



Faculty of
Applied Science & Textiles
應用科學及紡織學院

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Opening Minds • Shaping the Future • 啟迪思維 • 成就未來

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Welcome to the ninth issue of the FAST Newsletter!

Another year is coming to an end. To FAST, the year 2021 is challenging but fabulous and fruitful. Despite all the adversities, we keep delivering high-quality education to our students and advancing research development. Switching from remote to hybrid teaching, and welcoming more students to return to campus, we have made tremendous effort to connect with our students and sustain effective learning experiences.

The excellent results of Research Assessment Exercise 2020 also showcased the FAST community's collective efforts, proving the quality of our research work "world-leading" and "internationally excellent". We highly appreciate our colleagues for their contributions and research endeavours.

Please join me in congratulating two exceptional FAST scholars, Prof. Hao Jianhua of the Department of Applied Physics and Prof. Zheng Zijian of the Institute of Textiles and Clothing, on their conferment of the RGC Senior Research Fellows (2021/2022) to recognize their outstanding research achievements and significant contributions to the higher education sector.

FAST is always supported by professional faculty members

歡迎閱讀應用科學及紡織學院第九期學院通訊！

轉眼間，又一年來到尾聲。對於本院來說，2021年是既富挑戰性、又精彩美滿的一年。我們雖然面對重重難關，但仍致力為學生提供優質的教育，並積極推動科研的發展。學院由遙距教學轉為以混合模式授課，讓更多學生能重返校園上課，當中我們付出了莫大的努力來與學生保持密切的連繫，並維持有效的教學。

除此以外，本院研究人員在「2020年研究評審工作」(RAE2020)中亦共同取得耀眼的成果，證明了我們的科研工作「世界領先」和「國際卓越」的。我們非常欣賞一眾研究人員所作出的重大學術貢獻、以及在研究方面的努力不懈。

讓我們一同祝賀應用物理學系郝建華教授和紡織及服裝學系鄭子劍教授獲授予2021/22年度研資局高級研究學者名銜，以表揚這兩位傑出學者的出色研究成就及對高等教育的卓越貢獻。

本院一直有賴各成員的堅定支持，才能不斷提升教學活動和研

who are committed to enhancing the quality of our teaching and research activities. I am delighted to introduce Dr Chai Yang of the Department of Applied Physics as the new Assistant Dean (Research) of the Faculty. Dr Chai will continue to support the Faculty's research initiatives for future developments. Meanwhile, our Associate Dean (Research) Prof. Wong Man-sau has been appointed as the Director of the new Research Centre for Chinese Medicine Innovation (RCMI), which is dedicated to fostering basic, applied and translational researches on Traditional Chinese Medicine.

Last but not least, I would also like to take this opportunity to congratulate over 950 graduates who were presented with academic awards in our 27th Congregation. I am sure that they are ready to embark on new journeys, and I would like to send my warmest congratulations again on their achievements and all my very best wishes for what comes next.

Thank you for reading and may 2022 be an extraordinary year!

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

究工作的質素。而我非常高興應用物理學系的柴揚博士能夠出任學院的助理院長(研究)。柴揚博士會繼續支持學院的研究計劃，讓我們日後的科研發展能更上一層樓。另外，學院的副院長(研究)黃文秀教授亦獲委任為「中醫藥創新研究中心」的總監，這所新成立的研究中心將推動傳統中醫藥的基礎、應用及轉化研究。

最後，我希望藉此機會恭喜在第27屆畢業典禮上修畢所讀課程的逾950位畢業生。我相信一眾優秀的畢業生已準備好開展一段新旅程，而我在這再一次恭賀各位應屆畢業生，衷心祝願大家前程似錦！

謹祝大家2022年新年快樂，生活愉快！

應用科學及紡織學院院長
歐雪明能源教授及化學科技講座教授
黃維揚教授

Gut Microbiota for Human Health

– Interview with **Dr Chiou Jiachi, Amber**
Assistant Professor, Department of Applied Biology and Chemical Technology

The microbial consortium in the gut is considered as a “forgotten organ” as emerging evidence has implied its important role in human health. Microbial interactions in the gut are mediated by dietary substrates, understanding the factors that guide microbiome development and composition is important to determine its role in health and in the intervention of the gut microbiome as a therapeutic tool.

Dr Chiou Jiachi, Amber, Assistant Professor of the Department of Applied Biology and Chemical Technology, has been working on gut microbes, particularly the beneficial

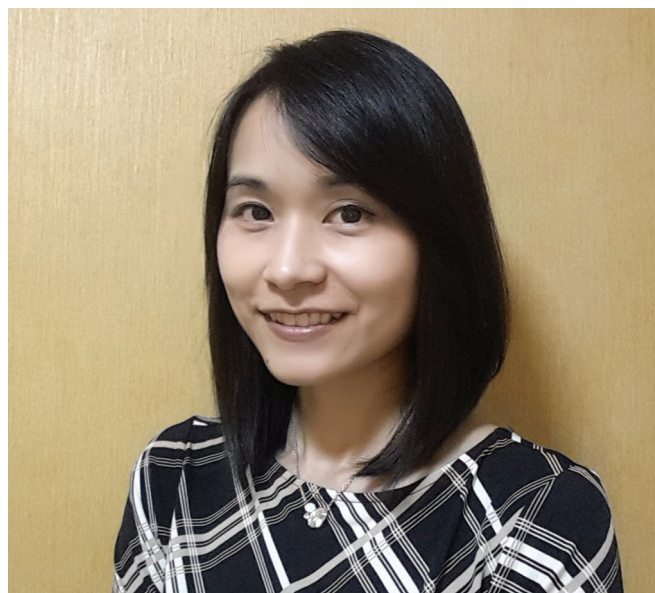
microorganisms, to find out their potential roles on metabolic syndromes and infant health.

Experiments are conducted on animals with metabolic syndrome, including essential hypertension and diet-induced hypertension. Robust dynamic relations have been found between the bacteria and metabolic response, suggesting that alterations in microbial composition, abundance, and activities in the gut were mainly explained by metabolic interactions.

Mother-infant cohorts have been recruited to explore the potential roles of breastfeeding and selection of formula supplemented with probiotics and/or prebiotics on the development of the infant gut microbiome. Dr Chiou's experiments also include studying the impact of early life nutrition on the development of the infant gut microbiome.

Anti-inflammatory effects were found suggesting that the re-balancing of microbial groups in human's gastrointestinal tract can lead to the treatment or improvement of metabolic syndrome while the high abundance of immune-modulating bacteria in the gut may help with the immune system development of infants.

Though it is still in progress, her study helps us to understand more on how microbial consortium is vital in human health including immune response, metabolic development, and neurological homeostasis. Her findings will also contribute to the solution of some metabolic diseases such as hypertension or even obesity.



