (Founding Dean) and Prof. Guohua Chen (Dean) gather together. (1st row: 2nd from right, 3rd from right, 4th from right)

SEE would like to express sincere thanks to Prof. Chak K. Chan for his leadership over the past six years as the Dean.

Under Prof. Chan's leadership, he recruited many talented faculty members; nurtured close connections with the industry; strategically enhanced the employability of SEE graduates; significantly improved international recognition of our research in energy, environment, and sustainability; guided the School on 10th anniversary celebration; actively responded to the COVID-19 pandemic and online teaching and learning; expanded student population, offices and laboratory spaces, among many other contributions.

With Prof. Chan's significant contributions, SEE has reached a new height. The School is fortunate to have him staying as Chair Professor of Atmospheric Environment for full-time teaching and research after stepping down from the administrative post of School Dean.

Spotlight

Dr. Jason Lam
Assistant Professor

A Scientist, Educator and Environmental Enthusiast

When did you join SEE, and why?

I have always had the opportunity to work in a highly diverse environment, and I have always enjoyed it. When I was seeking an academic faculty position, SEE was one of the top choices because of its multi-disciplinary areas of work. I am a chemist with a background in organic and electrochemistry, and I have always wanted to apply my knowledge to solve energy and environmental issues. SEE has a very strong faculty and staff community that can deliver such solutions.

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

My research lab is called "Lam_boratory", and our research theme is "wastes-to-goods". I find the mission to upcycle waste, such as e-waste and agricultural waste, into valuable products rewarding. I think waste products are just misplaced resources, and finding value in these resources can accelerate our goals towards carbon neutrality. Moreover, as Hong Kong will soon implement the waste-charging scheme, there is no doubt that people will become more interested in different waste valorisation strategies.

Do you have a motto that helps you stay curious and passionate in teaching and research?

For teaching, my motto is "If you can't explain it simply, you don't understand it well enough." I always challenge myself to explain complicated concepts to my students in the simplest way (preferably with humour).

For research (and for myself), it is "Every cloud has a silver lining". Research rarely goes in the direction we predict. As researchers, we have to be persistent and optimistic in order to reach our goals.

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

Be proactive and talk to your professors and graduate student peers to get a glimpse of what it is like to be a researcher or academic faculty! Although the path to becoming a professor is reasonably standardised (Obtain a PhD, then become a postdoc researcher. Later, apply for a faculty position.), everyone walks that path a little differently, and it is always interesting to hear and learn from those experiences!

Research Success

The Hong Kong Productivity Council and SEE join hands to foster new green innovation and technology

The Hong Kong Productivity Council (HKPC) and SEE concluded a Memorandum of Understanding (MOU) on 31 August 2022 to jointly promote innovation and technology (I&T) and nurture InnoTalent of the future.

Under the MOU, HKPC and SEE will establish a research collaboration platform, organise regular technology events, offer recruitment and training opportunities for young people, as well as undertake various Research & Development and commercialisation projects, accelerating the development of I&T in Hong Kong.

(From left to right) Dr. Lawrence Cheung (Chief Innovation Officer, HKPC), Mr. Yonghai Du (General Manager, Green Living and Innovation, HKPC), Prof. Chak K. Chan (the then Dean), Prof. Guohua Chen (Dean).

Energy Science and Engineering ranked 1st in Hong Kong in ShanghaiRanking's Global Ranking of Academic Subjects 2022

Fifteen academic subjects at CityU have been ranked in the top 50 in the world, according to ShanghaiRanking's Global Ranking of Academic Subjects (GRAS) 2022. Among those listed subjects, Energy Science & Engineering is ranked 1st in Hong Kong and 23rd in the world. It demonstrates SEE and CityU's excellence and strengths.

GRAS 2022 consists of the rankings of universities in 54 subjects across Natural Sciences, Engineering, Life Sciences, Medical Sciences and Social Sciences. The GRAS rankings measure the performance of universities across the world in various subjects on the basis of a range of academic indicators and third-party data, including research output (Q1), research influence (CNCI), international collaboration (IC), research quality (Top) and international academic awards (Award). More than 1,800 universities across 96 countries and regions are listed in the final rankings.

Innovation and Technology Fund (ITF) 2021-22

During 2021-22, CityU have secured funding for 24 projects, receiving over HK$60 million from various schemes of the Innovation and Technology Fund (ITF). ITF is administered by the Innovation and Technology Commission of the Hong Kong SAR Government with the goals of strengthening collaboration between the government, industry, academia and research sectors; and increasing the added value, productivity and competitiveness of our economic activities.

