PolyU SCIENCE

Newsletter

Jun 2025 #06

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

FACULTY OF 理學院 SCIENCE

Contents

Editorial Board

Welcome to the sixth issue of the FS newsletter!

歡迎閱讀理學院第六期學院通訊！

The Faculty of Science is dedicated to fostering a culture of excellence and innovation across our community. I'm delighted to share with you some of our latest achievements and exciting developments that underscore the impactful work being carried out within the Faculty.

To begin, my warmest congratulations go to Prof. Chai Yang, who has been appointed Chair Professor of Semiconductor Physics and named a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) for the Class of 2025. In addition, he has been awarded the BOCHK Science and Technology Innovation Prize 2024, a well-deserved recognition of his pioneering research and unwavering commitment to technological advancement. These accolades are a powerful testament to his contributions to the scientific field.

I would also like to celebrate Prof. Kathy Leng, who has received the President's Awards for Outstanding Achievement 2024 in the category of Research and Scholarly Activities, recognised as an Outstanding Young Researcher. Her dedication and academic excellence continue to inspire our students and colleagues alike.

We are also excited to highlight the official launch of the PolyU Marshall Research Centre for Medical Microbial Biotechnology, led by Prof. Ma Cong. The Centre aims to revolutionise the diagnosis and treatment of bacterial infections. With Prof. Barry Marshall, 2005 Nobel Laureate in Physiology or Medicine, serving on the Management Committee, the Centre will utilise AI-powered e-biobanks to boost diagnostic precision and accelerate the development of novel antibiotics to combat antimicrobial resistance. This marks a significant step forward in interdisciplinary collaboration and cutting-edge medical research.

Moreover, I am pleased to announce the appointment of Prof. Hao Jianhua as the new Head of the Department of Applied Physics (AP), with effect from 1 July 2025. I would also like to take this opportunity to extend my sincere appreciation to Prof. Daniel Lau for his dedicated leadership and invaluable contributions during his tenure as Head of AP.

As we celebrate these milestones, let us continue to support one another in our shared pursuit of knowledge, innovation, and scientific excellence.

Thank you for reading—and I wish you all a restful and enjoyable summer vacation!

Prof. Wong Wai-yeung, Raymond
Dean, Faculty of Science
Clarea Au Professor in Energy
Chair Professor of Chemical Technology

理學院一直致力營造卓越與創新並重的學術氣氛。在此，我很高興與大家分享本院近期的一些傑出成就與重要動向，以展現我們在科研與教學方面不斷突破的精神。

首先，我謹向柴揚教授致以衷心祝賀。他獲委任為半導體物理學講座教授，並獲選為2025年度電機及電子工程師學會（IEEE）院士，同時榮獲2024年度中銀香港科技創新獎。這些榮譽充分肯定了他在科研和技術發展上的卓越貢獻，並彰顯了他對科學界的深遠影響。

同時，我們亦恭喜冷凱教授榮獲2024年校長特設傑出成就獎 - 研究及學術活動（傑出年青研究員）。她的敬業精神與卓越表現，不但推動研究發展，更鼓勵著眾多學生與學者不斷進步。

此外，我們隆重宣佈馬歇爾醫學微生物學科技研究中心正式成立。研究中心由馬聰教授帶領，專注於提升細菌感染的診斷與治療技術，而2005年諾貝爾生理學或醫學獎得主Barry Marshall教授更擔任管理委員會成員之一。中心將會建設以人工智能驅動的電子生物資料庫，以提升診斷的準確性並開發新型抗生素，以應對日益嚴峻的抗藥性問題。此舉充分展現出本院在跨學科合作和前沿醫學研究邁出了重要一步。

我們亦欣然宣佈，郝建華教授將於2025年7月1日起出任應用物理學系系主任。同時，我們衷心感謝劉樹平教授多年來對學系的無私奉獻與卓越領導，為學院的成功發展作出了重要貢獻。

在這些佳績的鼓舞下，讓我們繼續攜手並進，追求知識與創新，開拓科研新境界！

感謝大家的閱讀，祝願大家有一個愉快而充實的暑假！

理學院院長
歐雪明能源教授及化學科技講座教授
黃維揚教授

Engineering Healing: Breakthroughs in Regenerative Medicine

自我修復骨骼技術：再生醫學的突破

Interview with
Prof. Zhao Xin
趙昕教授專訪
Professor,
Department of Applied Biology and Chemical Technology
應用生物及化學科技學系教授

Prof. Zhao Xin is advancing regenerative medicine through the design of biomaterials that mimic the natural cellular environment, promoting tissue regeneration. A key aspect of her research is the development of biomimetic scaffolds — engineered materials that replicate the biochemical and mechanical cues of native tissues. These scaffolds facilitate cell adhesion, proliferation and differentiation, enabling effective tissue repair. By integrating expertise in biology, chemistry and engineering, her team is creating platforms that support the body's natural healing mechanisms, offering new solutions for previously untreatable conditions.

One of her most significant contributions is the invention of Biomimicking Photocrosslinkable Nanocomposite Bone Grafts. This innovative material represents a new generation of bone grafts that not only fill bone defects but also actively promote new bone growth. Unlike conventional grafts, which often lack sufficient integration and biological activity, this graft is engineered to closely replicate both the structural and functional characteristics of native bone.

The graft combines nanocomposite materials with a photocrosslinkable polymer matrix. The nanocomposites enhance the mechanical strength and osteoconductivity of the material, while the photocrosslinking process enables precise, rapid solidification through light exposure, allowing the scaffold to conform to complex defect geometries. The result is a biocompatible, biomimetic material capable of integrating with host tissue and supporting bone regeneration in a controlled and effective manner.

Prof. Zhao's breakthrough in biomaterials has garnered international recognition, including gold and silver medals at global innovation exhibitions. More importantly, it offers a clinically viable solution for patients with traumatic bone injuries or degenerative conditions, addressing the limitations of traditional grafts. Her translational research bridges laboratory discoveries with real-world applications, tackling medical challenges in collaboration with healthcare professionals.

Backed by substantial funding, Prof. Zhao's work transforms cutting-edge biomaterial science into practical treatments. Recognized globally, including inclusion in Stanford University's The World's Top 2% Scientists and Clarivate Analytics' Highly Cited Researchers, Prof. Zhao continues to lead pioneering studies in hard and soft tissue scaffolding, and 3D bioprinting, reshaping the future of regenerative medicine.

趙昕教授一直在再生醫學方面尋求突破。透過改進仿生生物材料的結構，模擬細胞自然生長微環境，以研發出能夠讓人體自我修復的材料。她的研究重點之一，是研發仿生支架——一種能夠模擬人體組織生物化學功能與肌理活動的材料，促進細胞黏附、增殖及分化，以及加快組織再生。為此，她的團隊結合了生物學、化學及工程學的專業知識，創造出協助人體自我修復的工具，為過往難以治療的疾病帶來嶄新解決方法。

她的其中一項突破性發明，是仿生光交聯納米複合骨移植材料。這種新型骨骼材料不僅能填補受損骨骼，更可加快令新骨骼生長。相比傳統骨骼材料，這種材料擁有高程度的相容性和生物活性，在結構與功能上更貼近天然骨骼。

這種骨骼材料由納米合成材料與光交聯高分子結合而成。當中的納米合成物有效提升材料的強度與誘導骨頭生長的效能，而光交聯技術則能讓仿生骨骼在光照下快速固化，靈活貼合各種形狀不規則的受損骨骼，以帶來有機、高相容性的修復效果。

這項研究不僅為她贏得多項國際創新獎項殊榮，更為創傷與退化性骨骼病患者帶來治療新希望。她期待將研究從實驗室轉化為臨床技術，並與不同醫護專家合作，真正將科研成果應用於現實當中。

趙教授的團隊因為出色的研究成果而獲得多項資助，她本人亦入選為史丹福大學全球排行前2%獲徵引最多的科學家，以及科睿唯安最廣獲徵引研究人員。她對身體軟硬組織生物材料以及3D生物打印等先進技術的研究，為再生醫學開辟了新未來。

Accelerating Functional Material Innovation: AI and Data-Driven Approach to Advanced Electronics Technologies

加速功能材料創新：以人工智能與數據推動先進電子科技發展

Prof. Yang Ming
楊明教授專訪
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應用物理學系助理教授

The discovery of new functional materials has traditionally relied on time-consuming and costly trial-and-error methods, often taking over 20 years for a material to move from initial discovery to commercial use. Prof. Yang Ming is transforming this process through a data-driven, AI-powered approach that significantly increases the speed, accuracy, and efficiency of identifying advanced materials for electronics and energy technologies.