腸道菌群對人體健康的影響

— 邱家琪博士專訪
應用生物及化學科技學系助理教授

越來越多證據顯示腸道微生物群與人體健康有著密切的關係，有人因此稱它們為「被遺忘的器官」。食物可調節腸道微生物之間的相互作用，假如要找出微生物群對人體的健康上起著什麼作用，以及如何調節腸道微生物群以達到治療效果，我們便必須先了解可影響微生物群發展和組成的因素。

應用生物及化學科技學系助理教授**邱家琪博士**一直從事與腸道微生物有關的研究工作，並以有益微生物為主要研究對象，從中了解它們對代謝綜合症及嬰兒健康可能產生的影響。

研究以患有代謝綜合症（包括原發性高血壓及由膳食誘發的高

血壓）的動物為實驗對象，其中發現細菌和代謝反應之間有著密不可分的動態關係，換言之腸道微生物群與人類代謝相互作用是改變腸道微生物組成、數量和活動的主要因素。

研究亦招募了多對母嬰來探討餵哺母乳和選擇添加了益生菌及 / 或益生元的配方奶粉，對嬰兒腸道微生物群生長可能產生的作用。此外，邱博士的實驗亦研究生命早期的營養狀況，會如何影響嬰兒腸道微生物群的生長。

研究發現腸道微生物群具有抗炎效果，意味著只要重新平衡人體腸胃中的失衡微生物群，便能治療或改善代謝綜合症，同時假如腸道中含有大量具有免疫調節功能的細菌，則或有助促進嬰兒免疫系統的發展。

雖然邱博士的研究仍有待完成，但已有助我們更加了解微生物群對人體健康有多重要，其中包括免疫反應、代謝發展和神經平衡。另外，她的發現亦將有望為一些代謝疾病（如高血壓甚至肥胖）提供解決方案。

Mathematics in Quantum Error Correction

– Interview with **Dr Sze Nung-sing, Raymond**
Associate Professor, Department of Applied Mathematics

Quantum information science is an emerging field, combining and drawing on the disciplines of physics, mathematics, computer science, and engineering, for the purpose of understanding how specific fundamental laws of quantum mechanics can be harnessed to improve the storage, transmission, and processing of data.



However, major challenges are found as quantum channels, the medium in which quantum information is transmitted, are vulnerable to disturbance from the external environment, which will lead to decoherence and inefficiency in the system during data transmission, where error occurs.

The study of **Dr Sze Nung-sing, Raymond** Associate Professor of the Department of Applied Mathematics, is to understand the mathematical framework of quantum error-correcting code for quantum systems by referencing Hilbert space theory, the theoretical basis of quantum mechanics that has been found a century ago, and to protect quantum information from errors due to decoherence and other quantum noise during transmission.

Dr Sze's approach is to build mathematical techniques and tools so as to establish some new theoretical results or improve the existing frameworks, such as altering the way of physical transformations between sets of quantum states, and constructing simple encoding and decoding quantum circuits that increase the efficiency of data transmission in quantum channels.

Though claimed by Dr Sze that his study is still way far from commercialization and his work is mainly theory-based, his research indeed gives engineers the chance to understand different phenomena and build better quantum devices. The best practical case will be the building of quantum computers which run quantum algorithms that solve more complicated problems much more efficiently than conventional digital computers.

量子糾錯中的數學

— **施能聖博士**專訪
應用數學系副教授

量子資訊科學是一門新興的科目，當中結合了物理學、數學、電腦科學和工程學，藉此讓我們了解如何利用量子力學的特定基本定律，來提升數據儲存、傳送及處理的能力。

然而，作為一個傳遞量子資訊的媒介，量子通道很容易受到外在環境干擾，並因此會令系統在數據傳送過程中出現相位失調和效率欠佳的問題，繼而導致錯誤發生。這是目前研究這門學科所面對的難題之一。

這項由應用數學系副教授**施能聖博士**進行的研究，目的是

透過希爾伯特空間理論，了解量子系統中量子糾錯碼的數學框架；以及避免在傳送時因相位失調及其他量子噪音而令量子資訊發生錯誤。

施博士透過研究各種數學技巧和工具以建立一些新的理論成果或改善現有的框架，例如改變量子態集之間的物理轉換方式，以及建構一些簡單有效的編碼和解碼量子電路，提升量子通道中的數據傳送效率。

雖然施博士認為他的研究以理論為主，在商業層面上的應用還有一段距離，但無疑它能让工程師有機會了解不同的現象，以及研發更優質的量子設備。其中最理想的實際用途就是建造比傳統數碼電腦更具效率的量子電腦，以透過執行量子計算法來解決更為複雜的問題。

Microfluidics for Artificial Photosynthesis: Making Food from CO₂ and Sunlight

– Interview with **Dr Zhang Xuming**
Associate Professor, Department of Applied Physics

Artificial methods for increasing the yield of food crops have been a hot area of research. Photosynthesis is still the fundamental of how crops interact with the substantial environment and the Mother Nature plays a significant role in the process. However, natural photosynthesis (NPS) has a very low energy efficiency (typically <1%) in producing sugars and starch in plants. Three major limiting factors are the waste of solar energy in the green light being reflected by chlorophylls, low concentration of CO₂ in the atmosphere (~420 ppm), and the low activity and poor specificity of central enzyme in NPS (D-ribulose-1,5-bisphosphate carboxylase/oxygenase (RuBisCO)).

Dr Zhang Xuming, Associate Professor of the Department of Applied Physics, is developing artificial photosynthesis systems (APS) to convert CO₂ into glucose precursors, which could be further processed into food materials.

In his research, multiple microfluidic platforms mimicking the NPS pathway with scalable microreactors have been built to streamline the light capturing and enzymatic reactions. Visible-absorbing semiconducting photocatalysts (e.g. C₃N₄, Cu₂O, Au/TiO₂) have been used to replace chlorophylls for better utilization of solar light and higher durability. He also uses NaHCO₃ solution to obtain higher CO₂ concentration. Dr Zhang also discovered that the performances of RuBisCO are significant in enhancing enzyme stability and reusability that energy efficiency and enzyme activities can be greatly

improved with the use of a very limited amount of RuBisCO.

Instead of increasing the yield of food crops, the aim of Dr Zhang's research is to create a self-sustained ecosystem in a closed environment that, food production under artificial scenarios will become feasible even in adverse environments like manned space station where has limited sunlight, and even make plantations possible in less favourable natural conditions.



用於人工光合作用的微流體技術：利用二氧化碳和太陽光生產食物原料

— **張需明博士**專訪
應用物理學系副教授

利用人工方法來增加糧食作物的產量，一直以來都是研究的熱點。而光合作用在農作物生產中，扮演著不可或缺的角色。然而，在植物產生糖和澱粉的過程中，自然光合作用的能量效率非常低（約1%）。限制因素主要有三個，分別是葉綠素將太陽中的綠光散射回去，浪費了綠光的能量；大氣中的二氧化碳濃度很低（~420 ppm）；以及在天然光合作用中，關鍵型的催化酶（D-核酮糖-1、5-二磷酸羧化酶 / 加氧酶，簡稱RuBisCO）的活性和特異性較低。

應用物理學系副教授**張需明博士**開發了人工光合作用系統，以將二氧化碳直接轉化成可進一步加工為食品基本原料的葡萄糖前體。

張博士在研究中建造了多個能模擬天然光合作用的微流體平台，其中配備了可擴展的微反應器，以簡化捕光和酶催化反應。研究採用了能夠吸收可見光的半導體光催化劑（例如C₃N₄，Cu₂O，Au/TiO₂）來代替葉綠素，不僅能充份利用太陽光，亦更持久耐用。此外，張博士亦使用NaHCO₃溶液來獲得更高濃度的二氧化碳，並在研究裡發現一步合成法，將RuBisCO固著到光催化劑上，可大幅提升酶的穩定性及重複使用性。只需使用非常少量的RuBisCO，便足以顯著提升能量效率和酶活性，連續將CO₂轉化為葡萄糖前體。

張博士的研究目標並非是要提升糧食作物的產量，而是希望在一個封閉的環境內，建造一個能夠自行持續運作的生態系統。即使在天然條件欠佳的高原、沙漠、遠海、載人太空站等環境下，亦能夠以人工方式生產糧食原料。

Auxetic Textiles: A Novel Class of Textile Materials with Negative Poisson's Ratio

– Interview with **Prof. Hu Hong**
Professor, Institute of Textiles and Clothing

Auxetic textiles, a category of fiber-based materials that possess nonconventional properties including double curved shape under bending, high indentation resistance, high energy and vibration absorption capabilities, have been widely applied in garments for such functions as impact protection, medical care and smart wearable devices, and so forth.

