

# NEW KNOWLEDGE AND TECHNOLOGY THAT CHANGE THE WORLD FOR THE BETTER

革新知識技術 共建美好世界

Impactful Innovations

創科實力

From scientific breakthroughs to technological innovations, PolyU researchers seek to expand human knowledge, tackle global challenges and make a positive impact on the world around us.

理大研究人員力求科研突破及科技創新，以開拓人類的知識領域，應對全球的種種挑戰，並為世界帶來正面影響。



## Innovative research that impacts society

### 創新科研 貢獻社會

With a strong culture of interdisciplinary research and innovation, PolyU is committed to opening new pathways to improve mankind and enhance societal development. In 2019/20, the University's total research funding reached HK\$3,192 million in support of more than 2,860 ongoing projects undertaken by more than 800 academic staff and around 2,850 research personnel.

憑藉深厚的跨學科研究與創新文化，理大致力開闢新的知識領域，以改善人類生活和促進社會進步。於2019/20年度，理大的科研項目資金總額達31.92億港元，正在進行的科研項目超過2,860個，分別有800多名學術人員和約2,850名科研人員參與其中。



Total research funding  
科研項目總資金  
**HK\$ 3,192**  
million 百萬港元

Ongoing research projects  
進行中的科研項目  
**2,864**

During the year, the University's research endeavours received a major boost from the Research Impact Fund administered by the Research Grants Council (RGC), which operates under the University Grants Committee (UGC). The Fund seeks to encourage universities in Hong Kong to conduct collaborative research projects that benefit the wider community. Five PolyU-led projects were awarded more than HK\$32.6 million from the Fund, representing 45% of both the projects supported and the funds granted. This achievement marked the second year in a row that PolyU gained the most support among Hong Kong's publicly funded universities in terms of both the number of projects and the level of funding. These results testify to the University's strength in undertaking impactful and translational research projects that meet society's needs and improve people's well-being.

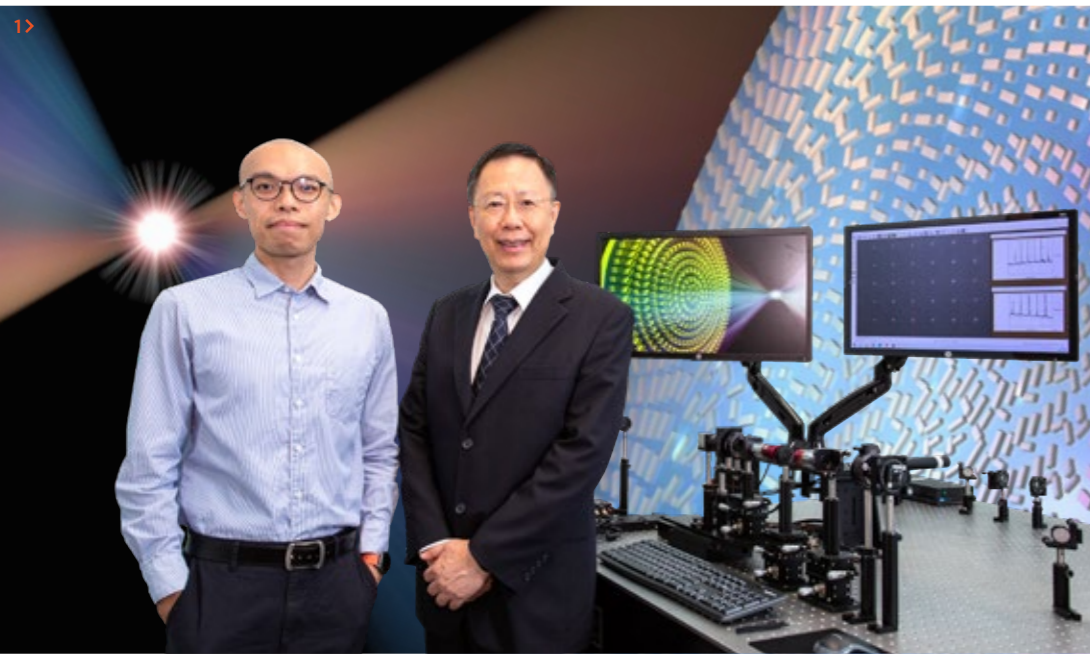
In another major funding exercise by the UGC, Professor Asif Sohail Usmani, Head of the Department of Building Services Engineering, successfully secured HK\$33 million of funding from the Theme-based Research Scheme for his project "SureFire: Smart Urban Resilience and Firefighting". The funding scheme aims to focus academic research efforts of UGC-funded universities on themes of strategic importance to the long-term development of Hong Kong. PolyU is committed to transforming research excellence into impactful innovations through multidisciplinary and inter-institutional collaborations. Under the funded project, Professor Usmani is leading an international team to conduct research in fire prediction, prevention and control, and emergency management.