Principal Investigator	Project Title
Prof. Alex Jen	Using High-Throughput Optical Model to Design High Performance Thin Film Structures for Next-Generation Glass Materials and Products
Prof. Alex Jen	Development of Efficient and Stable Perovskite Solar Cell with Safe-to-Use
Prof. Michael Leung	Development of Nano-photocatalytic Marine Antifouling/Anticorrosion Coatings
Dr. Chunhua Liu	Development of a New Integrated Energy Exchanger for Electric Vehicle Charging Station

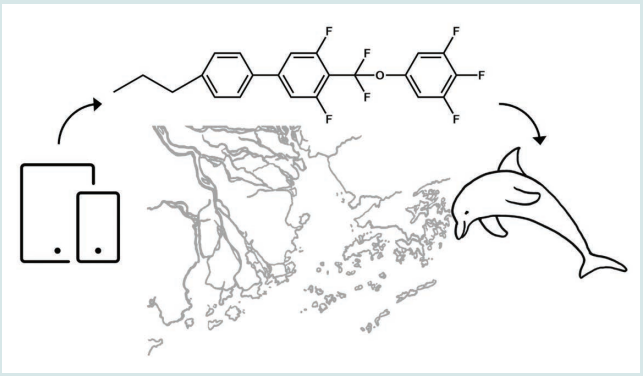
General Research Fund (GRF) 2022-23

The Research Grants Council (RGC) has just announced the results of the GRF applications for 2022-23. In the latest round of funding, SEE faculty members have secured eight awards, with a total funding that exceeds HK$7 million. SEE continues to strive in research excellence in the fields of energy and environment.

Principal Investigator	Project Title
Prof. Chak K. Chan	Reactive Uptake of Dicarbonyls by Atmospheric Aerosols
Prof. Wen-Xiong Wang	From Nanoplastics to Microplastics: Cellular and Whole Animal Dynamics and Interaction in a Model Fish System
Prof. Yun Hau Ng	Tuning the Selectivity Towards Solar Fuels via Manipulation of Photocharge Transfer of Oxide Photocatalysts
Dr. Alicia An	Omniphobic Nanofibrous Membrane with Bio-inspired Nanoflower-on-nanoneedle Double Re-entrant Structure for Enhanced Performance in Membrane Distillation
Dr. Henry He	Occurrence and Environmental Risk of Liquid Crystal Monomers - An Emerging Group of E-waste Pollutants Found in Municipal Wastewater
Dr. Jin Shang	Develop Robust Metal-Organic Frameworks-based Adsorbents for Toxic and Corrosive Gases: Importance of Specific Binding Sites and Adsorption-Desorption Mechanism
Dr. Edwin Tso	Chameleon-inspired Self-adaptive Daytime Passive Radiative Coolers with Cooling Power Modulation Ability for Building Applications
Dr. Wei Wu	Membrane-based Moisture Desorption-Absorption with Carbon Quantum Dot-enhanced Ionic Liquid for High-flux Passive PV Cooling and Water Harvesting

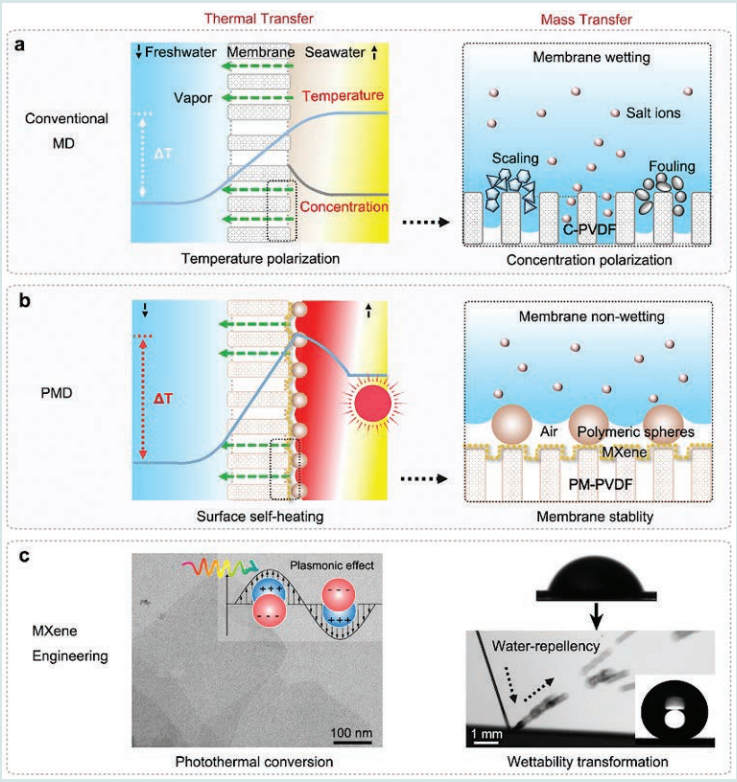
Dr. Henry He was awarded funding from the Marine Ecology and Enhancement Fund (MEEF) to protect the Chinese White Dolphins from e-waste pollution