Having a negative Poisson's ratio, auxetic textiles tend to expand in all directions when stretched, and shrink when compressed, hence enabling high level of comfortability and flexibility, as well as possibilities when applied in clothing design.

Prof. Hu Hong in the Institute of Textiles and Clothing is a pioneer in the field. He has successfully invented a series of auxetic materials, including auxetic yarns, auxetic fabrics and auxetic textile composites by altering the structures of fibers using different types of textile technologies including yarn spinning, knitting, weaving and braiding.

As the newly invented auxetic materials were originated from the laboratory, challenges were found in the initial stage of the real manufacturing environment. The lack of equipment to produce commercial auxetic materials, which have a more complex fiber assemble structure, had inspired Prof. Hu to develop new equipment himself.

Also, the manufacturing processes for his new invention had to be specially designed as there had been no similar process

that could be referenced. The limited production capability in the initial stage has lead to shortage of supply of usable auxetic textiles, restricting mass production of commercial end-use products.

The research team is gaining experience in auxetic textiles production, commercialization of more high quality auxetic textiles has been made available, and Prof. Hu's inventions have been applied in medical care, sports, functional and protective clothing, and wearable technology, etc.



透過採用包括紡紗、針織、機織和編織等不同類型的紡織技術來改變纖維集合體的結構，研發出一系列拉脹物材料，包括拉脹紗線、拉脹布料和拉脹紡織複合材料。

由於這些新開發的拉脹物料都是源自實驗室，在生產初期，團隊遇到不少挑戰，包括缺乏能商用、具有複雜的纖維結構的拉脹紡織物生產設備。然而，這些挑戰最終啟發了胡教授自行研發新的生產設備。

此外，由於市場上並無類似的生產工藝可供參考，因此生產拉脹物料的過程必需經過專門設計。初期因產能有限，導致可用拉脹紡織品供應短缺，限制了商業終端產品的大規模生產。

目前，隨著研究團隊累積了更多實際的生產經驗，他們已推出了更多適合商用的優質拉脹紡織品，同時胡教授的研究亦已經應用於醫療、運動、功能性及防護性服裝，以及可穿戴的科技產品等範圍。

拉脹紡織品：一種具有負泊松比的新型紡織材料

— 胡紅教授專訪
紡織及服裝學系教授

拉脹紡織品是一種擁有非傳統特性的纖維性材料，它彎曲時會呈現雙曲線形狀，以及具備高抗凹壓、高能量及震動吸收的能力。這種材料獲廣泛應用於紡織服裝中，例如功能性服裝、防撞設備、醫療護理儀器以及智能可穿戴裝置等。

將具有負泊松比的拉脹紡織品在拉伸時會向各個方向膨脹，擠壓時則會收縮。拉脹紡織品材料具有高度的舒適性和靈活性，可應用於服裝設計。

紡織及服裝學系 **胡紅教授** 是研究這類紡織材料的先驅。他



FAST Welcomes our New Dean

我們非常榮幸黃維揚教授於 2021 年 7 月 1 日起擔任應用科學及紡織學院 (FAST) 院長一職，而黃教授亦同時為應用生物及化學科技學系的化學科技講座教授。

作為一個國際知名的學者，黃教授曾榮獲多個獨具代表性的獎項，包括獲頒研資局高級研究學者名銜、裘槎基金會「優秀科研者獎」、國家自然科學獎二等獎、以及英國皇家化學會「過渡金屬化學獎」等。而在2014至2020年期間，他更連續七年獲湯森路透 / 科睿唯安選為「高被引學者」。黃教授除了在研究方面取得驕人的成就外，亦具備出色的管理才能，曾擔任多個領導職位，如浸大的化學系系主任、應用科學及紡織學院的副院長、以及理大智慧能源研究院的副總監。

關於將紡織及服裝學系升格為獨立學院的計劃，我們正在商討將應用科學及紡織學院改名為理學院，以進一步表現學院繼續推動開創性研究和知識創造的決心。黃教授指出：「應用科學及紡織學院自1992年成立以來，取得了顯著的進步。學院的重新定位，不僅有助維持其成長和聲譽，更能令學院的發展更上一層樓。隨著理大於2022/23學年開始全面推行「學系為本」組合課程收生，人工智能、數據分析、創新和創業等元素將會納入本科課程，務求幫助學生培養多元化的技能，提升自身的競爭力。同時，學院最近還負責領導新設立的未來食品研究院(RiFood)和智能可穿戴系統研究院(RI-IWEAR)及中醫藥創新研究中心(RCMI)，致力將卓越的研究成果轉化為社會效益。另外，為了促進知識轉移和鼓勵更廣泛的參與，學院推出FAST Research Insight 2021系列的短片，介紹不同研究項目的成就，並與我們的企業夥伴合作，共同舉辦參觀和交流等活動。所有付出的努力將提升我們的競爭力，以成為世界一流的知識中心去孕育更具影響力的研究、專業的教育和推動更多的知識轉移活動」。

而為了配合理大的策略方針和政策，學院亦曾與校長滕錦光教授會面，商討現時掌握的機遇、面對的挑戰和對未來的規劃。在新任院長黃教授的領導下，學院將會再攀高峰，續創佳績。

The Faculty is pleased to welcome Prof. Wong Wai-yeung, Raymond who has taken up the role of Dean of Faculty of Applied Science and Textiles (FAST) starting from 1 July 2021. Prof. Wong has concurrently been appointed as the Chair Professor of Chemical Technology in the Department of Applied Biology & Chemical Technology.

As an internationally renowned scholar, Prof. Wong has received multiple prestigious awards, such as RGC Senior Research Fellowship, Croucher Senior Research Fellowship, State Natural Science Award (Second-class), and RSC Chemistry of the Transition Metals Award. He was also listed as the "Highly Cited Researcher" by Thomson Reuters/ Clarivate in 2014-2020. In addition to achieving excellence in research, Prof. Wong has demonstrated his outstanding management skills and held a number of leadership positions, including Head of Chemistry Department in HKBU, Associate Dean of FAST and Associate Director of Research Institute for Smart Energy (RISE) in PolyU.

Regarding the plan of upgrading the Institute of Textiles and Clothing to an independent school, the renaming of FAST to the Faculty of Science is now under consultation to reinforce its commitment to groundbreaking research and knowledge creation. "FAST has made remarkable progress since its establishment in 1992. The repositioning of the Faculty is not just sustaining its growth and reputation, but taking the development of the Faculty to the next level. With the implementation of the departmental scheme-based admission from the 2022/23 academic year, the elements of AI, data analytics, innovation and entrepreneurship will be incorporated into our undergraduate curriculum to enhance students' competitiveness with diverse capabilities. Meanwhile, the Faculty has recently taken a role in leading the newly established Research Institutes for Future Food & Intelligent Wearable Systems, and Research Centre for Chinese Medicine Innovation to translate research excellence into societal benefits. To facilitate knowledge transfer and wider engagement, the Faculty also presented the FAST Research Insight 2021 video series and organized visits/ activities in collaboration with our industry partners. All these endeavours have allowed us to gain competitive advantages and become a world-leading hub of impactful researches, professional education and vibrant knowledge transfer activities." Prof. Wong said.

To align with PolyU's strategic priorities and policies, the Faculty also had a meeting with the President, Prof. Teng Jin-guang, to discuss its opportunities, challenges and future plans. Under Prof. Wong's new leadership, the Faculty will continue to scale new heights.