Unlike traditional databases or search engines that passively retrieve past results, AI-driven models actively learn from large datasets, simulate material behaviours, generate hypotheses and optimize experimental parameters. This allows researchers not only to explore existing knowledge but also to predict new materials and uncover hidden patterns.

Prof. Yang's research leverages high-throughput first-principles calculations—automated, quantum mechanics-based simulations that evaluate materials without needing physical experiments. In a project focused on high-k dielectric materials for next-generation 2D electronics, his team began with over 140,000 known compounds. By filtering these using key factors like band gap and dielectric constant, they identified about 1,000 promising candidates. Further semi-automated large-scale simulations narrowed the list to around 20 high-performance dielectric materials for 2D semiconductors. This process is estimated to be 4 times faster than conventional methods. A major innovation in Prof. Yang's work is the use of physics-informed machine learning, where physical laws are embedded directly into AI models. This enhances accuracy, reduces reliance on large datasets, lowers energy consumption and improves model transparency. His team recently encodes short-range interaction into AI model, in which only local structures are used for the graph representation, making them especially effective for predicting complex material properties such as adsorption and defect behaviour. Despite the breakthroughs, challenges remain, particularly the need for greater computing power and smarter algorithms to handle vast material datasets. However, with advances in GPUs, parallel computing, and techniques like surrogate modelling and active learning, the pace of discovery continues to accelerate.

By integrating AI, physics and vast material databases, Prof. Yang is reshaping how new materials are discovered. His research supports faster innovation, reduced costs and sustainable development, while positioning Hong Kong as a leading centre for AI-driven materials science.

傳統功能材料的研發往往依靠耗時且成本高昂的反覆試驗法，令研發由初步發現到實際應用可能需時超過20年。為此，楊明教授利用大數據及人工智能，為電子與能源技術研發尋找先進材料，大幅提升當中的速度、準確度以及效率，徹底改變了整個研發過程的運作模式。

與傳統資料庫或搜尋引擎的被動檢索功能不同，人工智能模型能夠主動從大型數據網絡中自行學習，模擬材料行為特質、提出假設，並改進實驗參數。這不僅讓研究人員能探索現有資訊，更可加速新材料的研制、發掘未知的規律。

楊教授的研究所運用的是高通量第一性原理計算與人工智能結合的方法，通過量子力學與機器學習為基礎的自動化模擬方法，無須實驗便能評估物料的特性。在研發下一代二維電子裝置的「高介電常數物料」中，楊教授從超過14萬種已知物質中開始探索，按帶隙與介電常數等因素作篩選，最終鎖定約1,000個具有潛力的候選材料，再透過半自動化模擬進一步篩選至約20種高性能介電材料，整個流程比傳統方法快約4倍。他研究的創新之一，是將物理知識嵌入到人工智能模型，讓模型以物理學思維去學習和分析資訊，提升模型的準確性、減少對大量數據的依賴、降低能源消耗，同時提升模型的可解釋能力。團隊最近更將不同材料的短程相互作用信息編入到圖神經網絡之中，令模型在預測吸附特性或缺陷行為等複雜材料特質時更具效能。雖然取得突破，面對龐大的數據，模型仍需更強的運算能力與演算法。不過，隨著圖形處理芯片、並行運算技術，以及代理模型與主動學習等方法不斷進步，發現新材料的速度正不斷加快。

楊教授的研究有助推動更快速、更低成本以及更可持續的材料科技的研究與發展，亦能協助香港邁向全球人工智能驅動材料科學研究的領先地位。

Tea and the Gut: Unlocking Health Through Its Bioactive Compounds

茶與腸道：透過生物活性成份解鎖健康之門

Prof. Gan Renyou
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Tea, made from the *Camellia sinensis* plant, is one of the most widely consumed beverages in China and globally. Beyond its cultural significance, tea is rich in bioactive compounds such as polyphenols, polysaccharides, caffeine, and especially epigallocatechin gallate (EGCG), a potent antioxidant linked to numerous health benefits.

Prof. Gan Renyou's research focuses on how these compounds interact with the gut microbiota, which plays a vital role in breaking down tea components and enhancing their bioavailability and bioactivities. EGCG, for instance, is poorly absorbed in its original form, but colonic bacteria can convert it into more absorbable metabolites, amplifying its in vivo effects, supporting cardiovascular health and potentially preventing cancer.

Another key focus of Prof. Gan's research is tea fermentation. The six main types of tea—green, yellow, white, oolong, black, and dark—undergo varying degrees of fermentation, each producing distinct chemical profiles. For instance, the unfermented green tea retains higher levels of catechins like EGCG, while the post-fermented dark tea yields theabrownins with unique ingredients that can fight against non-alcoholic fatty liver disease and obesity.

While regular tea consumption is linked to benefits such as improved cardiovascular health, better blood sugar regulation and cognitive support, Prof. Gan cautions against excessive use of concentrated green tea extracts, which may lead to adverse effects like liver damage. His work aims to identify safe and effective dosages, especially for use in supplements.

Tea's expanding role in functional foods, beverages and even cosmetics, highlights its commercial and therapeutic values. Prof. Gan's previous experience with patents further supports the development of tea-based bioactives for the health and wellness industries.

Although his findings are largely based on *in vitro* and animal studies, they lay a strong foundation for future clinical research. In China, where tea is both a daily ritual and a traditional remedy, his work bridges ancient practices with modern science - promoting tea as a powerful tool for preventive healthcare. Finally, tea can be considered as a typical example of "Food as Medicine".

由茶樹種植而成的茶，是中國乃至全球最受歡迎的飲品之一。除了其深厚的文化意義外，茶還富含生物活性成份，例如多酚、多醣、咖啡因，尤其是表沒食子兒茶素沒食子酸酯（EGCG），它是一種強效抗氧化劑，能為人體帶來健康。

甘人友教授主要研究這些成份如何與腸道微生物群互動，當中的腸道菌群在分解茶的活性成份、提升其生物可利用性和生物活性方面發揮著重要作用。例如，EGCG在原始形態下的吸收率極低，但大腸中的細菌能將其轉化為更容易吸收的代謝物，讓其在人體內發揮功效，有助帶來心血管健康，甚至能預防癌症。

甘教授的另一個研究重點是茶葉的發酵過程如何帶來裨益。六大茶類中的黃茶、白茶、烏龍茶、紅茶和黑茶，都需要經過不同程度的氧化與發酵過程，每種都會產生獨特的化學成份。例如，未氧化發酵的綠茶保留了較高水準的兒茶素如EGCG，而後發酵的黑茶則產生出茶褐素，這種物質具有獨特成份，可對抗非酒精性脂肪肝和肥胖等疾病。

雖然日常飲茶能令身體健康，例如改善心血管健康、幫助調節血糖和提升認知功能等，甘教授提醒大眾應避免過量攝取濃縮綠茶萃取物，因其或會帶來肝臟損害等副作用。他的研究目的是確保保健食品所使用的劑量安全有效。

另外，茶在功能性食品、飲品甚至化妝品方面的應用越來越廣泛，顯示出其商業及藥用價值所在。而甘教授在專利方面的經驗，將有助將茶葉活性成份引入到健康產業之中。

雖然這些研究大部份都基於體外與動物實驗，但其已為將來進行臨床研究奠定了基礎。在中國，飲茶既是日常習慣亦是傳統療法，甘教授把古老智慧與現代科學結合起來，推動茶成為預防醫學的重要工具，最終令茶成為「以食為藥」的經典例子。

Counsellor Fly-in Programme
升學輔導主任訪港交流團

The Counsellor Fly-in Programme's Mini-Fair cum Panel Discussion organized by Global Engagement Office of PolyU was successfully held on 7 March. The event hosted over 30 counsellors from 21 countries and regions. Prof. Joseph Yung, Associate Dean (Global Engagement and Partnership) of the Faculty addressed enquiries about our academic programmes covering AI, Biotechnology, Chemical Technology, Physics, Food Science and Nutrition during the panel discussion. Our academic colleagues shared with the counsellors on the uniqueness of our programme curriculum and academic strength at the mini-fair.