年內，理大獲得由大學教育資助委員會(教資會)設立，並由研究資助局(研資局)管理的「研究影響基金」之大額撥款。此基金旨在鼓勵本地大學進行更多協作研究，惠澤社群。理大帶領的五個研究項目共獲得3,260萬港元資助，佔基金資助項目總數和撥款總額45%。理大已連續兩年成為擁有最多項目數量和撥款金額的本地資助大學。撥款結果顯示，理大科研實力雄厚，有能力進行具深遠影響及轉化價值的研究項目，以切合社會需要，造福廣大市民。

此外，在教資會轄下的另一主要資助計劃「主題研究計劃」中，屋宇設備工程學系系主任 Asif Sohail Usmani 教授的研究項目「SureFire：智慧城市災害防控和火災應急研究」獲得撥款3,300萬港元。此計劃之目的，是集中教資會資助大學的學術研究力量，進行對香港長遠發展具重大策略意義的主題研究。透過院校間的跨學科合作，理大致力於將卓越的研究成果轉化為具影響力的創新產品及技術。在這個研究項目中，Usmani 教授正帶領一支國際專家團隊，研究火災的預測、防範、控制及應急管理措施。



## Research breakthroughs 科研突破



### 1> A quantum leap forward in computing

A team of Chinese researchers led by Professor Tsai Din-ping, Chair Professor and Head of PolyU's Department of Electronic and Information Engineering, has become the first in the world to make high-dimensional quantum entangled optical chips that are small and precise enough to open the way for further advances in quantum computing. During trial runs, the team was able to obtain a fidelity rate of nearly 98.4%, which confirmed the feasibility of the quantum entangled optical chip.

### 2> Rapid respiratory pathogen diagnostic system

Dr Terence Lau, Interim Associate Vice President (Innovation and Technology Development) and Adjunct Professor at the Department of Applied Biology and Chemical Technology of PolyU, led a research team that developed the world's most comprehensive automated multiplex diagnostic system, which is able to scan for up to 40 infectious respiratory pathogens, including COVID-19, through a single test with

### 跨進量子計算新境界

蔡定平教授為理大電子及資訊工程學系講座教授兼系主任，由他領導的華人研究團隊，成功研製出全球首創微小、精準且高維度的量子糾纏光源芯片，令量子計算技術發展跨進了一大步。團隊在試驗中取得近98.4%的保真度，證實了此量子糾纏光源芯片的可行性。