Departmental Scheme-based Admission

In line with the strategic development of PolyU, the Faculty will implement the departmental scheme-based admission starting from the 2022/23 academic year. Students under the new scheme-based admission will undertake common courses of the department in the first academic year and will select their majors in the second academic year. Such arrangement will provide students with a more flexible pathway for further learning and nurture students with diverse strengths to meet the needs of the future society. Programmes offered under the new departmental scheme-based admission in FAST are as follows:

- BSc (Hons) Scheme in Biotechnology, Food Safety and Chemical Technology (JS3010)
- BSc (Hons) Scheme in Data Science (JS3020)
- BSc (Hons) in Physics with a Secondary Major in AI & Data Analytics / Innovation and Entrepreneurship (JS3030)
- BA (Hons) Scheme in Fashion and Textiles (JS3492)

全面推行「學系為本」組合課程收生

為配合理大的發展策略，我們將由2022/23學年起推行學系組合課程收生。在新安排下，學生首學年將需修讀相關學系的共同核心課程，直到二年級才決定主修科目。這樣的安排將為學生提供更靈活的升學途徑及培養多元實力，以應對未來社會的需要。學院將設有以下課程：

- 生物科技、食物安全及化學科技(榮譽)理學士組合課程 (JS3010)
- 數據科學(榮譽)理學士組合課程 (JS3020)
- 物理學(榮譽)理學士副主修人工智能及數據分析 / 創新及創業 (JS3030)
- 服裝及紡織(榮譽)文學士組合課程(JS3492)

PolyU Info Day 2021



PolyU held its Undergraduate Info Day both face to face and online on 10 October 2021 to provide students with the latest information on its new departmental scheme-based undergraduate programmes. Our departments launched virtual exhibitions, programme seminars, consultation sessions and video sharing to introduce our diverse programmes. Many students attended the event to obtain updated admission information for pursuing their studies at FAST.

理大本科課程資訊日2021

理大於2021年10月10日舉行的理大本科課程資訊日以實體及網上形式進行，為有興趣報讀課程的學生提供「學系為本」組合課程收生的最新消息。我們各學系亦安排了豐富的活動及節目，包括虛擬展覽、課程研討會、諮詢環節和影片分享來介紹不同的課程。當天，許多學生參與了我們的活動，以取得有關在FAST升學的最新入學資訊。





FAST Workshop on Large External Grants
Online via Zoom

Part 1
Date: **25 June 2021, Friday**
Time: 2:30 pm to 4:30 pm
Host: Prof. WONG Man-sau
Associate Dean, FAST
Briefing on AoE/TRS & Faculty Support
Speaker: Prof. JIANG Liwen
School of Life Science, CUHK
(Project "Centre for Originative Biogenesis and Function" awarded AoE 2013/14 as PI)
Presentation Title: My Application of RGC Grants
Prof. CAO Jiannong
COMP, PolyU
(Project "Enhancing Human Perception Power in Construction Safety: A Digital Twin Approach" shortlisted TRS 2021/22 as PI)
Presentation Title: Experiences in writing large grant proposals

Part 2
Date: **9 July 2021, Friday**
Time: 2:30 pm to 4:30 pm
Host: Prof. WONG Man-sau
Associate Dean, FAST
Briefing on AoE/TRS & Faculty Support
Speaker: Prof. WANG Tao
CEE, PolyU
(Project "Photochemical air pollution in highly urbanized subtropical regions: from micro environments to urban-terrestrial-oceanic interactions" awarded TRS 2017/18 as PI)
Presentation Title: Some experience in TRS grant application
Prof. LAU Shu-ping, Daniel
AP, PolyU
(Project "2D Materials Research: Fundamentals Towards Emerging Technologies" awarded AoE 2020/21 as Co-PI)
Presentation Title: Lessons learnt from a funded A

Online Registration at <https://forms.gle/ozK9odPHJiUwP>
Enquiries: 2766 5057 / fast.enquiry@polyu.edu.hk

應用科學及紡織學院(FAST)定期舉辦工作坊和研討會，以鼓勵理大與其他院校的科研人員進行跨學科合作。

學院於2021年6月25日和7月9日舉辦了兩場外部資助研討會。該研討會旨在讓學院教職員更熟悉研究資助局的卓越學科領域計劃(AoE)和主題研究計劃(Theme-based Research Scheme)，並詳細介紹學院為教職和科研人員就這兩項資助計劃所提供的財務支持。學院非常榮幸邀請到4位講者進行演講，分別為來自中大生命科學學院的姜里文教授、理大電子計算學系曹建農教授、土木及環境工程學系王韜教授和應用物理學系劉樹平教授。他們與近70名FAST學術人員分享了申請這兩項重要研究資助的經驗，而參與者透過與講者們交流及討論，從講者們身上學習為準備項目提案所需的實戰技巧，獲益良多。

Research at FAST研討會系列是一個讓理大教職員認識本院科研人員的常規平台。該研討會系列鼓勵教職人員和研究生在會上積極互動、交流想法，務求推動跨學科的研究合作。於2021/22年度，該系列透過Zoom的形式舉辦八場網上研討會，涵蓋材料科學、藥物發現、大數據與人工智能、以及智能穿戴科技等四個研究課題。每場兩小時的研討會均會從四個學系中邀請三位有才華的年輕科研人員展示他們的研究成果。前三場的研討會已圓滿結束，共吸引了120多名教職員及學生參加，反應熱烈。我們期待在之後的研討會上與大家見面。

研討會的視頻和簡報已上傳至本院網站，歡迎參閱。

<https://www.polyu.edu.hk/fast/intranet/staff/>

The Faculty of Applied Science and Textiles (FAST) organizes regular workshops and seminars to encourage interdisciplinary collaborations between researchers in PolyU and other universities.

On 25 June and 9 July 2021, FAST organized two half-day workshops on Large External Grants dedicated for FAST researchers. The workshops aimed at helping colleagues get familiar with the RGC Areas of Excellence Scheme and Theme-based Research Scheme, as well as providing details of the financial support offered by the Faculty. It was honored to invite four speakers, including Prof. Jiang Liwen from the School of Life Sciences, CUHK, Prof. Cao Jiannong (COMP), Prof. Wang Tao (CEE) and Prof. Lau Shu-ping, Daniel (AP) from PolyU to share their experiences with nearly 70 academic staff from FAST in the two afternoons. The discussions were rewarding and positive feedbacks were received from the participants, who agreed that they had learnt highly useful techniques in preparing project proposals for the two large grants from the speakers.

Research at FAST Seminar Series is a regular platform for PolyU's colleagues to get to know FAST researchers. Colleagues and research postgraduate students are encouraged to actively interact and exchange ideas in the seminars, hoping that cross-disciplinary research collaborations could be nurtured. In 2021/22, eight seminars are scheduled to be delivered via Zoom, covering four research themes on Materials Sciences, Drug Discovery, Big Data and Artificial Intelligence, and Smart Wearable Technologies. For each 2-hour seminar, three young, talented researchers

from the four departments are invited to present their research outcomes. Over 120 staff and students have participated in the first 3 seminars. We look forward to seeing you in the upcoming seminars.

Videos and presentation materials of the workshops/ seminars have been uploaded to our Faculty website. Please feel free to visit the website for details.