升學輔導主任訪港交流團小型交流會暨專題討論會於3月7日順利舉行。理大環球事務處統籌並接待了30多位來自21個不同國家及地區、以及本地的國際中學代表。理學院副院長容家富教授於專題討論會重點介紹了學院涵蓋人工智能、生物科技、化學科技、物理學和食品科學及營養學等課程。學院導師亦於小型交流會向交流團講解了理學院課程的獨特性和學術優勢。

PolyU Science Mini-Lectures and Campus Tours
理大理學院迷你講座及校園導賞團

The Faculty of Science offers engaging PolyU Science Mini-Lectures to local secondary schools, aimed at inspiring students across a range of scientific disciplines. This year, we successfully delivered around 20 Mini-Lectures, fostering curiosity and a deeper appreciation for science among secondary students. Each session is designed to be interactive, informative, and relevant to real-world applications. In addition to lectures, we also offer guided campus tours for secondary students and teachers. These visits provide first-hand experience of PolyU's vibrant learning environment and state-of-the-art facilities, helping students explore future pathways in science and technology.

理學院為本地中學提供多場「理大理學院迷你講座」，旨在激發學生對各類科學範疇的興趣。今年我們成功舉辦約20場講座，以培養中學生對科學的好奇心及理解。每場講座均特設為互動式教學，內容實用且與現實生活息息相關。此外，我們亦為中學生及老師安排理大校園導賞團，讓他們親身體驗本校活力洋溢的學習環境與先進設施。這些活動皆有助學生了解更多有關未來科學與科技領域的升學意向。

Establishment of New Research Centre
新研究中心的成立

On 21 March, the PolyU Marshall Research Centre for Medical Microbial Biotechnology celebrated its official opening, marking a major step forward in the field of medical research. The Centre is dedicated to improving the diagnosis and treatment of bacterial infections, with a particular focus on Helicobacter pylori. Beyond its research ambitions, the Centre is firmly committed to fostering international collaboration, thereby strengthening the global impact of its work in medical microbiology. It also places a strong emphasis on the development of novel antibiotics to combat the escalating threat of antimicrobial resistance. This initiative reflects the shared commitment of PolyU and the Faculty to transforming healthcare and improving health outcomes on both local and global scales.

理大馬歇爾醫學微生物學科技研究中心於3 月 21 日正式開幕，標誌著醫學研究領域的重要進展。研究中心專注於提升細菌感染相關的診斷及治療，尤其針對幽門螺旋菌的研究。中心同時致力於促進國際合作，加強其在醫學微生物學領域的全球影響力，並積極研發新型抗生素，以應對日益嚴峻的抗藥性問題。新研究中心的成立充份展現出理大及理學院致力革新醫療、改善本地及全球健康水平的宏大理念。

FITE Seminar Series
科教創新基金研討會系列

Supported by the Fund for Innovative Technology-in-Education (FITE) from the University Grants Committee (UGC), the FITE Seminar Series aims to enhance teaching and learning through AI technologies and align the educational preparation of STEM graduates with evolving career opportunities.

Thanks to this funding, the FITE Seminar Series successfully organized three career-focused seminars on the testing and certification sector and the pharmaceutical industry, and two AI-themed workshops titled “Empowering Education and Innovation with Artificial Intelligence” in the past semester. These events attracted over 300 participants, reflecting the growing interest and engagement within our academic community.

由大學教育資助委員會（教資會）科教創新基金資助的講座系列，旨在透過人工智能技術提升教學質素，並協助STEM相關專業的畢業生迎接職場上的各項挑戰。

受益於該項資助，科教創新基金講座系列在過去一個學期順利舉辦了三場聚焦職業發展的講座，主題涵蓋檢測與認證行業以及製藥業的職業介紹，和兩場以「利用人工智慧賦能教育與創新」為題的工作坊。活動吸引超過300位參加者，反映本院教職員及學生對相關議題的興趣與參與度持續上升。

Bridging Science and Industry: Insights from an Expert in Analytical Science and Quality Assurance

Date: 7 March 2025
Speaker: **Ms Wing Lam**
(Analytical Chemistry Laboratory Manager, Hohenstein Lab (HK) Ltd.)

Real-World Insights: Collaborating with Industry Experts in Testing and Certification

Date: 20 March 2025
Speakers: **Dr Lillian Chow**
(Senior Accreditation Officer of Hong Kong Accreditation Service)
Ms Kara Yuen
(Assistant Human Resources Manager of Intertek Hong Kong)

Beyond the Lab: Career Opportunities in Pharmaceutical

Date: 10 April 2025
Speaker: **Prof. Raymond Yeung**
(Department of Applied Biology and Chemical Technolgy, PolyU)

Empowering Education and Innovation with Artificial Intelligence: Staff AI Workshop Series

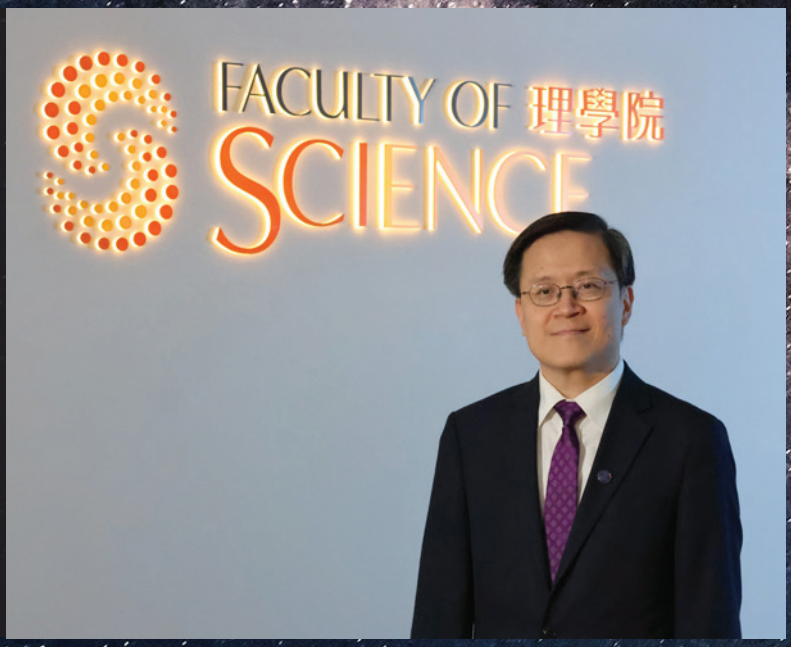
Date: 21 & 28 May 2025
Speaker: **Mr Keith Li**
(Co-founder and Chief Executive Officer of Innopage Ltd.)

FS New Corporate Video
理學院全新宣傳影片

The Faculty of Science is committed to **transforming impossible into possible**. We are going to launch a new corporate video that highlights how science drives innovation, impacts our lives through life-saving medicine, advanced technologies, and beyond. Our strong connections with industry and academic partners enhance knowledge transfer and impact of our research.

The Faculty offers a dynamic range of undergraduate and postgraduate programmes that integrate theoretical knowledge with hands-on experience. With global collaborations and internship opportunities, we prepare students for success on the international stage.

Please stay tuned for our new video and see how PolyU Science is empowering the innovators of tomorrow to create meaningful change.

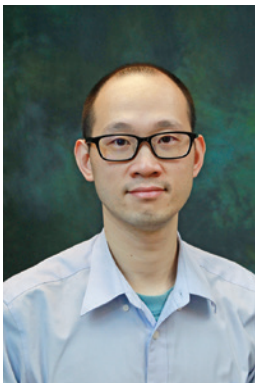


FS Scheme on Advance HE Fellowship

理學院支援計劃 - 英國高等教育促進會會士認證

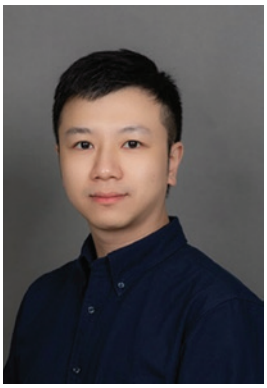
To enhance professional development in teaching and international recognition in academia, our Faculty launched the Advance HE Fellowship Scheme since 2023/24. We are delighted to announce that three colleagues have achieved Fellowships: Prof. Peter Tsang (Senior Fellow) and Dr Albert Choy (Fellow) from AP, and Dr Marcus Wong (Fellow) from FSN.

