

Highlights of Activities and Achievements in 2022-2023

We are delighted to report that our students and staff had a very successful 2022-2023 academic year. The students had won awards in regional and international competitions, through successful applications of knowledge they learned in classroom and tremendous dedication to their aspirations. The teaching staff members have earned international recognition for their research excellence.

Below are excerpts from news/articles in the departmental website (www.mech.hku.hk). Please scan the QR Codes to read more details concerning these items.

Achievements of our undergraduate students

ME = Mechanical Engineering

Our students awarded Outstanding Award in ASMPT Technology Award 2023

Our graduates Mr. Chan Lok Him Justin and Mr. Sum Ku Ting received the Outstanding Award at ASMPT Technology Award 2023. Their project "A Low-Cost DIY Wind Tunnel" was a capstone project supervised by Dr A. C. H. Tsang.



VTech Group of Companies Scholarship 2022/2023

Our ME student, Mr. Jiang Nan received the "VTech Group of Companies Scholarship 2022/2023" in recognition of his academic merit, participation in extracurricular activities and community service.



Final Year Students awarded in the ASHRAE Design Competition 2023



3D View of IESVE Model

Our final year students Mr. Chan Kin Wai, Mr. Cheung Ho Chi, Mr. Lam Pui Him, Miss Wong Tsz Yan were awarded the second place in the HVAC Design Calculations Category of the ASHRAE Design Competition 2023. This is the fifth consecutive year that HKU participated in the competition and received the award.



ASHRAE = American Society of Heating, Refrigerating and Air-Conditioning Engineers

HVAC=Heating, Ventilation and Air-Conditioning

IESVE=Integrated Environmental Solutions Virtual Environment

IMechE The Greater China Design Competition 2023



Photo of the team (Championship)

Our team comprising Mr. Vyshnav Shabu Nair and Mr. Lu Hei Pang joined the IMechE The Greater China Design Competition 2023 on March 25. They were working from 2022 Sep to 2023 March to design and build an automatic line launcher. Our machine achieved its design expectation and won the championship honorably.



IMechE = Institution of Mechanical Engineers

BREED HKU won the InnoShow award at the 8th Engineering InnoShow, HKU

The eighth Engineering InnoShow "Together, we innovate!" showcased 28 innovative Engineering student projects at Tam Wing Fan Innovation Wing on April 28, 2023, where engineering students demonstrate their projects to the judges. Our BREED team won the InnoShow Award in the event.



The team received the award at the 8th Engineering InnoShow





2022 BMFA Design, build and fly competition

Two DBF teams of the ME department participated in the "British Model Flying Association (BMFA) 2022 University and Schools Flight Challenges", where they had the opportunity to tackle five distinct mission challenges.



Among 17 teams from all over the world, including British, USA, HK ... etc., our DBF team #1 and #2 won the champion and the 1st runner up respectively.

Team 01 and team 02 outside the BMFA office

ME students received the award of HKIE Environmental Division Final year Project Competition 2022



HKU ME team members received the award from members of the HKIE Environmental Division in the award ceremony



Our graduates Mr. Chan Lok Kan, Mr. Chau Man Kit, Mr. Cheung Lam Hoi and Mr. Wong Tsz Kin won the HKIE Environmental Division Prize for 2021-2022 Best Final-Year Environmental (Group) Project. Their project "Design and Fabrication of an Automatic Collection Device for Microplastic in Seawater" was a capstone project supervised by Professor Dennis Y.C. Leung.

HKIE = Hong Kong Institution of Engineers



Photo of the DBF team members

HKU DBF Team 2023 won Super Good Job Project Award at the 7th Engineering InnoShow, HKU

A total of 30 innovative student projects from 5 departments and InnoHub members were showcased at the event. Our DBF team was selected as the winner of the Super Good Job Project Award.



Achievements of our academic staff

Prof. M.X. Huang: Carbon-induced negative strain-rate sensitivity in a quenching and partitioning steel



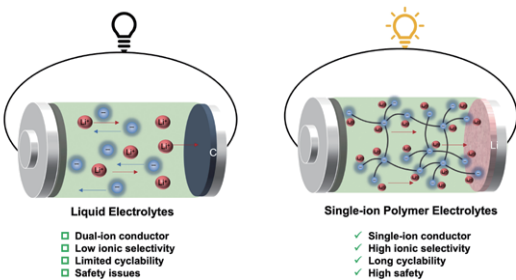
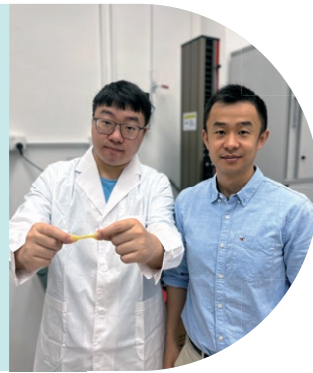
Professor Mingxin Huang and his team had worked on the research for the topic "Carbon-induced negative strain-rate sensitivity in a quenching and partitioning steel". The research findings were recently published in Acta Materialia on April 17, 2023.