<https://www.polyu.edu.hk/fast/intranet/staff/>



We are thrilled to receive the excellent results of **Research Assessment Exercise (RAE) 2020**. The area of “Physical Sciences” participated by the ABCT, AMA and AP was the best among the eight UGC-funded institutions. In collaboration with other departments, AP received outstanding ratings with the highest percentage of “world-leading” (4-star) and “internationally excellent” (3-star) ratings for the “Materials Science and Materials Technology”. Moreover, all the research impact case studies and research environment submissions on the “Creative Arts, Performing Arts & Design” area by ITC and SD were all judged to be “world-leading” (4-star), which was also the best performance in this area among all UGC-funded institutions. The remarkable outcome of RAE 2020 has proven our commitment to strive for research excellence.

我們很高興能於「2020年研究評審工作」(RAE2020)獲得優異成績，其中應用生物及化學科技學系、應用數學系及應用物理學系就「自然科學」所提交的研究個案更是八大院校中表現最出色的。而應用物理學系亦與其他院系合作，在「材料科學及物料技術」獲得最高比例的「世界領先」(四星)及「國際卓越」(三星)。另外，紡織及服裝學系聯同設計學院於「創意藝術、表演藝術及設計」所提交的研究影響個案及研究環境單位全部獲得四星評價，為八大院校之冠。本院在RAE 2020中的優秀表現，充分證明了各成員致力追求卓越的研究成果。

Dr Leung King-chi, Franco (ABCT) was awarded HK\$5 million from the **2021 Croucher Innovation Award** of the Croucher Foundation. Nature, as the source of inspiration to scientists, encodes numerous supramolecular assembled systems to perform sophisticated biological functions. The project aims to develop a research platform for the fabrication of novel biomimetic supramolecular soft functional materials with the smallest machine in the world, “artificial molecular machinery”. With this research approach, the photoresponsive soft materials with excellent biocompatibility can be produced to create advanced biomedical materials and facilitate related technological developments.

應用生物及化學科技學系助理教授梁敬池博士獲裘槎基金會頒發2021年度「裘槎前瞻科研大獎」，並獲得了500萬港元的資助。大自然作為科學家的靈感之源，創造了許多超分子組裝系統，用以執行複雜的生物功能。成立此項目的目的是為了開發研究平台，利用世界上最小的「人工分子機器」製造出新型仿生超分子軟功能材料。這研究方針將利用具生物相容性的光敏軟材料，創造先進的生物醫學材料，並發展相關技術。



In collaboration with the Royal College of Art, PolyU established the world's first research laboratory specializing in interdisciplinary AI and design innovation - **the Laboratory for Artificial Intelligence in Design (AiDLab)** under the AIR@InnoHK cluster. Led by Prof. Wong Wai-keung, Calvin (ITC), AiDLab aims to integrate innovative AI technologies into design to address the society's needs in the perspectives of creativity, efficiency and customization of products and services.

理大與英國皇家藝術學院(Royal College of Art)合作，在AIR@InnoHK資助下成立人工智能設計研究所(AiDLab)。AiDLab是全球首個專門研究跨學科人工智能及創新設計的實驗室。在紡織及服裝學系黃偉強教授的帶領下，AiDLab將結合創新的人工智能技術與設計，以滿足社會對創意、效益、以至是產品和服務個人化等方面的需求。

With the generous donation of HK\$2 million from Hong Kong Yakult Co. Ltd., PolyU has established **the PolyU-Yakult Joint Research Laboratory for Probiotics and Prebiotics in Human Health** under the Research Institute for Future Food. The signing ceremony was held on 17 September 2021. The Joint Research Laboratory aims to develop impactful and cutting-edge probiotics and prebiotics in order to prevent and treat gastrointestinal and brain diseases, as well as eczema.

理大很榮幸獲得香港益力多乳品有限公司慷慨捐贈港幣二百萬元，於未來食品研究院(RiFood)下成立「香港理工大學-香港益力多腸道益生菌益生元與人類健康聯合研究實驗室」。簽署儀式已於2021年9月17日隆重舉行。聯合研究實驗室將致力開發有效的益生菌和益生元，以應用於預防及治療腸道、腦部疾病和濕疹。



Dr Lam Kim-hung

Teaching Fellow,

Department of Applied Biology and Chemical Technology

Teaching philosophy :

A Way Forward through Blended Teaching and Learning Approach for Science Education in University

It is my pleasure to work in a good teaching and learning environment offered by PolyU. I love food, environment and analytical sciences and would like to devote my passion to share my experience and insight from my students with colleagues.

The Faculty of Applied Science and Textiles (FAST) and my working Department of Applied Biology and Chemical Technology (ABCT) are so supportive. They provide us with project funds and opportunities to explore and develop new pedagogy approaches for our students.

“Teaching goes hand in hand with learning”

I always learn from colleagues and students even though I am a teacher. I am extremely privileged to be able to acquire new knowledge, teaching methodology and technology through various workshops, seminars/ webinars, as well as daily teaching and learning activities conducted by colleagues and students. In fact, the process of idea exchange, sharing, discussion and observation can enrich my daily teaching.

It is also my interest to apply teaching projects and work with colleagues to explore new teaching approaches and methodologies to help our students learn. I always adopt and integrate innovative teaching practices after I learnt from my colleagues. I also listen to suggestions made by my students and make subsequent modifications.

“Learning should not be limited to classroom”

In order to prepare our students with all-roundness and adopt life-long learning, various activities are incorporated to foster a better learning experience for undergraduates.

Active learning activity We always encourage students to actively learn outside the classroom. For example, students are highly encouraged to attend public seminars, site/ industrial visits, outbound exchange tours, and participate in learning via experiments outside the classroom, etc. For CARs teaching, we encourage our students to attend public seminars and visit the Jockey Club Museum of Climate Change (MOCC) in groups. Conducted by professional experts, the public seminars can inspire students, allowing them to think out of the box. The site visit, on the other hand, can explore students' horizons in the subject context. After visiting, students will be asked to write reflective journals to review their learnings. This is an opportunity to allow students to have a self-reflection on what they have learnt, and we can understand the extent of their learning.

Experiments perform inside and outside laboratories

Experimentation is a valuable learning experience and professional training for students. They were able to acquire the technical skills and the corresponding theories. During the laboratory session, students can learn from others through

教學理念：

大學科學教育 走向混合教學模式發展路向

— 林劍虹博士
應用生物及化學科技學系專任導師

理大非常重視教與學，致力營造優質的教學環境。我有幸能於理大任教，深感榮幸。

我熱愛食品科學、環境和分析科學，亦常鼓勵同事互相分享教導學生時所得的經驗和見解。應用科學及紡織學院和我所屬的應用生物及化學科技學系均非常重視和支持教學人員，為我們提供項目資金和機會，讓我們能夠探索和開發嶄新的教學方法，能更有效地教導學生。

「教與學並進」

透過參與各類型的工作坊、研討會/ 網絡研討會，以及日常的教學活動，教學人員能夠從中獲取新知識，並了解新的教學方法和技術。事實上，在交流、分享和討論想法、以及觀察的過程中，我可以進一步完善自己的日常教學。作為教育工作者，我也很喜歡與同事一起推行教學項目，以探索新的教學方法來幫助學生進步。當中不乏向同事借鏡以整合創新的教學方法，以及聽取學生的建議以修改教學的方式。

「多元學習」

為了培養學生全面發展和終身學習的能力，理大和學院舉辦了各式各樣的活動，為本科生提供更多元的學習體驗。

主動學習活動 我們一直積極鼓勵學生在課堂外主動學習。例如，鼓勵學生參加公開研討會、實地/ 企業考察和境外交流團等，以及通過參與課堂外的實驗來學習。而在大學核心課程的CAR科目教學方面，我們鼓勵學生參加公開研討會和參觀賽馬會氣候變化博物館(MOCC)。參與由專家主持的公開研討會可以激發學生的靈感，讓他們跳出思想框框。另一方面，實地考察可以擴闊學生的視野，讓他們更了解學科的內容。我們會要求學生撰寫參觀後記來重溫自己學習所得的知識。這讓學生有機會自我反思，而我們也可以從中了解他們的學習進度。