Launching the second round, our faculty co-organised an introductory seminar with EDC on 28 March, in which the FS support scheme was introduced and successful application experiences were shared. Twenty-four PolyU colleagues participated in the seminar, with nine FS colleagues planning to apply the Fellowship this year. Dedicated to foster teaching excellence, our Faculty will continue this initiative in supporting more faculty members in applying the Fellowship.



Prof. Tsang Yuen-hong, Peter
AP
Senior Fellow

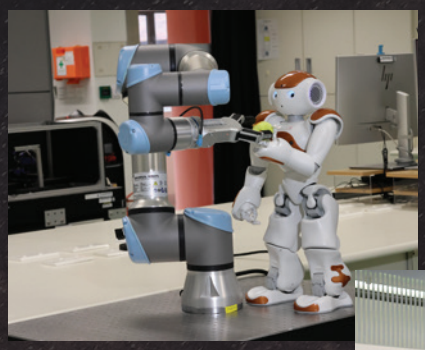
Dr Choy Siu-hong, Albert
AP
Fellow



Dr Wong Ho-yin, Marcus
FSN
Fellow

為了提升教學的專業發展和學術界的國際認可，本院自2023/24學年起推出了英國高等教育促進會會士認證（Advance HE Fellowship）支援計劃。我們很高興本院有三位教職員獲得了會士認證。他們是來自應用物理學系的曾遠康教授（高級會士）和蔡紹康博士（會士），以及來自食品科學及營養學系的黃浩賢博士（會士）。

為推薦第二批教職員於今年再接再厲申請這項殊榮，本院於3月28日與教學發展中心合辦了一場簡介會，介紹本院的支援計劃和成功申請英國高等教育促進會會士認證的分享。此簡介會共有二十四位理大教職員參加，其中本院九位教職員將於今年提交申請。本院將繼續支持更多教職員申請會士認證以促進教學卓越。



理學院深信「讓科學將不可能變成可能」的道理。我們將推出最新的宣傳影片以展示科學如何推動創新，從拯救性命的藥物到先進科技，全面改變人類生活。我們與業界及學術界的緊密聯繫，讓研究成果知識轉移及更具影響力。

理學院致力提供多元化的本科及研究生課程，注重理論與實踐並行。透過與全球各地合作及提供實習機會，我們協助學生踏上國際舞台，迎接挑戰。

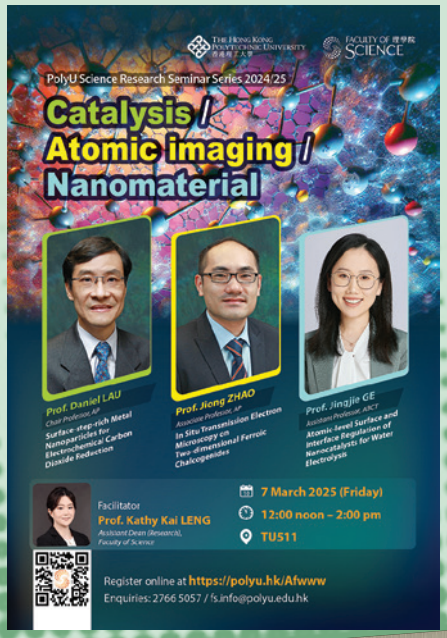
敬請關注我們的新影片，見證學院如何啟發未來，開創更美好的明天。

Faculty of Science Research Seminar Series

理學院科研講座系列

Faculty of Science (FS) Research Seminar Series provides a regular platform for FS researchers to engage with colleagues and research postgraduate students, fostering academic exchange and knowledge dissemination. Each seminar is centred around a specific theme, featuring researcher presentations followed by interactive discussions. The three seminars held in this academic year facilitated dynamic interactions among students and researchers, broadened perspectives of students and junior researchers, and provided valuable insights to support their scholarly growth.

理學院科研講座系列為院內師生提供恆常交流平台，促進學術思想交流和知識共享。每場講座主題鮮明，通過專題演講和討論深化交流。本學年三場講座，促進了師生深度互動，拓展彼此視野，對研究生及年青科研人員規劃學術發展有所啟迪。



Distinguished Research Seminars & Lectures

卓越科研講座

The Faculty invited distinguished experts and scholars from around the world to PolyU to share cutting-edge development in various scientific fields through diversified topics. The lectures discussed research advancements while also addressed practical research-related issues, such as academic journal submissions. Through in-depth discussions on research experiences and scholarly perspectives, the lectures further strengthened the research capabilities of our faculty members and students.

學院邀請海內外知名專家學者蒞臨理大，分享各科學領域的最新動態。講座不僅深入探討前沿科研成果，同時亦涵蓋實用研究課題如學術期刊投稿等，藉著深度交流學術心得，進一步提升了師生的科研能力。

FS 3MT® Competition 2025

理學院三分鐘英語學術簡報競賽（3MT®）2025

The Faculty of Science organised the Three Minutes Thesis (3MT) Competition on 3 June 2025, providing a platform for PhD students to showcase their academic, presentation and research communication skills in three minutes. Winners at department level competed at the FS 3MT Competition, where Mr Wang Ke, our student from FSN, was awarded the championship for his research titled "Exploring Polyphenols as Natural Anti-Inflammatory Agents in the Management of Dry Eye Disease". He will represent the Faculty at the university-level competition on 2 July 2025.

Award	Recipient
Winner	Mr Wang Ke 王柯, *FSN*
First Runner-up	Ms Yi Qi 易琪, *ABCT*
Second Runner-up	Ms Zhao Zichen 赵梓辰, *FSN*
People's Choice	Ms Suo Di 索迪, *ABCT*

理學院於2025年6月3日舉辦了「三分鐘英語學術簡報競賽」，讓博士生在三分鐘內展示其學術研究、演說和溝通技巧。各系得獎者在學院比賽中比拼，其中來自食品科學及營養學系的學生王柯，憑藉其研究「探索多酚作為治療乾眼症的天然抗炎劑」在比賽榮獲冠軍，並將代表學院晉級至理大於七月二日進行的決賽。

Major External Research Grants

獲外界資助項目

In 2024/2025, academics and researchers of our Faculty have secured around HKD100 million in funding from different competitive grant schemes and collaborative funds for their research projects. Below are the major external grants obtained:

理學院的學者及研究人員的科研項目於2024/2025年度共獲得約1億港元外界科研資金支持，以下為部分主要項目：

Funding Source	Principal Investigator/ Project Coordinator	Funding Amount (HKD)
China Petrochemical Technology Company Limited	Prof. Lau Shu-ping, Daniel, AP	$2,348,104
Croucher Foundation	Prof. Loh Kian-ping, AP	$3,000,000
Hong Kong Yakult Company Limited	Prof. Tai Chi-shing, William, ABCT	$2,000,000
ITF - Innovation and Technology Support Programme (ITF-ITSP)	Prof. Zheng Zijian, ABCT	$2,687,550
ITF - Mainland-Hong Kong Joint Funding Scheme (ITF-MHKJFS)	Prof. Yan Feng, AP	$2,198,000
Lo Ka Chung Charitable Foundation Limited	Prof. Leung Yun-chung, Thomas, ABCT	$6,000,000
NSFC 國家自然科學基金委員會	Prof. Chai Yang, AP	$4,414,800
NSFC 國家自然科學基金委員會	Prof. Yin Jun, AP	$2,207,400
RGC Collaborative Research Fund (CRF)	Prof. Zhang Xuming, AP	$4,105,910
RGC Joint Research Scheme	Prof. Lau Shu-ping, Daniel, AP	$3,551,600
RGC Research Impact Fund (RIF)	Prof. Chen Sheng, FSN	$4,200,000
RGC Theme-based Research Scheme	Prof. Lee Kin-wah, Terence, ABCT	$3,657,600
Sustainable Agricultural Development Fund	Prof. Wong Ka-hing, FSN	$3,580,000
深圳市科技創新委員會	Prof. Dai Jiyan, AP	$3,237,600
深圳市科技創新委員會	Prof. Zhao Jiong, AP	$2,156,400

**Please note that the information provided pertains to grants approved before 1 April 2025.*

Inspiration from My Teaching Journey at PolyU:

Embracing Change and Fostering Engagement

理大教學旅程的啟發：乘變啟航，沃育參與

"Teaching is a two-way process—a shared journey between the educator and the student.