Dr. Henry He, Assistant Professor, recently received funding of over HK$1.1 million from the Marine Ecology Enhancement Fund (MEEF) for a two-year project. The project, "Tracing a Novel Group of E-Waste Contaminants - Liquid Crystal Monomers - in the Chinese White Dolphins", will investigate the occurrence and distribution of a novel class of organic contaminants emerging from e-waste, namely liquid crystal monomers (LCMs), in Chinese White Dolphins (CWDs) living in the waters of western Hong Kong and the Pearl River Estuary (PRE). The findings of this study will provide critical information for preliminary risk assessment of the potential threat posed by LCMs to CWDs, and for recycling, disposal and management of e-waste in Hong Kong, thereby contributing to the conservation and well-being of marine life.



MEEF and the Fisheries Enhancement Fund (FEF) have been set up as part of the environmental impact assessment study on the expansion of Hong Kong International Airport into a Three-Way System (the 3RS Project). The goal of these funding programmes is to improve the marine environment for the benefit of marine ecology (including CWDs) and fisheries in the vicinity of the project area, in the western waters of Hong Kong and further afield in the PRE.

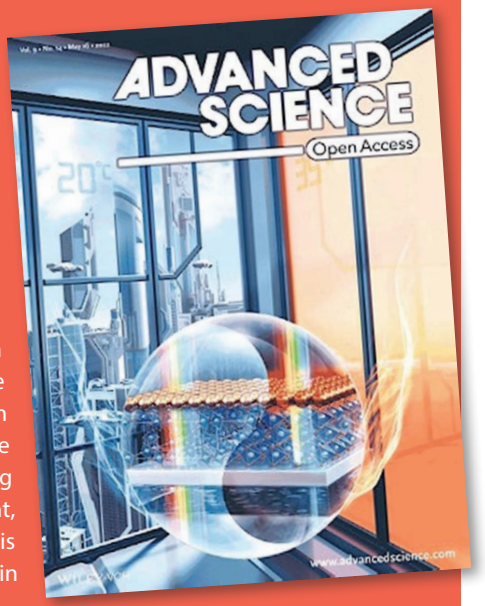
Dr. Alicia An's paper accepted in Nature Communications and featured in the Editors' Highlights



Dr. Alicia An's paper, "Transforming $Ti_3C_2T_x$ MXene's Intrinsic Hydrophilicity into Superhydrophobicity for Efficient Photothermal Membrane Desalination", has been accepted in *Nature Communications* (Impact Factor: 14.919) and is in press now (DOI: 10.1038/s41467-022-31028-6). It will be featured in the Editors' Highlights. The Editors' Highlights showcase the 50 best papers recently published in an area.

Membrane distillation is susceptible to thermal inefficiency and membrane wetting issues during seawater desalination. In collaboration with Prof. Zuankai Wang (Department of Mechanical Engineering, CityU), the team designed an MXene-engineered membrane that exhibits an efficient localised photothermal effect and strong water repellency, achieving sustainable freshwater production.