在實驗室內外進行實驗 實驗對學生來說是很寶貴的學習經驗，亦是接受專業培訓的機會。他們從中能夠學習到專業技術和相關的理論知識。在做實驗時，學生可以透過交流想法和知識來互相學習，亦能加深對彼此的了解和擴闊社交網絡。我們與應用物理學系麥熾良博士密切合作，一同設計實驗，讓學生在實驗室外檢測空氣污染物。我們還為學生設計了遙距實驗室實驗，以觀察溫室氣體對全球暖化的影響。因受到新型冠狀病毒的疫情影響，我們的授課方式亦大幅轉變。基於社交距離和嚴謹隔離措施等方面的限制，所有教學活動都必須以網上形式或混合模式進行。因此，遙距實驗室實驗充當了促進混合學習方法的重要橋樑。

遊學團和企業參觀 作為督導學生學習的角色，我知道他們十分重視參加遊學團和企業參觀的機會，有助加深他們的學習體驗，並增加對企業實際運作的了解。我們收集了學生的寶貴意見，並希望能夠盡快恢復舉辦遊學團和企業參觀等活動。

「學海無涯」

教育方法和教學實踐應該根據學生的需求而作出相應的調整。作為教育工作者，定期檢討、反思、終身學習、以及彼此間的交流分享等皆十分重要。



exchanging ideas and knowledge. They can also build up their relationships and social networks. We have closely worked with Dr Mak Chee-leung from the Department of Applied Physics in designing experiments that allow students to measure air pollutants outside the laboratory. We have also designed remote laboratory experiments for students to invigilate the global warming effect of greenhouse gases.

Because of COVID-19 pandemic, the mode of class delivery has changed drastically. Limited by the measures of social distancing and strict quarantine, all teaching activities have to be conducted in online or hybrid mode. Therefore, the remote laboratory experiments act as an important bridge to facilitate our blended learning approach.

Study tour and industrial visit As a facilitator, I understand that students highly appreciate and value the opportunities to join study tours and industrial visits as it can enhance their learning experience and help them better understand the real industry. We received many valuable comments from our students, and we hope the study tour and industrial visit can soon be resumed.

“Endless process of Learning”

On a final note, educational approach and practice should be aligned in accordance with the needs of our students. Regular reviews, reflections, lifelong learning as well as sharing among educators are of paramount importance.



Innovating Compression Textiles for Enhancing Wearing Comfort and Health Care

Dr Liu Rong

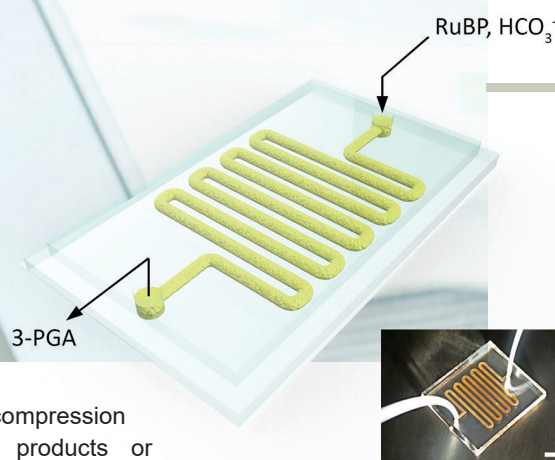
Assistant Professor

Institute of Textiles and Clothing

“Exploring creative wearing modalities, and multiple collaborations, thus enhancing wearing comfort and public health.”

Functional compression textiles have been increasingly applied in the fields of medicine, healthcare, rehabilitation, sports exercise, and personal protection. However, the user-oriented compression design for effectively achieving individualized demands has not been fully developed. Even their positive efficacies have been demonstrated by clinical and field studies, certain side-effects and non-compliance resulting from ill-fitting and wearing discomfort have hindered their practical use. My research is devoted to exploring the best solutions to efficiently improve users' experience and biomedical functions of compression textiles through applying multidisciplinary technologies, ergonomic design, creative wearing modalities, and multiple collaborations, thus enhancing wearing comfort and public health.

Unlike a traditional overall tight-fitting concept, compression textiles provide uniquely controlled levels of pressure, support, or stabilization tailored to the user's body for preventive, therapeutic, or protective purposes. The intraindividual and interindividual differences in terms of pressure-stimulus tolerance, anthropometric characteristics, symptom severities, and usage behaviors present challenges for compression textile design. My research aims to provide new insights on not



only compression textile products or technologies, but also build a systematic platform that supports theoretical analysis, textile/ clothing design, material engineering, performance estimation, devices development, postuse follow-up, and sustained efforts until commercialization to benefit end-users.

The dynamic interaction between a compression textile and the wearer's body triggers mechanoreceptors and sensing networks. It also leads to skin pressure, tissue deformation, and even hemodynamic responses. We have investigated the working mechanism behind the compression and analyzed the sensorial and physiological effects of compression textiles on the user bodies from the perspective of autonomic nervous system, stress hormone, pressure comfort, and routine physiological parameters while applying various pressure levels (10-50mmHg), gradient proportions, and material stiffnesses and elasticities. These fundamental studies provided evidence on biomedical function and user safety of compression textiles in practical settings.

To address ill-fitting problems, a stratified body-shape-driven sizing system was established, based on which the adaptive and customized compression stockings with improved ergonomic fit and user comfort were developed, especially for Asian users. To overcome the side effects of compression, novel methods were designed for predicting and optimizing clothing pressure and human tissue stress by applying numerical simulation and essential material regulation. Compared with the traditional padding-insert

approach, the designed unique knitting structures reshaped the pressure profiles to relieve peak pressure while improving pressure comfort sensation and blood circulation of the lower limb in dynamic wear. Through applying hybrid 3D knitting techniques, medical-grade fiber, and bi-axial elasticity and gradient biomechanical design, we innovated a modern compression orthosis to facilitate controlled motion of knee joint and relieve the mixed symptoms of varicose veins and knee pain problems.

Our recent study developed an active wearable compression system to offer controllable proactive pressure (e.g., 0-100mmHg) based on personalized therapeutic recipes. Related studies also extend to other healthcare fields, such as the invented bionic functional footwear for pregnant women, tight-fit garment system for enhancing athletic sports performance, and a new testing system for synchronic tension and pressure control of elastic materials. These

research works secured the Golden Pin design award, and Silver Award at the International Exhibition of Inventions of Geneva and underpinned the establishment of China's first industrial standard on 'Healthcare Compression Hosiery'. The developed products have been utilized by the elderly and nursing staff in Tung Wah Group of Hospitals as well as other patients from over 10 hospitals/ rehabilitation centers, company employees, and individual consumers to prevent or treat chronic venous insufficiency (e.g., leg fatigue, swelling, varicose veins, and deep vein thrombosis). It has received many positive feedback and is critically acclaimed. The research outcomes also underpinned startup businesses and have been commercialized by the textile/ apparel industries. Innovating compression textiles is a journey of identifying and resolving the problems experienced by users. Further research works are being undertaken to explore superior approaches to sustainably increase public health and comfort benefits for improved societal quality of life.