教學是一個雙向的過程——一個讓導師與學生一同成長的旅程。"

Dr Wong Ho-yin, Marcus
黃浩賢博士
Lecturer,
Department of Food Science and Nutrition
食品科學及營養學系講師

This year marks my fifth year of teaching at PolyU, and I remain genuinely thrilled to have the privilege of working at my alma mater. It is a special honour to serve as one of the teachers guiding students in the very same programme from which I graduated. As a relatively new teacher, I may not be best positioned to articulate a fully developed teaching philosophy, but I am happy to share the thoughts and experiences that have shaped my approach to teaching so far.

It is undeniable that the way students learn has transformed over the past decade. I still recall my early days as a teaching assistant during my postgraduate studies, when students relied on printed lecture notes and scribbled in notebooks. Today's classroom, by contrast, often resembles a mini computer lab, with students absorbed in the glow of their laptop or phone screens. Technology has reshaped many aspects of our lives, and teaching is no exception. We have adopted, or been encouraged to adopt, a variety of pedagogical strategies aimed at capturing students' attention (and perhaps maintaining class attendance), enriching their learning experiences, and improving the overall effectiveness of instruction. Yet, despite these evolving methods and modes of delivery, my core beliefs in education remain unchanged.

From my experiences as both a student and a teacher, I have come to believe that students are most engaged when they develop a genuine interest in the subject matter. Unlike traditional basic sciences, which often revolve around abstract theories and fundamental laws, food science blends biology, chemistry, and physics with real-world applications such as nutrition, food safety, and product development. This integration creates a tangible bridge between scientific concepts and daily life, making the material more relatable and stimulating. To nurture this connection, I enrich my teaching with real-life examples that bring clarity to complex ideas, helping students see how textbook knowledge applies in the real world. For example, when teaching food safety, I might reference recent news about foodborne illness outbreaks or explain the science behind common food products. I

believe that using relatable examples is essential in science education, not only to spark curiosity but also to help students internalize key principles and apply them to problem-solving and innovation.

I see teaching as a two-way process—a shared journey between educator and student. Instead of dominating the conversation, I encourage students to learn from one another, offering their own perspectives and questions. To support this collaborative environment, I incorporate interactive elements such as case discussions, UReply, and MS Forms alongside traditional lectures. These tools help foster a classroom atmosphere where students feel safe and motivated to contribute. This dialogue is not only beneficial for their learning; it also helps me identify areas that need more explanation or clarification, allowing me to adjust my approach to better suit their needs.

In science education, much of the learning takes place beyond the classroom—inside the laboratory, where students gain hands-on experience and bring scientific concepts to life. There, I demonstrate techniques, observe students' grasp of experimental principles and ask questions that probe their understanding. These observations are invaluable in assessing the effectiveness of my teaching. I also use lab sessions as opportunities for informal advising, where students can speak freely about their academic challenges, internship plans or career aspirations. These conversations are a meaningful way to deepen the educational experience while fostering a sense of belonging and engagement.

As a programme leader and academic advisor, I deeply value the relationships I build with my students. Watching them grow, overcoming challenges, completing their studies and then succeeding in their careers, is profoundly rewarding. Teaching is my lifelong vocation, a journey that contributes not only to my students' development but to my own personal and professional growth. I remain deeply grateful for the opportunity to learn and evolve alongside them.

今年是我在理大任教的第五年，我很榮幸可以回到母校工作，而且能夠成為我的畢業學系學生的指導老師之一。作為一名相對較新的教師，我可能還未能完整地表達我的教學理念，但我仍很樂意分享迄今為止塑造我的教學方法的理念和經歷。

無可否認的是，過去十年學生的學習方式出現了不少變化。我還記得當我還是研究生時擔任助教的一些經歷，當時的學生還拿著印刷本講義在筆記簿上抄寫重點。相較之下，如今的教室就像一個小型電腦實驗室，學生們都全神貫注地看著平板電腦或手機螢幕。科技重塑了我們生活的不同範疇，教學亦不例外。我們一直採用（理大亦一直鼓勵）不同的教學策略，吸引學生的注意力（並保持課堂的出席率），為他們帶來豐富的學習體驗，同時提高整體教學效果。然而，雖然這些方法和授課方式不斷轉變，我對教育的核心信念仍然沒有改變。

根據我作為學生和老師的經驗，我相信當學生對某學科真正產生興趣時，他們都會表現得極為投入。與一般圍繞抽象理論和基本定律的傳統基礎科學不同，食品科學將生物學、化學和物理學與營養、食品安全和產品開發等實際應用互相融合。而這種融合在抽象的科學概念和日常生活之間架起了一座有形的橋樑，令教學內容更具相關性和啟發性。為了培養出這種學習環境，我經常使用現實生活例子來令我的教學內容變得豐富，清晰和簡化複雜的思路，以幫助學生了解課本知識如何於現實世界中應用。例如，在教授食品安全時，我會參考食源性疾病爆發的最新消息或解釋常見食品背後的科學原理。我相信在科學教育中使用相關的例子十分重要，這不僅可以激發好奇心，還可以幫助學生熟習一些重要理論並將其應用於解決問題和創新。

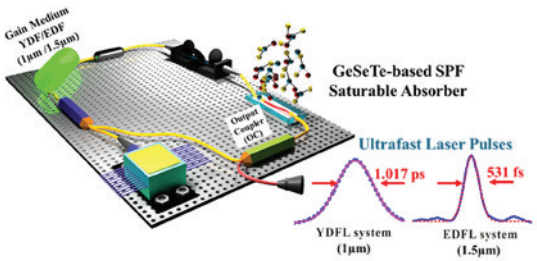
我認為教學是一個雙向的過程——一個讓導師與學生一同成長的旅程。我不會單方面不停授課，而是鼓勵學生互相學習，提出自己的觀點和問題。為了培養這種互動性，我在傳統授課之外還加入了一些案例討論、UReply 和 MS Forms 等互動元素。這些工具都有助營造一種讓學生感到安全並有動力發表意見的課堂氣氛。這種互動不單有利於他們的學習，還可以讓我得知需要加以解釋或澄清的地方，讓我能夠調整方法滿足學生的求學需求。

在科學教育的世界裡，大部分學習都是在課室以外進行的。在實驗室裡，學生可以獲得實戰經驗，並將科學概念實踐其中。當中，我會展示實驗技巧，觀察學生對科學原理的掌握，並提出問題來測試他們對理論的理解。這些觀察對於評估我的教學效果非常有價值。我還把握機會在實驗課期間和學生閒談，讓他們自由談論在學術上面對的困難、實習意向或工作計劃。這些都可以讓課堂體驗變得更加有趣，同時培養學生的歸屬感和參與感。

身為課程主任和學業指導，我非常重視與學生建立的關係。看著他們成長，慢慢克服挑戰、完成學業、然後在事業上取得成功，都是非常具意義的。教學是我的終生職業，這段旅程不僅可以培育學生，亦有助我個人和職業不斷成長。能夠有機會與他們一起學習和進步，我感激不已。

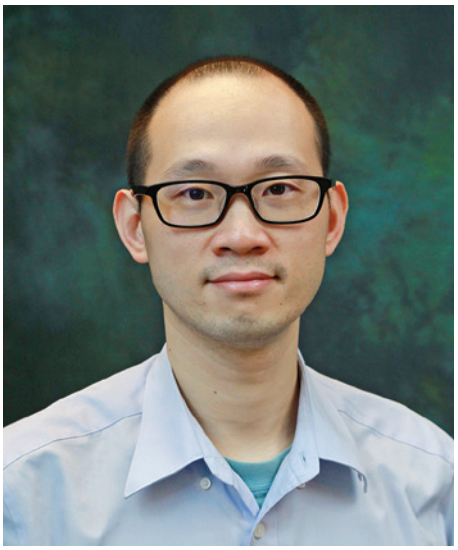
Interdisciplinary Research with Optics and Photonics

光學與光子學的跨學科研究



"Our research focuses on synthesizing, processing and characterizing low-dimensional materials, and applying them across various fields of optics and photonics.