Dr L.Z. Xu: HKU Mechanical Engineering team develops multifunctional tendon-mimetic hydrogels

A research team led by Dr Lizhi Xu has developed a new type of tendon-mimetic hydrogel with outstanding mechanical properties matching those of natural tendons combined with multifunctionalities for biomedical applications.



Dr L.Z. Xu (right) and Mr. Sun Mingze (left)



Dr D. M. Shin: ME researchers unlock the key to new generation of safe energy-efficient Lithium battery

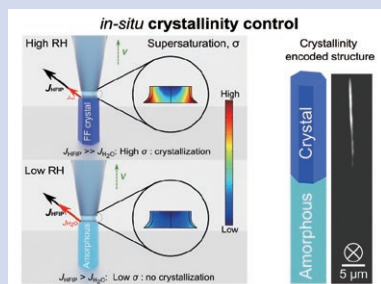
A new generation of lithium-ion batteries developed by a team led by Dr Dong-Myeong Shin paves the way for a workable solution. The team has discovered a series of anionic network solid electrolytes that can form an integral part of the new battery, which is safer, higher in power density and has a longer life cycle.



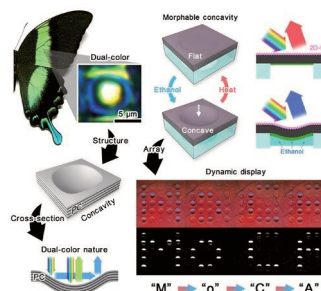
Dr J.T. Kim: HKU ME team develops new microscale 3D printer for multi-level anticounterfeiting labels



The team led by Dr Ji Tae Kim has developed a high-precision 3D printing method that can produce new polarisation-encoded 3D anticounterfeiting labels. This new 3D label can encrypt more digital information than a traditional 2D label.



3D printing process of polarization-encoded 3D micro-pixels



Prof. Anderson Shum: Pixelating responsive structural color via a bioinspired morphable concavity array



Professor Anderson H.C. Shum and his team had worked on the research for the topic "Pixelating responsive structural color via a bioinspired morphable concavity array (MoCA) composed of 2D photonic crystal elastomer actuators". This work is a collaboration with Professor Mingzhu Li from the Institute of Chemistry, Chinese Academy of Sciences. The research is recently published by Advanced Science on February 15, 2023.

Prof. Lu Yang: Multimaterial 3D printed self-locking thick-panel origami metamaterials



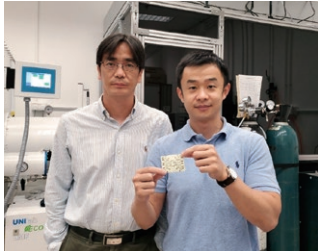
Professor Yang Lu and his collaborators reported their research on mechanical metamaterials and published a paper in Nature Communications on March 23, 2023 about "Multimaterial 3D printed self-locking thick-panel origami metamaterials".

Prof. Alfonso Ngan: "A dual organelle-targeting mechanosensitive probe", a paper in Science Advances



Professor Alfonso H.W. Ngan and his team from Ming Wai Lau Centre for Reparative Medicine of Karolinska Institutet and Harbin Institute of Technology, Shenzhen had worked on the research for the topic "A dual organelle-targeting mechanosensitive probe". The research was recently published by Science Advances on January 11, 2023.

Dr L.Z. Xu and Dr Lin Yuan: ME researchers develop ultra-strong aerogels with materials used in bullet-proof vests



Dr Lin Yuan (left) and Dr Lizhi Xu (right)

A research team led by Dr Lizhi Xu and Dr Yuan Lin, has developed a new type of polymer aerogel materials with vast applicational values for diverse functional devices.

In this study, a new type of aerogels was successfully created using a

self-assembled nanofiber network involving aramids, or Kevlar, a polymer material used in bullet-proof vests and helmets.



Dr K.W. Kwok: Novel robotic system to facilitate microsurgery



Dr K.W. Kwok (right) and Mr. Zhuoliang He (left)



The team led by Dr Ka-Wai Kwok and their collaborators from HKU's Faculty of Dentistry, and the Department of Otorhinolaryngology, Head and Neck Surgery, Faculty of Medicine, CUHK, has found a way to improve the procedures for treating head and neck cancer patients.