創新壓力紡織 提升穿著舒適度與健康

有效改善壓力紡織品的用戶體驗和生物醫學功能，提升穿著舒適度和公眾健康。

— 劉蓉博士

紡織及服裝學系助理教授

功能性壓力紡織品在醫學、保健、復康、運動和個人防護等領域應用愈加廣泛。然而，能有效滿足個人需求的壓力服裝設計尚未成熟。儘管臨床和實地研究已證明這類服裝的功效，但由於穿用不合體或不舒適而引起的某些副作用和不依從性限制了其實際應用。因此，我的研究致力於探索最佳解決方案，通過運用多學科技術、人體功效學設計、創新穿戴方式及與多方合作，以有效改善壓力紡織品的用戶體驗和生物醫學功能，提升穿著舒適度和公眾健康。

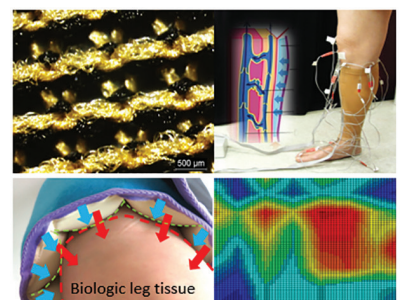
有別於傳統的整體緊身設計概念，壓力紡織可施加獨特設計的定向壓力、支持或穩定功能於特定身體部位，實現預防、治療或保護目的。個體內部和個體之間在壓力刺激耐受性、體型特徵、症狀嚴重度及使用行為等方面存在差異，為此類紡織設計帶來挑戰。我的研究旨在對壓力紡織及技術提供新思路，並建立一個系統平台，為理論分析、紡織/服裝設計、材料工程、性能評估、設備開發、用後跟進，以及持續努力提供支持，直至產品商業化，令最終穿用者受益。

壓力紡織品和穿戴者身體之間的動態相互作用能觸發力學感受器和感知網絡，亦會產生皮膚壓力、組織變形，甚至血流動力學反應。我們的研究探索了壓力服裝背後的工作機制，並從自主神經系統、壓力荷爾蒙、壓力舒適度和常規生理參數等角度，分析了壓力紡織品在採用各種程度的壓力（10-50毫米汞柱）、梯度比例、材料硬挺度和彈性時，對穿戴者身體帶來的感官和生理影響。這些基礎研究為壓力紡織品在實際應用時的生物醫學功能和用戶安全提供了參考依據。

為了解決服裝不合體的問題，我們提出了一種新的體型分層尺碼系統，並開發了特別適用於亞洲用戶，具有改進工學合體性和穿戴舒適度的自動適應和定制壓力襪系列。為了解決壓力服

裝可能帶來的副作用，我們通過數值建模及材料特性調節，設計了用於預測和優化服裝壓力和人體軟組織壓力的新方法。與加入襯墊的傳統技術相比，設計獨特的針織結構有助於重塑壓力分佈，減小局部峰壓，在動態穿著時改善壓力舒適並促進下肢血液循環。通過運用混合3D無縫針織技術、醫用級纖維和雙軸向彈性及梯度生物壓力設計，我們創新研發了一種現代壓力矯形裝置，以協調膝關節的受控活動，緩解下肢靜脈曲張和膝痛等問題。

最近我們研發了一種動態可穿戴壓力治療系統，可根據個人治療方案提供主動可控壓力（例如0-100毫米汞柱）。相關研究亦擴展到其他醫療保健領域，如仿生孕婦功能足護系統、增強運動效能的緊身服、及用於同步測量彈性物料張力與壓力的全新測試系統等。這些研究成果獲「金點設計獎」、「日內瓦國際發明銀獎」，也同產業界建立了中國第一個「保健壓力襪」行業標準等。開發的產品已得到廣泛使用，用戶遍及東華三院的老人和護理人員、以及其他十多間醫院和復康中心的患者，企業員工和個人消費者，以用於預防或治療慢性靜脈功能不全（如腿部疲勞、腫脹、靜脈曲張和深靜脈血栓栓塞等）。產品獲得各方積極反饋和好評，研究成果也推動產品商業化，並為初創企業帶來了新的市場發展。創新壓力紡織是一個不斷發現用戶問題並解決問題之旅。我們正在著手進一步的研究工作，以探索可持續提升大眾健康和穿著舒適的優越方案，務求改善社會生活質素。





Faculty Staff & Researchers 學院教學及科研人員

RGC Senior Research Fellow Award 2021/22

- **Prof. Hao Jianhua**
Chair Professor of Materials Physics and Devices, AP
- **Prof. Zheng Zijian**
ADoRI-IWEAR, ADoUMF & Professor, ITC

Highly Cited Researchers 2021 by Clarivate

- **Prof. Qi Liqun**
Emeritus Professor of Applied Mathematics, AMA
- **Prof. Yan Feng**
ADoRI-IWEAR & Professor, AP

TechConnect World Innovation Conference and Expo 2021 - TechConnect 2021 Global Innovation Awards

- **Prof. Fan Jintu**
Head and Chair Professor of Fiber Science and Apparel Engineering, ITC; and
Dr Shou Dahua
Assistant Professor, ITC
- **Prof. Hao Jianhua**
Chair Professor of Materials Physics and Devices, AP; and
Pang Sin-Yi
PhD student, AP

Fashion and Textiles Best Reviewer Award 2021

- **Dr Baek Eunsoo**
Assistant Professor, ITC

The 6th International Invention Competition in Canada - Semi-Grand Prize and Gold Medal

- **Dr Shou Dahua**
Assistant Professor, ITC

The 35th World Genius Convention and Education Expo 2021 in Tokyo - Gold Award and Special Award

- **Prof. Fan Jintu**
Head and Chair Professor of Fiber Science and Apparel Engineering, ITC; and
Dr Shou Dahua
Assistant Professor, ITC

The 13th European Exhibition of Creativity and Innovation (EUROINVENT) 2021 - Gold Medal and Grand Award

- **Prof. Fan Jintu**
Head and Chair Professor of Fiber Science and Apparel Engineering, ITC; and
Dr Shou Dahua
Assistant Professor, ITC

The 4th China (Shanghai) International Exhibition of Invention and Innovation 2021 - Gold Award

- **Prof. Li Li, Lilly**
Professor, ITC

The World's Top 2% Most-cited Scientists by Stanford University

- **Dr Huang Bolong**
Assistant Professor, ABCT
- **Prof. Wong Wai-yeung, Raymond**
Dean(AST), ADoRISE & Chair Professor of Chemical Technology, ABCT
- **Prof. Wong Wing-tak**
Deputy President and Provost & Chair Professor of Chemical Technology, ABCT
- **Prof. Wu Jian-yong**
Research Professor, ABCT
- **Prof. Chen Xiaojun**
Chair Professor of Applied Mathematics, AMA
- **Prof. Qi Liquan**
Emeritus Professor of Applied Mathematics, AMA
- **Prof. Sun Defeng**
Head and Chair Professor of Applied Optimization and Operations Research, AMA
- **Prof. Yang Xiaoqi**
Professor, AMA
- **Dr Chai Yang**
Assistant Dean (Research) & Associate Professor, AP
- **Prof. Hao Jianhua**
Chair Professor of Materials Physics and Devices, AP
- **Prof. Huang Haitao**
Professor, AP
- **Prof. Lau Shu-ping, Daniel**
Head, DoUMF, ADoPRI, & Chair Professor of Nanomaterials, AP
- **Prof. Yan Feng**
ADoRI-IWEAR & Professor, AP
- **Prof. Yu Siu-fung**
Professor, AP
- **Prof. Chen Wei**
Professor, ITC
- **Prof. Fan Jintu**
Head and Chair Professor of Fiber Science and Apparel Engineering, ITC
- **Prof. Hu Hong**
Professor, ITC
- **Prof. Kan Chi-wai**
Professor, ITC
- **Prof. Tao Xiaoming**
Vincent and Lily Woo Professor in Textile Technology & Chair Professor of Textile Technology, DoRCSWT, ITC
- **Prof. Wong Wai-keung, Calvin**
Cheng Yik Hung Professor in Fashion, ITC
- **Prof. Wong Wing-yan, Christina**
Professor and Associate Dean of Graduate School, ITC
- **Prof. Xin Haozhong, John**
Lee Family Professor in Fashion and Textiles & Chair Professor of Textile Chemistry, ITC
- **Prof. Xu Bingang**
Professor, ITC