### 高效呼吸道病原體診斷系統

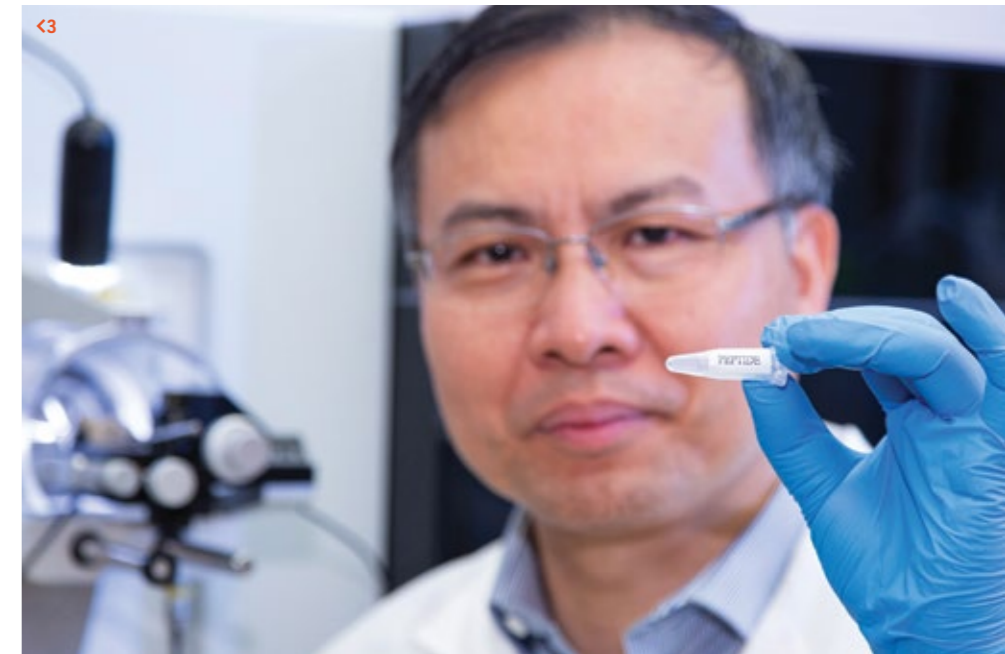
理大暫任協理副校長(創新及技術發展)兼應用生物及化學科技學系客座教授劉樂庭博士率領研究團隊，研發了一套全球最全面的全自動多重診斷系統，能夠於一小時內以一個測試檢測多達40種傳染性呼吸道疾病(包括新冠病毒)。該項目獲得香港大學和一家私人企業的支持。該系統易於使



results available in just one hour. The project was supported by The University of Hong Kong and a local biotechnology company. The user-friendly system can achieve ultra-sensitive detection and simultaneous differentiation of various pathogens with extremely high specificity.

### Big data in a tiny package

A PolyU team led by Dr Yao Zhongping, of the Department of Applied Biology and Chemical Technology, and Professor Francis Lau, of the Department of Electronic and Information Engineering, has pioneered a solution to store the vast amount of data generated worldwide. In collaboration with other local researchers, the team used peptides as a storage medium for the first time, to provide higher storage density and a longer storage duration that can last for millions of years. Their study proved that peptides remained reliable and stable after exposure to a space environment, demonstrating the potential for this new data storage method to be used in space exploration. The research team has received a grant of more than HK\$9.7 million from the Research Impact Fund of the University Grants Committee.



用，可作超靈敏的檢測，並能以極高的特异性同時區分各種病原體。

### 小容器裝載大數據

理大應用生物及化學科技學系姚鍾平博士與電子及資訊工程學系劉重明教授共同帶領研究團隊，為全球大量數據的存儲問題開創出一套全新的解決方案。團隊與其他本地研究人員合作，首創使用多肽作為存儲媒介，數據的存儲密度得以提高，存儲時間更可延長至數百萬年之久。實驗證明，被置於太空環境的多肽仍能保持穩定可靠，充分展示了這項嶄新數據存儲技術的潛力，未來可將之應用於太空探索。研究團隊獲教資會研究影響基金撥款逾970萬港元。



#### 4> Antibiotics to combat superbugs

Dr Ma Cong, of the Department of Applied Biology and Chemical Technology, led a team that has developed a new class of antibiotic drug candidates with the potential to become next-generation antibiotics capable of fighting drug resistant superbugs. The new drug candidates are more effective at inhibiting bacterial growth than commonly used antibiotics, but have no toxicity for human cells. The development won the Global Innovation Award at the TechConnect World Innovation Conference and Expo 2019.

#### 5> Novel autophagy modulators to enhance cancer treatment

Professor Zhao Yanxiang, of the Department of Applied Biology and Chemical Technology, has developed and patented novel autophagy modulators as potential cancer therapeutics. Autophagy is an essential metabolic process that can not only exert anti-cancer effects at the early stage of tumour formation but can also facilitate chemo resistance and radiation resistance at the later stage of tumour growth.