Dr. Edwin Tso's paper featured on the inside front cover of *Advanced Science*

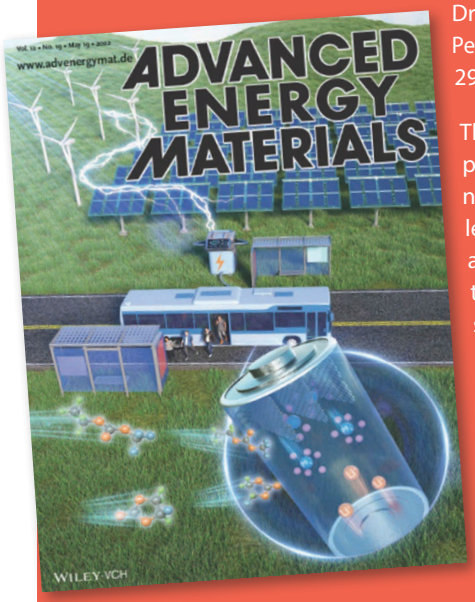


Dr. Edwin Tso's paper, "Near-Infrared-Activated Thermochromic Perovskite Smart Windows", has been published in *Advanced Science* and featured on the inside front cover in Volume 9, Issue 14.

Perovskite-based thermochromic smart windows that can change colour have attracted considerable interest for their application in energy-efficient buildings. However, the high transition temperature hinders their practical application. Therefore, Dr. Tso's team designed a near-infrared-activated (NIR-activated) thermochromic perovskite window that enables reversible transition cycles at room temperature. Under natural sunlight (> 700 W m^{-2}), the window efficiently harvests 78% NIR light to trigger the thermochromism of perovskites, blocking the heat gain from both the visible and NIR light. Furthermore, the window also exhibits a low mid-infrared emissivity of < 0.3, suppressing thermal radiation to the indoor environment. A field test demonstrates that this smart window can reduce the indoor temperature by 8°C compared with a normal glass window at noon in Hong Kong. The colour change at near-room-temperature, multispectral thermal management, outstanding energy-saving ability, climate adaptability and solution-based process of this window make it unique and promising for use as a new-generation window technology in buildings.

Dr. Tso is the corresponding author of this paper. The first author is Mr. Liu Sai, a SEE PhD student . Other co-authors are Dr. Wang Ying and Prof. Yu Kin Man from the Department of Physics, and co-authors from the Hong Kong University of Science and Technology.

Dr. Denis Yu's paper on dual-ion batteries featured on the inside cover of *Advanced Energy Materials*



Dr. Denis Yu's paper, "An All-Fluorinated Electrolyte Towards High Voltage and Long Cycle Performance Dual-Ion Batteries", has been published in *Advanced Energy Materials* (Impact Factor: 29.37; DOI:10.1002/aenm.202103360) and featured on the inside cover in Volume 12, Issue 19.

The dual-ion battery (DIB) is a promising energy storage system that demonstrates high-power characteristics and fast-charging capability. However, conventional electrolytes are not compatible with the high-voltage graphite cathode and the reactive Li-metal anode, leading to poor cycle stability and low coulombic efficiency of the DIB. Dr. Yu's team designed an all-fluorinated electrolyte that enables a highly stable operation of the graphite||Li DIB up to 5.2 V by forming robust and less-resistive passivation films on both electrodes to reduce side reactions. The electrolyte allows reversible PF_6^- anion insertion/extraction and Li^+ cation plating/stripping in the graphite||Li battery, achieving stable cycling with 94.5% capacity retention over 5,000 cycles at 500 mA g^{-1}, high capacity utilisation of 91.8% of the available charge capacity at 50 C (5000 mA g^{-1}) and minimal self-discharge. At a low temperature of 0°C, this all-fluorinated electrolyte exhibits 97.8% of the reversible capacity at room temperature, and capacity retention of approximately 100% after more than 3,000 cycles, at 5 C. The newly developed DIB can be charged and discharged within a few minutes. It is promising for new applications such as green transportation and renewables that would require a fast response rate.

Dr. Yu is the corresponding author of this paper. The first author is Dr. Yao Wang, a PhD graduate of SEE. The other co-authors are Dr. Yanjun Zhang, Mr. Shuyu Dong, Dr. Pui-Kit Lee, Dr. Zehua Peng, Dr. Wenchong Zhou and Dr. Patrick Sit from SEE.

Prof. Michael Leung and Dr. Edwin Tso awarded in Inventions Geneva Evaluation Days (IGED) 2022

Award	Research Team	Project
Gold Medal	*Led by*: Dr. Edwin Tso, Assistant Professor	Intelligent Thermo-responsive Window for Indoor Thermal Management and Energy Saving in Buildings
Silver Medal	*Led by*: Prof. Michael Leung, Professor	Nano-Photocatalytic Marine Antifouling/ Anticorrosion Paint (Nano-MA2P)

The International Exhibition of Inventions of Geneva (IEIG) is one of the most important annual global events that is exclusively devoted to inventions and innovations. This year's competition was held online in March 2022. Around 800 inventions from 25 countries and regions were evaluated by an international jury of specialists.