Faculty Students & Alumni 學院學生與畢業生

Hong Kong Young Fashion Designers' Contest 2021 - Champion; Best Visual Presentation Award

- Lee Pui-kwan, Cady, ITC BA Student

Redress Design Award 2021 - Hong Kong Best Prize

- Psy Lau, ITC BA Student

"Let's Go Green" Woven Bag Design Competition

- Chu Pak-yin, ITC BA Student

Ouyang Yuxin 歐陽煜鑫

– BSc (Hons) in Chemical Technology

Times flies so fast that it seems like the first day I came to PolyU was just yesterday. Looking back on my university life, I realized that the four years' study at ABCT has transformed me from a “nobody” to a “somebody”. One thing that impressed me a lot is that the programme I decided to take, Chemical Technology (CT), offers many courses which are applied to daily life, rather than traditional pure science courses. Benefiting from this unique design of the programme, we are equipped not only with the theoretical knowledge but also the practical skills to meet the requirement of a rapidly developing society. Moreover, professors and teachers are always willing to provide us with help and guidance on both academic and personal developments. Thanks to them, every student can find his or her own pathway which suits him or her the most. Also, the CT programme offers us various opportunities to conduct undergraduate research both at PolyU and overseas. These valuable experiences undoubtedly lay a solid foundation for my continuous study in the field after graduation.

時光匆匆若白駒過隙，轉眼間大學生活已劃上句號。回首在理大的四年時光，實在感觸良多。從當初的懵懂小子，到今天的追夢少年，正是應用生物及化學科技學系給我帶來了如此巨大的改變。化學科技學科的課程設計理論實踐兼備，而且課堂生活並重，令我們不僅擁有紮實的理論基礎，更有著象牙塔外開闊的視野。老師及教授們在學術、生活以及發展規劃上因材施教，循循善誘，致力為每一個學生找到自己的發展方向和空間。此外，學系亦為本科生提供了豐富的研習機會和多元化的海外交流機會。這些經歷為我在畢業後從事深造的科學研究打下了堅實的基礎。

Ng Ka-ho, Kelvin 吳嘉豪

– BSc (Hons) in Investment Science and Finance Analytics

Studying in Investment Science and Finance Analytics, I immerse myself in the kingdom of Science, Mathematics, Finance and Computer Programming. Thanks to the teaching and guidance offered by FAST, I have gained a lot of practical knowledge and problem-solving skills, which will benefit me for future career development. Being cultivated by world-class scholars, I have not only performed well in the academic field but also turned myself into an all-round individual.

In order to broaden students' horizons, PolyU has provided arrays of opportunities to facilitate our well-rounded development. Through the INSPIRE Mentorship and CEO Shadowing programmes, I have chances to meet many professionals from different industries and get inspired by their success stories. The diverse activities launched by PolyU are indeed beneficial for us to gain insights and expand our social network.

Moreover, I am honoured to be appointed as a PolyU's Student Ambassador and Department's class representative. I gain precise opportunities to broaden my horizon, learn a lot of soft skills and enrich my university life.

我一直醉心於科學、數學、金融和編程方面的學習，並以投資科學和金融分析作為主修。我有幸能夠就讀於應用科學及紡織學院中，期間獲得了很多良師的指導，學到了實踐知識，並提升了解決問題的能力，讓我能夠為未來踏入職場做好準備。在世界一流師資的培養下，我不僅在學術上有很大的得著，也找到了自己的人生發展方向。

為了擴闊學生的視野，理大舉辦很多讓學生能夠全面發展的活動。參加INSPIRE Mentorship和CEO Shadowing讓我結識了眾多來自不同行業的專業人士，並有機會向成功人士借鏡取經。理大舉辦的多樣化活動有助學生提升洞察力和擴闊社交圈子。

我亦很榮幸能夠被任命為理大的學生大使和學系的學生代表。因為這是一個能夠改善自我的大好機會，我可以通過參與各種活動和應對不同挑戰獲得寶貴的經驗，令我的大學生活更豐富和多采多姿。



Pang Sin-yi 彭倩兒

– BSc (Hons) in Engineering Physics (Optoelectronics)
PhD in Physics and Materials Science

The Department of Applied Physics offers a wide range of theoretical and experimental courses to students. During my eight years of study, I attended numerous academic seminars organized by the Department, schools, and various well-known

research units, which provided me with a lot of inspiration. Moreover, thanks to the help of my classmates and groupmates, as well as the unique academic atmosphere on the campus, I published an article in an influential international journal JACS, and was honored to be one of the winners of TechConnect in 2021. As my doctoral supervisor, Prof. Hao Jianhua, told me when I was an undergraduate student, “Give a man a fish and you feed him for a day; teach a man to fish, and you feed him for a lifetime”. With such a rigorous educational attitude, the Department has cultivated many outstanding professionals in Hong Kong.

應用物理學系為學生提供了多元化的理論和實驗課程。於就學八年間，我參與了由學系、大學和各研究部門舉辦的學術研討會，從中獲得不少啟發。在濃厚的學術氣氛下，加上同學和組員的幫忙，我在著名學術期刊JACS上發表了文章，並有幸成為2021年TechConnect的獲獎者之一。「授人以魚，不如授之以漁」是我的博士指導恩師－郝建華教授教育學生的良言。正是這嚴謹的教育態度，我們學系為香港培育了眾多優秀的專業人才。



Jim Yu-ching 詹渝晴

– BA (Hons) in Fashion & Textiles (Design)

I am blessed to live in Hong Kong, where multiculturalism is practised. The city's rich historical and cultural heritages open up many opportunities and possibilities. Stepping into the second year of my study as a student of BA (Hons) in Fashion and Textiles, I have built up practical design skills and broadened my horizon by participating in industry events. PolyU provides me a platform to meet professionals and accumulate real-life experiences. I have learnt how to transform my creative ideas into actual and concrete elements. I am very grateful to have an internship opportunity at ITC Store. The internship has given me a chance to explore social media promotion strategies and strengthen my skills in visual editing. I were also given a chance to participate in the CENTRESTAGE, in which I have built connections with the industry and a deeper understanding of running a fashion business. PolyU provides me with various opportunities, helping me make my dream come true.

生於多元化、機會處處的香港，讓我在設計上創造出無限可能。邁向修讀服裝及紡織文學士的第二學年，我學習了實用的設計技能，當中在課堂上學習到如何將瑣碎的概念轉化為實際的視覺元素。除此之外，理大讓我有機會結識專業人士及積累經驗，為投身紡織及時裝界做好準備。通過參與相關的活動，我能獲得實際的工作經驗。我很感恩能在ITC Store實習並能參加CENTRESTAGE這個大規模的活動。這次寶貴的經驗讓我能對社交媒體的推廣策略有更深入的了解，加強我在視覺編輯方面的能力。而加入CENTRESTAGE亦讓我能與業界連繫，從而緊貼時裝界的發展。此外，這次的體驗亦加深了我對經營品牌的認識，有助我發展自己的時裝事業。理大一直提供不同的機會，讓我能實現夢想。



*Our warmest congratulations
to 2020/21
graduates!*



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