我們的研究重點包括低維材料的合成、加工和表徵，並將其應用於光學與光子學等不同範疇。"



Prof. Tsang Yuen-hong, Peter
曾遠康教授
Professor,
Department of Applied Physics
應用物理學系教授

We are an interdisciplinary team specializing in material synthesis, characterization, and device fabrication for applications in lasers, photosensors and photothermal technologies. Our research focuses on synthesizing, processing and characterizing low-dimensional materials, and applying them across various fields of optics and photonics.

Our current research interests include:

2D Materials for Nonlinear Optics and Ultrafast Photonics:

Ultrafast lasers represent a remarkable advancement in photonics, with wide-ranging applications in precision micromachining, medical imaging, and spectroscopy. Their ability to generate extremely short pulses enables high-resolution imaging and advanced material processing, making them invaluable in both research and industrial settings.

Recently, two-dimensional (2D) materials have emerged as key contributors to the development of next-generation photonic devices. In our laboratory, we investigate the nonlinear optical (NLO) properties of 2D materials and leverage them to produce ultrashort laser pulses. Our recent research has focused on the NLO responses of 2D ternary GeSeTe nanosheets, which we have successfully employed as saturable absorbers. This approach has enabled the generation of ultrashort laser pulses with durations of 1.017 picoseconds and 531 femtoseconds.

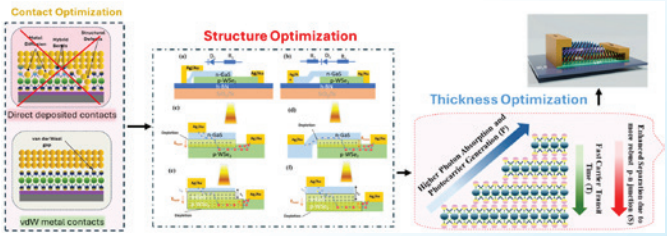
By harnessing the unique characteristics of these materials, we aim to further enhance the performance of ultrafast laser systems, paving the way for innovative applications in telecommunications, biomedical engineering and fundamental research.

Multivariate Optimization of Van der Waals Photodiodes for Multi-functional Optoelectronics:

Our research involves a multifactorial study of van der Waals (vdW) photodiodes. We analyze and compare key figures of merit, such as the power exponent (α) and recombination order (β), and investigate their evolution across multiple devices to achieve near-unity values in all vdW (a-vdW) devices. This demonstrates recombination-trapping resilience. In contrast, a similar device patterned using traditional lithography techniques

shows significant degradation, with the value of α decreasing to almost half. This suggests that most recombination-trapping and performance degradation occur at the metal-2D interface, supporting our argument for a renewed approach to contact integration strategies for 2D photodiodes.

Additionally, efficiency analysis, along with the measured Fermi-level alignment at the heterojunction of our a-vdW devices, highlights the importance of precisely engineered layer thicknesses to achieve a robust p-n junction. This balance is critical for optimizing photocarrier generation, recombination, separation, transport, and extraction. Furthermore, due to the excellent photovoltaic performance of the photodiode, it has been successfully utilized in demonstrating multi-band imaging applications, serving as both a single-pixel detector and a gate-tunable optoelectronic logic AND gate. This positions the device as a promising candidate for multi-functional optoelectronics.

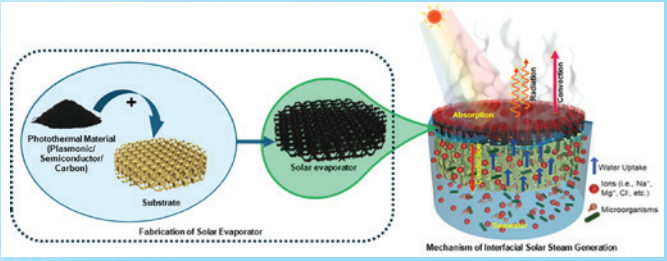


Photothermal Materials for Sustainable Water and Energy Solutions:

Our research focuses on synthesizing and analyzing the characteristics of various photothermal materials, including plasmonic, semiconductor-based, and carbon-based materials, to address real-world challenges. These materials have the ability to absorb sunlight and convert it into heat energy. We fabricate various types of solar evaporators by incorporating photothermal materials into porous substrates with low thermal conductivity. These solar evaporators float on the surface of water, efficiently absorbing a broad spectrum of sunlight and converting it into heat to evaporate seawater or wastewater at the air-water interface. The resulting vapor can then be condensed to produce freshwater.

Unlike conventional systems, this approach does not use thermal energy to heat bulk water from the bottom of the reservoir, significantly reducing heat loss and enhancing system efficiency. The solar-to-vapor generation efficiency of such systems often exceeds 80%. Furthermore, the system operates without the need for electricity, making it highly suitable for addressing the challenges of the water-energy nexus.

In addition, our group has developed a solar evaporator-based system capable of generating high-temperature steam for sterilizing medical equipment. These systems are not only cost-effective but also have the potential to contribute to a greener world by reducing carbon emissions.



我們是在激光、光傳感器與光熱應用方面致力研究材料合成、特性以及裝置製備的一支跨學科團隊，研究包括低維材料的合成、加工和表徵，並將其應用於光學與光子學等不同範疇。

目前的研究重點包括：

用於非線性光學與超快光子學的二維材料

超快激光器是光子學領域的一項重大突破，其應用範圍涵蓋精密微加工、醫學成像與光譜分析。憑藉其極短脈衝的獨特性，超快激光可產生出高分辨率成像與先進材料加工技術，讓它成為科研與工業應用方面不可或缺的工具。近年，二維（2D）材料為光子學裝置的研發帶來了不少突破。我們的實驗室更專注於利用2D材料的非線性光學（NLO）特性，研發出可用於超短激光脈衝技術的新材料。近期，我們為2D三元GeSeTe納米片的非線性光學反應進行了重點研究，成功將其用作可飽和吸收體，因而開發出1.017皮秒與531飛秒的超短脈衝輸出。透過發掘這些材料的獨特性質，我們進一步提升了超快激光系統的性能與功能，為通訊技術、生物醫學工程及基礎研究等領域的創新應用開闢了新道路。

多功能光電裝置范德華二極管的多元化改良研究

我們的研究主要圍繞范德華（vdW）光電二極管展開多重要素的分析。透過比較功率指數α、復合階數β等關鍵性能參數及其在多種裝置中的演變規律，我們成功為全范德華（a-vdW）裝置的各參數帶來接近的理想值，展現出對復合-陷阱效應的強耐受特性。相較之下，採用傳統光刻技術圖像化的同類裝置中，α值顯著降低至一半。這表明大多數複合捕獲和性能下降出現在金屬-2D界面處，亦驗證了我們提出有關2D光電二極體接觸集成策略的新方法之論點。

此外，效率分析以及我們在a-vdW裝置的異質接面處測量的費米能階排列的實測數據表明：透過精確調控材料的厚度，可帶來穩定的p-n結，從而為光生載流子的生成-復合、分離、傳輸與提取過程帶來了關鍵的平衡性。此外，由於光電二極體具有優異的光伏性能，它已成功用於演示多波段成像應用，既可用作單像素探測器，亦可用作閘極可調的光電邏輯與閘，讓它有機會成為多功能光電子裝置的理想組成部份。

用於可持續水源與能源解決方案的光熱材料之研究

我們的研究重點包括合成並分析各類光熱材料（等離子體、半導體和碳基材料）的特性，以解決實際應用的挑戰。這些材料可以吸收陽光並將其高效地轉化為熱能。透過將光熱材料融入低導熱率的多孔基板上，我們製作出多種太陽能蒸發器。這些太陽能蒸發器可漂浮於水面，透過吸收寬譜太陽光並將其轉化為熱能，在空氣-水界面處直接蒸發海水或廢水，產生的蒸汽經冷凝後可轉化成淡水。與傳統系統不同，這種技術無須從儲水池底部加熱，從而大幅降低熱量損失，並使光熱轉換的效率大幅提升至80%以上。此外，系統全程無須電力或使用昂貴的聚焦光學元件即可運作，非常適合用於水淨化和太陽能轉換等應用。

此外，我們團隊還開發了可用於醫療設備消毒的太陽能高溫蒸發器，其不僅具有成本效益，還可以減少碳排放量而帶來更綠色的未來。

Event Updates 活動預告

PolyU Summer Institute 2025
2025 理大暑期學院
21 – 25 July 2025, PolyU

PolyU Global Engagement Office will organise a series of engaging activities for secondary school students during PolyU Summer Institute 2025 on 21-25 July. These events are designed to provide the participants with a glimpse into the vibrant student life at PolyU. The Faculty of Science will be offering inspiring workshops, during which students will have the opportunity to explore our state-of-the-art teaching and learning facilities. Participants will engage in practical, hands-on session to conduct experiments and lab works to know more about our research facilities.