Dr. Edwin Tso and his research team won the Outstanding Paper Award in Energy Sustainability 2022

Dr. Edwin Tso and his research team won the Outstanding Paper Award in Energy Sustainability 2022, an international conference organised by the American Society of Mechanical Engineers (ASME), on 12 July 2022 in Philadelphia, Pennsylvania, USA.

Passive radiative cooling has an electricity-free cooling effect on a building by reflecting sunlight and emitting mid-infrared thermal energy, thus reducing the energy consumption of air conditioning systems. However, buildings need heating in winter, which cannot be achieved by current radiative coolers. Inspired by the photonic structure of a chameleon's skin, Dr. Tso and his research team developed a thermochromic cooler that can automatically change its colour depending on the ambient temperature. In cold weather, the cooler is transparent, allowing sunlight to pass through. When the ambient temperature increases above the cooler's transition temperature, the cooler becomes white, reflecting the incoming solar irradiance and producing a cooling effect. Therefore, the indoor thermal environment can be smartly regulated in different weather conditions, significantly reducing the energy consumption of a building in all four seasons. Most importantly, this technology contributes to the goal of achieving carbon neutrality before 2050 in Hong Kong, benefiting both the environment and society.

RGC Research Fellow Scheme (RFS) Winners 2022-23

Dr. Alicia An and Dr. Chunhua Liu of SEE have been conferred the title "RGC Research Fellow" in the Research Fellow Scheme (RFS) by RGC in 2022-23.

RFS aims to provide sustained support and relief from teaching and administrative duties to exceptionally outstanding researchers at the Associate Professor rank at UGC-funded universities in Hong Kong, to facilitate their full dedication to research and development and help universities attract and retain research talent.

The selection for this fellow scheme is a recognition of awardees' contribution and potential impact of their proposed research projects. In each round of the annual exercise, RFS offers ten awards encompassing all academic disciplines. Each RFS awardee is conferred the title "RGC Research Fellow", and the supporting university receives a fellowship grant of around HK$5.2 million per award for a period of 60 months.

Student Achievements

SEE students won the Start-up Fund in Climate Action Recognition Scheme 2021-22

Miss Shirley Du and Mr. Stanley Liu, who are SEE PhD Students and Dr. Peter Pan, who is a postdoctoral fellow in Dr. Edwin Tso's group, recently participated in the Climate Action Recognition Scheme (CARS) 2021-22 and won the Climate Action Ideation Award.

Under the supervision of Dr. Tso, the team proposed the launch of a start-up promoting an intelligent thermo-responsive window for thermal management and energy-savings in a building. This window demonstrates outstanding solar modulation ability, promising good thermo-regulation and energy-savings. By demonstrating competitive advancement in R&D and a full-fledged business plan, their potential of achieving remarkable commercialisation and dissemination results was validated by the panels of judges. The successful implementation of their proposed idea is expected to result in energy-savings of 10% for buildings in Hong Kong, thus aiding in sustainable development and mitigating climate change.

Outstanding Final Year Project Award 2021-22

The following students were selected as the recipients of the Outstanding Final Year Project Award of 2021-22. The award is given to students who have demonstrated exceptional performance in their final-year projects in terms of technical or scholarly quality, originality, creativity and innovation and impact.

Award	Student	Project Title	Project Supervisor
Winner	Miss Park Minjee	Mitigation of Fouling in Forward Osmosis by Utilizing Reverse Solute Flux of Monochloramine	Dr. Alicia An
1st Runner-up	Mr. Lee Yik Yu	Green Nanobubble and Membrane Technologies for Removal of Microplastics from Wastewater	Dr. Alicia An
	Miss Yau Felice Adeline	Hydrogen Production of Pt-TiO_2 Nanotubes from Butyric Acid Photoreforming	Prof. Michael Leung
2nd Runner-up	Miss Tsang Lau Han	A Bidirectional Dynamic Wireless Charging System for Mobile Robot Application	Dr. Chunhua Liu

Among the 12 nominations, eight shortlisted projects were reviewed by the panel of judges comprising Prof. Chak Chan (Panel Chair), Prof. Michael Leung and members of the School Advisory Committee. The panel was impressed with the high quality of work and excellent articulation and presentation skills of the students. The projects, which were well executed, practical and relevant to Hong Kong's environment, have enormous potential to be scaled up and applied in the real world. Some judges even expressed interest in inviting the students to present their project ideas and findings in the future.