#### 以抗生素對抗超級細菌

應用生物及化學科技學系馬聰博士帶領團隊成功研發出新一代的候選抗生素，大有潛力發展為新抗生素，可用於對抗具有多重耐藥性的超級細菌。這些新候選抗生素抑制細菌生長的能力遠超於我們常用的抗生素，且對人體細胞無顯著毒性。該發明於「2019 TechConnect 世界創新會議暨博覽會」上獲頒全球創新獎。

#### 以新型自噬調節劑協助治療癌症

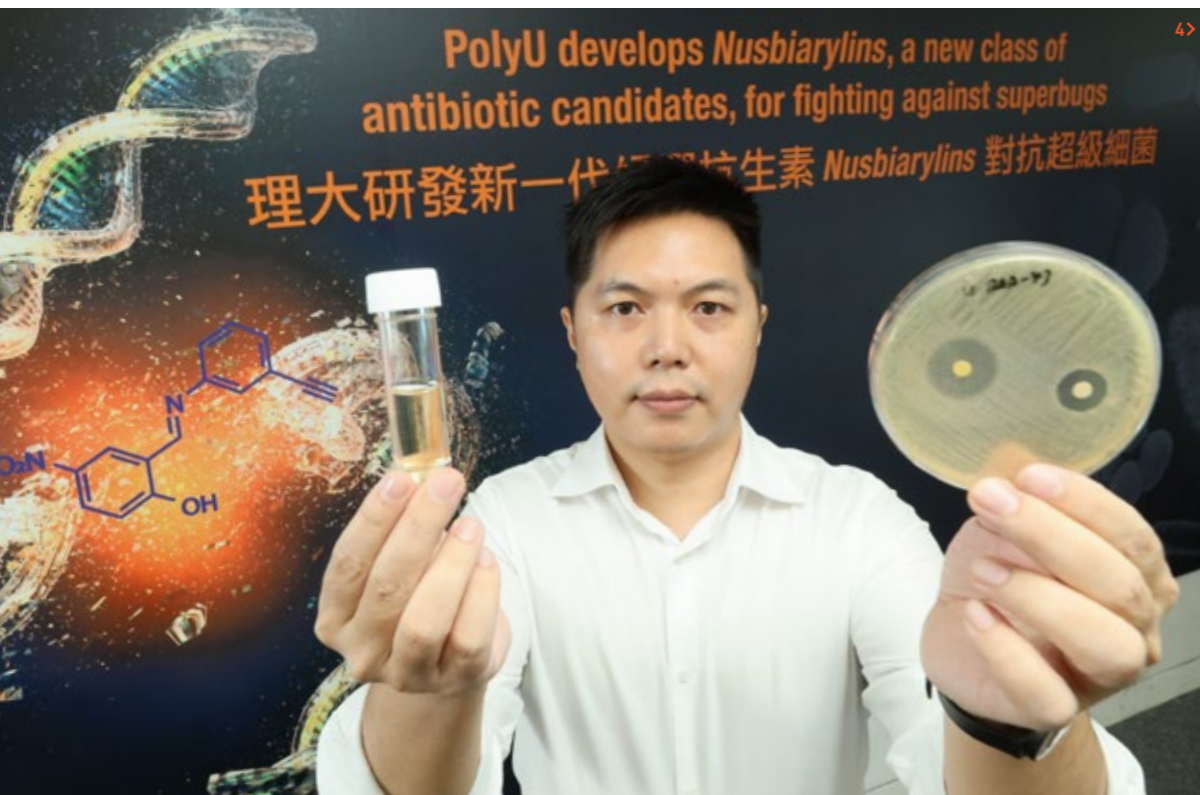
由應用生物及化學科技學系趙燕湘教授研發的細胞自噬調節劑已取得專利，可協助癌症治療。自噬是細胞必需的代謝過程，可於癌症腫瘤生長早期發揮抗癌作用，但後期也會令化療和放射性治療的耐藥性加劇。

#### Imaging technology helps coronary heart disease treatment

Dr Lam Kwok-ho, of the Department of Electrical Engineering, has developed an imaging technology that can be used in coronary heart disease intervention, particularly for cardiovascular chronic total occlusion. The technology will assist surgeons in developing optimal treatment strategies before surgery and provide real-time guidance during operations, reducing the procedural time and increasing the success rate of surgery.

#### 以成像技術協助治療冠心病

電機工程學系林國豪博士研發了一種血管內成像技術，主要用於冠心病的介入治療，尤其是心血管慢性完全閉塞的情況。該技術能幫助外科醫生在手術前制定最佳的治療方案，並在手術過程中提供實時治療指導，從而縮短手術時間，並提高手術的成功率。





## Knowledge translated into solutions 將知識轉化為解決方案

PolyU researchers put their research outcomes and inventions to good use, translating them into solutions with a positive demonstrable socio-economic impact for society and industry partners. This practice is reflected in the patenting activities and licensing agreements, consultancy work, entrepreneurship and start-up activities conducted throughout the year, as well as technology transfer projects.