理大環球事務處將於7月21日至25日舉行2025理大暑期學院，為中學生舉辦一系列精彩活動，親身體驗理大充滿活力的校園生活。理學院將提供具啟發性工作坊，探索我們最先進的教學和學習設施。參與者將會參加實驗課程，進一步了解我們的研究設施。

PolyU Information Day 2025
理大資訊日2025
27 September 2025, PolyU

The Faculty of Science and its constituent departments will organise a series of information seminars, exhibitions, lab tours, and workshops for you to learn more about our programme details and offer consultation on programme selection on 27 September.

理學院及轄下的學系將於9月27日舉行的理大資訊日安排了一系列的講座、展覽以及實驗室導賞，讓同學掌握本科生課程的最新資訊，並提供選課輔導。

Faculty Staff 學院教學及科研人員

BOCHK Science and Technology Innovation Prize 2024	**Prof. Chai Yang,** *Assoc. Dean of FS and Chair Professor of Semiconductor Physics, AP*
Highly Cited Researchers 2024 by Clarivate	**Prof. Chai Yang,** *Assoc. Dean of FS and Chair Professor of Semiconductor Physics, AP* **Prof. Huang Haitao,** *Professor, AP* **Prof. Loh Kian-ping,** *Chair Professor of Materials Physics and Chemistry, AP* **Prof. Tom Tao Wu,** *Chair Professor of Frontier Materials, AP* **Prof. Yan Feng,** *Chair Professor of Organic Electronics, AP*
HKSTP Incubation Programme 2025	**Prof. Zhang Xuming,** *Associate Head & Professor, AP* **Dr Chai Yao,** *Postdoctoral Fellow, AP* **Dr Tsoi Chi-chung,** *Postdoctoral Fellow, AP* **Dr Xie Fengjia,** *Postdoctoral Fellow, AP*
Institute of Electrical and Electronic Engineers (IEEE) Fellow Class of 2025	**Prof. Chai Yang,** *Assoc. Dean of FS and Chair Professor of Semiconductor Physics, AP*
President's Awards for Outstanding Achievement 2024 – Research and Scholarly Activities (Outstanding Young Researcher)	**Prof. Kathy Leng Kai,** *Assistant Dean of FS and Assistant Professor, AP*

The 50th International Exhibition of Inventions Geneva

Gold Medal with Congratulations of the Jury	**Prof. Yan Feng,** *Chair Professor of Organic Electronics, AP*
Gold Medal	**Dr Zhou Liping,** *Research Assistant Professor, ABCT*

Faculty Students 學院學生

Outstanding Students Award 2024

- Faculty
- Department

Chen Zihao, *Undergraduate Student of ABCT*
Hou Tianrun, *Undergraduate Student of AP*
Liu Man, *Undergraduate Student of FSN*

Presidential Student Leadership Award 2024

- Faculty
- Department

Shen Tianwei, *Undergraduate Student of AP*
Khan Basil, *Undergraduate Student of ABCT*
Yuan Bo, *Undergraduate Student of FSN*

International Genetically Engineered Machine (iGEM) 2024 Grand Jamboree

Gold Medal and Top 10 Undergraduate Team

Au Hiu-yeung, *Undergraduate Student of ABCT*
Chan Yin-yan, *Undergraduate Student of ABCT*
Deng Qiwen, *Undergraduate Student of ABCT*
Hu Xinrui, *Undergraduate Student of ABCT*
Li Pinxuan, *Undergraduate Student of ABCT*
Li Xiangyi, *Undergraduate Student of ABCT*
Liu Chenyi, *Undergraduate Student of ABCT*
Sun Jiayan Eurus, *Undergraduate Student of ABCT*
Swastika Chapagain, *Undergraduate Student of ABCT*
Zhu Siya, *Undergraduate Student of ABCT*
Muhammad Waris Shaikh, *Undergraduate Student of EEE*

Long Service Awards 2024 長期服務獎2024

FS

Ms Ada Poon, *Senior Executive Officer*

ABCT

Prof. Zheng Zijian, *ADoRI-IWEAR, ADoUMF & Chair Professor of Soft Materials and Devices*
Prof. Chua Song-lin, *Assistant Professor*
Prof. Franco Leung, *Assistant Professor*
Dr Tao Peng, *Research Assistant Professor*
Dr Yang Xian, *Research Assistant Professor*
Dr Zhang Miao, *Research Assistant Professor*
Dr Susan Ho, *Senior Lecturer*
Dr Wang Yong, *Research Fellow*
Dr Du Ruolan, *Postdoctoral Fellow*
Dr Zhang Xiaozhe, *Postdoctoral Fellow*
Mr Ho Chi-man, *Technician*
Ms Teo Tuang-ngo, *Technician*
Mr Tony Chung, *Assistant Technical Officer*
Mr Alex Chan Chung-yan, *Programme Officer*

AP

Prof. Zhang Xuming, *Assoc. Head & Professor*
Prof. Loh Kian-ping, *Chair Professor of Materials Physics and Chemistry*
Prof. Lam Chi-hang, *Professor*
Prof. Tsang Yuen-hong, *Professor*
Prof. Cai Songhua, *Assistant Professor*
Prof. Li Mingjie, *Assistant Professor*
Dr Jim Kwok-lung, *Senior Lecturer*
Mr Vincent Lam Kwan-ho, *Information Technology Officer*
Mr Cheng Wang-fai, *Scientific Officer*
Ms Tiffany Wong, *Executive Officer*
Miss Titus Au, *Assistant Officer*
Miss Vivian Wong, *Executive Assistant*
Miss Chan Chi-yan, *Clerk*

FSN

Prof. Wu Jian-yong, *Research Professor*
Prof. Zhu Yuyan, *Assistant Professor*
Dr Poon Chui-wa Christina, *Research Assistant Professor*
Dr Marcus Wong, *Lecturer*
Dr Siu Ka-chai, *Scientific Officer*
Ms Maggie Yeung, *Executive Officer*

Wun Ching-kit 尹證傑

– Doctor of Philosophy, Department of Applied Biology and Chemical Technology
Graduate of BSc (Hons) in Chemical Technology

The BSc (Hons) in Chemical Technology programme at the Faculty of Science provided me with a strong foundation in chemistry. My passion for the field was ignited during my final year project, which led me to join Prof. Benedict Lo's research team and explore chemistry and materials science more deeply. During my PhD, I focused on the design and synthesis of porous materials. With support from the Faculty and our research team, I conducted advanced research at synchrotron facilities in Taiwan and Japan, investigating the structural and functional properties of these materials. These experiences significantly broadened my academic perspective and gave me a competitive edge in materials science. To address critical challenges in catalysis and industrial applications, I undertook an internship at Sinopec in Shanghai, where I worked on biomass conversion catalysis using my synthesised catalysts. This opportunity to collaborate with industry experts provided valuable insights into practical applications and deepened my understanding of real-world challenges.

理學院的化學科技（榮譽）理學士課程為我的化學研究奠定了堅實的基礎。我的學士畢業專題研習激發了我的熱情，吸引我加入勞子桓教授的研究團隊，讓我能深入地探索化學和材料科學。在攻讀博士學位期間，我專注設計和合成多孔材料。在理學院和研究團隊的支持下，我在台灣和日本的同步輻射設施進行研究，利用先進技術探索這些材料的結構和功能特性。這些經歷都拓寬了我的視野，並為我在材料科學領域上提供了競爭優勢。為了解決催化過程以及工業應用等挑戰，我在上海的中石化公司實習，利用我合成的催化劑進行生物質轉化催化。當中讓我有機會與行業專家合作，並在實際應用方面獲取了不少寶貴的見解，令我更加理解現實所面對的挑戰。

Yuan Bo 袁博

– BSc (Hons) in Food Safety and Technology,
Department of Food Science and Nutrition

Studying for the BSc (Hons) in Food Safety and Technology programme has been a transformative journey. Beyond acquiring knowledge, I have discovered a deep passion for safeguarding food quality and public health. Every class, lab session and discussion has taken on greater meaning, shaping my perspective and strengthening my commitment to this field. Furthermore, exchange experiences at NUS and Cambridge have broadened my global outlook, allowing me to appreciate diverse approaches to food science and safety. More than just academics, PolyU and the Faculty have given me lifelong friendships, invaluable mentorship, and a genuine sense of belonging—all of which have played a key role in my personal and professional growth. As a result, these years have taught me resilience, curiosity, and the importance of contributing to society. As I move forward, I will carry with me the lessons and values nurtured here, constantly striving to make a meaningful impact in the world of food science.