A screen-captured photo of the panel of judges and award recipients.

VTech Innovation & Sustainability Award (2021-22)

The following SEE undergraduate students have received the VTech Innovation & Sustainability Award 2021-22. The award has been established through a generous donation from the VTech Group of Companies (VTech) and is intended for students who have demonstrated exceptional performance, innovation and impact in their Final Year Project in sustainability.

Award	Student	Project Title	Project Supervisor
Champion	Mr. Lee Yik Yu	Green Nanobubble and Membrane Technologies for Removal of Microplastics from Wastewater	Dr. Alicia An
1st Runner-up	Miss Tsang Lau Han	A Bidirectional Dynamic Wireless Charging System for Mobile Robot Application	Dr. Chunhua Liu
2nd Runner-up	Mr. Gin Ho Yin	Electrochemical Degradation of Refractory Substrate in Wastewater	Dr. Jason Lam
	Mr. Lo Chuen Hei Samuel	Quick Analysis for Consumers Using a Life Cycle Perspective in Clothing Purchase	Dr. Shauhrat Chopra
Honorable Mention	Mr. Wong Sum Lok	Impacts of Various Supply Airflow Rates on System Performance and Response Time of Central Air Conditioning System	Dr. Patrick Lee

On 31 May 2022, the five selected students presented their projects to the panel of judges comprised of Dr. Allan Wong (Chairman & Group CEO of VTech), Dr. King Pang (Group President of VTech), Mr. Hillson Cheung (Operation Director of VTech), Dr. Patrick Sit (Associate Dean (Undergraduate Studies) and Mr. Andrew To (Associate Director of Development Office, CityU) at the VTech headquarters. A prize presentation ceremony was held immediately after the individual oral presentations.

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

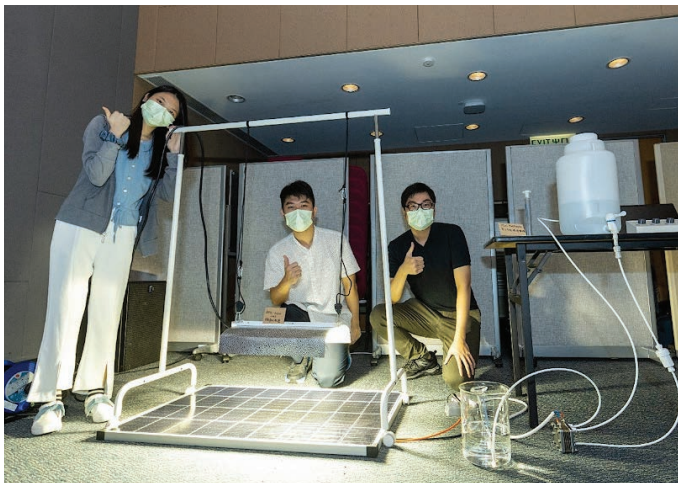
Front row (from left to right): Mr. Gin Ho Yin, Miss Tsang Lau Han, Mr. Lee Yik Yu, Mr. Lo Chuen Hei Samuel, Mr. Wong Sum Lok

"Green Energy Dreams Come True" Competition (Tertiary)

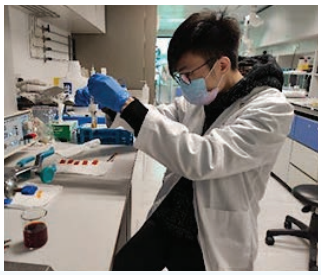
Teaming up with two students from HKUST, Miss Sze Yiu Sylvia Ou, a third-year BEngEVE student, won the 1st Runner-up in the "Green Energy Dreams Come True" Competition (Tertiary) held by HK Electric. The award-winning project was titled "Hydrogen – A Big Step Towards Utopia".

Under the supervision of Prof. Michael Leung and Dr. Sam Hsu, the team successfully demonstrated the production of green hydrogen through the use of advanced perovskite solar photovoltaics technology. The winning team also developed a website to promote renewable energy and the hydrogen economy.

The "Green Energy Dreams Come True" competition has been held for six years; it was extended to tertiary institutions for the first time this year, calling on young people to initiate innovation projects promoting energy efficiency and renewable and sustainable energy on campuses and in the community.