Awards

Prof. Lance Li: RGC's Research Funding Schemes 2023/24



Professor Lance Lain-Joing Li had received funding from the Research Grants Council of the University Grant Committee on the Theme-based Research Scheme (TRS) (13th round).



Prof. Anderson Shum: Hong Kong Engineering Science and Technology Award 2022

Professor Anderson H.C. Shum received the Hong Kong Engineering Science and Technology Award 2022 by the Hong Kong Academy of Engineering Sciences in recognition of his outstanding research achievements in microfluidics and their potential applications into biomedical technologies.



Prof. Barbara Chan, Dr K.W. Kwok and Prof. Anderson Shum: HKU Engineering shined in the 48th International Exhibition of Inventions of Geneva

HKU triumphed at the 48th International Exhibition of Inventions of Geneva, winning a total of 19 awards, including two special grand prizes Invention & Innovation CAI Award (China Delegation), and Prize of the Delegation of Malaysia. Among the 19 awards, our department had bagged 3 of them.



Prof. Barbara Chan



Dr K.W. Kwok



Prof. Anderson Shum

Prof. Lixi Huang: Fellow of the Acoustical Society of America



Professor Lixi Huang was elected as a Fellow of the Acoustical Society of America in May 2023 for his contributions to biomedical noise control, aeroacoustics, and acoustics.

Prof. M.X. Huang and Dr K.W. Kwok: HKU Outstanding Researcher Award and Research Output Prize for 2021-2022



Prof. M.X. Huang



Dr K.W. Kwok

Professor Mingxin Huang and Dr Ka-Wai Kwok received the HKU Outstanding Researcher Award and Research Output Prize for 2021-2022 respectively.



Prof. Yuguo Li: Fellows of Hong Kong Academy of Engineering Sciences

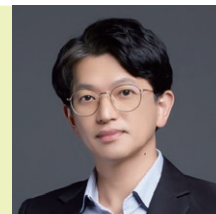


Professor Yuguo Li was selected as Fellows of Hong Kong Academy of Engineering Sciences (HKAES). Professor Li was among the eight newly elected fellows of this year.



Prof. Lance Li and Prof. X.B. Yin: The Hong Kong Jockey Club Charities Trust - JC STEM Lab

Professor Lain-Jong Li and Professor Xiaobo Yin received funding support from The Hong Kong Jockey Club Charities Trust (The Trust) to set up JC STEM Lab for research projects.



Prof. Lance Li



Prof. X.B. Yin

Working with the Government, non-governmental organisations (NGOs) and community partners, the Trust is committed to improving the quality of life of the people of Hong Kong.

Prof. M.X. Huang: Croucher Senior Research Fellowships



Professor Mingxin Huang was awarded Croucher Senior Research Fellowships 2022 by the Croucher Foundation on December 8. He was among the three distinguished scholars from the University of Hong Kong (HKU) who received the Fellowship.



Dr Y.H. Chen, Prof. M.X. Huang, Prof. James Lam, Prof. Dennis Leung, Prof. Lance Li, Prof. Yuguo Li and Prof. X.B. Yin: HKU Scholars in the Top 1% 2022

This list recognises HKU researchers ranked by Clarivate Analytics in the top 1% worldwide by citations in at least one of the 22 research fields. Among the 150 HKU scholars on the list for the year 2022, 35 are from the Faculty of Engineering and 7 are from Department of Mechanical Engineering.



Dr Haisong Lin: NSFC Young Scientists Fund (HK) 2022

Dr Haisong Lin, Research Assistant Professor of Mechanical Engineering received funding for supporting his research under NSFC Young Scientists Fund 2022.



NSFC=National Natural Science Foundation of China



Prof. X.B. Yin: Xplorer Prize 2022

Professor Xiaobo Yin won Xplorer Prize 2022. The Xplorer Prize was a non-governmental merit-based award and one of the most generous talent funding programmes for young scientists in China. A total of 50 outstanding scientists had been awarded this year.



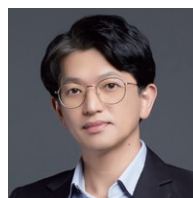
Prof. Dennis Leung, Prof. Lance Li, Prof. Yuguo Li and Prof. Xiaobo Yin: Highly Cited Researchers in 2022



Thirty-eight academics of HKU have been named by Clarivate in its list of "Highly Cited Researchers 2022" as the most influential in the world. Highly Cited Researchers are selected for their exceptional research performance, determined by production of multiple highly cited papers that rank in the top 1% by citations for field and publication year in Web of Science. Among them four are from Mechanical Engineering: Professor Dennis Leung, Professor Lance Li, Professor Yuguo Li and Professor Xiaobo Yin.



Prof. Dennis Leung



Prof. Lance Li



Prof. Yuguo Li



Prof. Xiaobo Yin

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