修讀食品安全與科技（榮譽）理學士課程是我人生中一段極具啟發性的旅程。我不僅學習了專業知識，更加深了對食品安全與公共健康的關注與熱愛。每一堂課、每一次實驗、每一場討論，都讓我對這個領域有了更深刻的理解，也令自己的選擇更加堅定。我曾在新加坡國立大學與劍橋大學交流，當中的經歷更讓我從國際角度去重新審視食品科技的發展。理大和理學院不僅是一所學府，更是我的成長搖籃——這裡的師長與同學一直給予我無限支持，亦讓我感受到家的溫暖。期間，我學會了堅持、求知與回饋社會的重要性。未來，我將懷著理大和理學院賦予我的知識與信念，努力為食品科技領域帶來正面的影響。

Nazarbay Nurdaulet

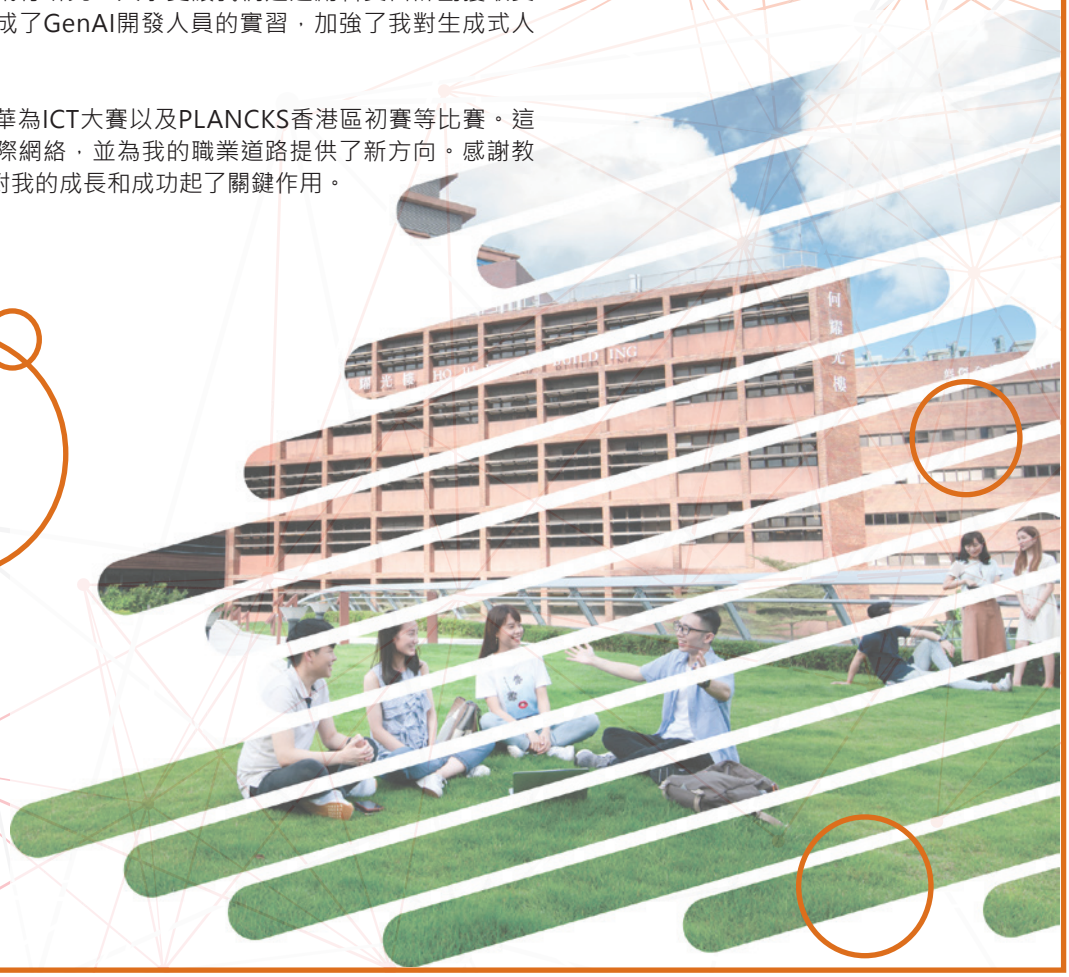
– BSc (Hons) in Physics with a Secondary Major in Artificial Intelligence & Data Analytics (AIDA), Department of Applied Physics

Enrolling in the BSc (Hons) in Physics with a Secondary Major in Artificial Intelligence & Data Analytics (AIDA) programme has significantly influenced my academic and professional journey. The Faculty offers extensive opportunities and resources for career development. In particular, PolyU encourages undergraduate students to engage in research, both within the university through the Undergraduate Research and Innovation Scheme (URIS) and externally. As a result, this summer, I am participating in the Mitacs Globalink Research Internship at Carleton University, focusing on wind prediction and safe UAV flights. The university also supports industry internship experience through STEM Internship Scheme. Last summer, I completed an internship as a GenAI developer, which further strengthened my understanding of generative AI.

Beyond academics, I have participated in competitions such as the Huawei ICT Competition and the Preliminary for Physics League Across Numerous Countries for Kick-ass Students (PLANCKS) in Hong Kong. These experiences have expanded my network and provided new perspectives on my career path. I am grateful for the support and guidance from my professors, which have been instrumental in my growth and success.

攻讀物理學（榮譽）理學士副主修人工智能及數據分析對我的學術和職業生涯帶來了重大的影響。理學院為我們的職業發展提供了大量的機會和資源。當中，理大鼓勵本科生透過本科生科研計劃參與校內研究，以至校外科研項目。今年夏天，我還準備參加Mitacs Globalink研究實習計劃，在卡爾頓大學進行風預測和無人機安全飛行研究。大學更讓我們透過創科實習計劃獲取實踐經驗。我在去年夏天完成了GenAI開發人員的實習，加強了我對生成式人工智能的認識。

除了學術外，我還參加了華為ICT大賽以及PLANCKS香港區初賽等比賽。這些經歷不僅拓展了我的人際網絡，並為我的職業道路提供了新方向。感謝教授們的支持和指導，他們對我的成長和成功起了關鍵作用。



PolyU SCIENCE Young Talents Competition 2025
理大科學青年人才比賽2025

The final round of the PolyU SCIENCE Young Talents Competition 2025 was successfully held on 29 March 2025. Out of over 200 participating teams in the preliminary round, 40 outstanding teams advanced to the final round and gathered on campus to participate in a series of exciting and challenging science experiments at advanced research facilities at PolyU to compete for the championship. The award presentation ceremony was held on the same day to announce the winners and conclude the event.

We sincerely congratulate all the winning teams on their outstanding achievements and extend our heartfelt gratitude to all participants from both the preliminary and final rounds. We also deeply appreciate the invaluable support from the secondary schools and PolyU judging panel, which made this event such a remarkable success!

「理大科學青年人才比賽2025」決賽於2025年3月29日圓滿舉行！經過首輪與超過二百隊參賽隊伍激烈角逐，40強精英隊伍順利誕生，於理大校園進行精彩決賽。決賽中，參賽隊伍於理大的先進實驗室中挑戰了一系列既有趣又具挑戰性的科學實驗，爭奪最終的冠軍寶座！頒獎典禮於同日舉行，並即時公佈得獎隊伍名單。

再次恭賀所有獲獎隊伍，並衷心感謝所有參與了預賽和決賽的同學。我們亦感謝各參賽學校及理大評審團的鼎力支持，使本次比賽得以順利進行。

Details of Winning Teams
優勝隊伍名單詳情

Event Video
比賽影片

PolyU Science Creates Impact 理大科學 探理創新

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