HKIE Environmental Division Prize for the Best Final Year Environmental Project of 2021-22



Mr. Chong Man Hin, a recent BEngESE graduate, won the 2nd Runner-up (Individual Project) of the Best Final Year Environmental Project Award 2021-22 from the Environmental Division, HKIE. The award-winning project was titled "Bio-photoelectrochemical Hybrid Devices for Simultaneous Wastewater Treatment and Solar-fuel Generation".

Under the supervision of Dr. Sam Hsu, Mr. Chong used a Shewanella oneidensis MR-1 microorganism and three types of photoelectrodes – iron (III) oxide (Fe_2O_3), bismuth vanadate ($BiVO_4$) and tungsten(IV) oxide (WO_2) – to convert the biomass energy from wastewater (i.e., expired juice) to chemical energy (i.e., hydrogen). In his project, Mr. Chong demonstrated that the use of different photoelectrodes with specific microorganisms enhances the performance of the bioelectrochemical system and investigated the correlation of the selected photoelectrodes and microbes with common wastewater.

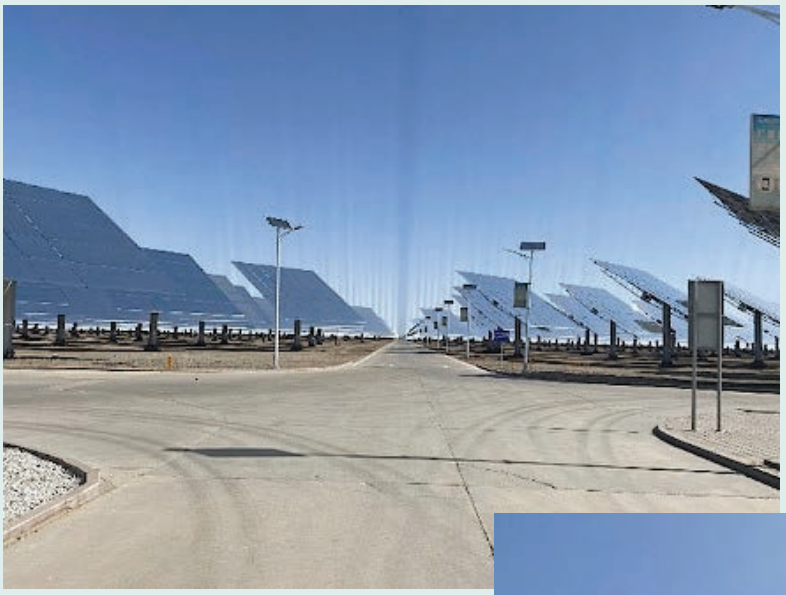
Student Activities

SEE Student Chapter's Sustainability Today Photography Competition 2022

The Sustainability Today Photography Competition 2022 was successfully held by the SEE Student Chapter.

The SEE Student Chapter received an impressive 131 entries (more than 300 photos) from students, staff and alumni of CityU. These entries were reviewed by the panel of judges comprised of Prof. Chak K. Chan (Chair Professor of Atmospheric Environment, SEE, CityU), Ir. Cary Chan (Executive Director, Hong Kong Green Building Council), Prof. Michael Leung (Professor, SEE, CityU), Dr. Denis Yu (Associate Professor, SEE, CityU), Dr. Derwin Scott Hessels (Associate Professor, School of Creative Media, CityU) and Dr. Edwin Tso (Assistant Professor, SEE, CityU). The panel was fascinated by the participants' creativity, innovation and remarkable insights in energy, environment and sustainability.

Award: Champion
Recipient: Miss Peng Yuyan



Title: *Light Shine All Day*

Title: *Wind Blow Everywhere*

For other award-winning photos, scan here:

SEE Student Chapter organised site visits to Amoy Plaza and Gala Place

In collaboration with Hong Kong Green Building Council and Hang Lung Properties, SEE Student Chapter organised a visiting tour to Amoy Plaza and Gala Place on 16 August 2022. The visit aims to broaden students' understanding of retro-commissioning (RCx) and pressure-independent control valve (PICV) systems.

Led by Dr. Edwin Tso, Advisor of the Student Chapter, 18 participants visited the machine rooms of Amoy Plaza and Gala Place and the cloud system of Gala Place. Participants learnt much practical knowledge beyond the textbooks.

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
Phone: +(852)-3442-2410 / 3442-2414 Fax: +(852)-3442-0688 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 SAR

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