理大研究人員會善用其研究成果和創新發明，將之轉化為解決方案，為社會和業界合作夥伴帶來顯著的貢獻。年內進行的專利與技術授權，顧問服務、創業活動，以及技術轉移項目，均印證了理大在知識轉移方面的不懈努力。

New consultancy projects  
新顧問項目

364



Partners worldwide  
全球合作夥伴

251

Patents and trademarks granted  
獲批專利和商標

85



Licensing agreements  
授權協議

22+

## Knowledge transfer project highlights 重點知識轉移項目

### 7> Pioneering diagnostic system to combat COVID-19

PolyU researchers at the Department of Applied Biology and Chemical Technology developed the world's most comprehensive automated multiplex diagnostic system, which is able to scan for up to 40 infectious respiratory pathogens, including COVID-19, through a single test with results available in just one hour. The fully-automated system can achieve ultra-sensitive detection and simultaneous differentiation of various pathogens with extremely high specificity. The system overcomes the challenge of frontline diagnostics in hospitals, clinics and ports through providing early and accurate detection of pathogens for effective and efficient disease control and management, preventing the spread of contagious pathogens.

### 創新診斷系統有助對抗新冠病毒

理大應用生物及化學科技學系的研究人員研發了一套全球最全面的全自動多重診斷系統，能夠於一小時內以一個測試檢測多達40種傳染性呼吸道疾病(包括新冠病毒)。該全自動系統可實現超靈敏的檢測，並能以極高的特異性同時區分各種病原體。系統可用於醫院、診所及口岸，有助及早和準確地檢測病原體，有效和快速地控制和管理疾病，同時有助防止任何傳染性病原體的傳播。

### Cancer drug granted U.S. FDA Investigational New Drug Status

A drug with the potential to treat cancer developed through a PolyU partnership was granted Investigational New Drug (IND) status by the U.S. Food and Drug Administration (FDA) in 2019. Researchers from PolyU's Department of Applied Biology and Chemical Technology and Lo Ka Chung Research Centre for Natural Anti-Cancer Drug Development, and Avalon Biomedical (Management) Limited (Avalon Biomedical) jointly developed research on Pegtomarginase, a PEGylated genetically modified human arginase (single isomer) that targets cancer growth and tumour survival by removing the supply of an amino acid, arginine. Pegtomarginase was licensed to Avalon PolyTom (HK) Ltd. during its initial stage of preclinical development. These pre-clinical studies showed that the single isomer had a predictable and extended duration of action, depleting arginine to treat cancers. The novel biomedical PEGylated arginase for cancer treatment was later sub-licensed to a US NASDAQ-listed global biopharmaceutical company, which further advanced the biologic product to the clinical stage. In 2019, the FDA gave approval for the sub-licensee to start clinical trials with Pegtomarginase for the treatment of patients with advanced malignancies. The development of the drug has been hailed as a success in translating research into a product that benefits mankind through an academia-industry partnership.

Over the years, PolyU has been actively conducting research into drug development, establishing the State Key Laboratory of Chemical Biology and Drug Discovery in 2010, with the approval of China's Ministry of Science and Technology. Research achievements include contributing to the development of the first four drugs in Hong Kong to obtain IND status from the FDA. These drugs will help in treating cancer.



### 治癌藥物獲美國食品藥品監督管理局批准進行臨床研究

理大與合作夥伴攜手研發的一種藥物，於2019年獲美國食品藥品監督管理局批准進行臨床研究，有望未來可幫助治療癌症。理大應用生物及化學科技學系和盧家驄天然抗癌藥物研發中心的研究人員，以及鎧耀生物醫藥科技(管理)有限公司共同開發的Pegtomarginase，是一種聚乙二醇化的基因調整人類精氨酸酶(單一異構體)，可用以耗竭精氨酸的供應來抑制癌細胞的生長。Pegtomarginase在臨床前開發的最初階段獲授權予Avalon Poly Tom(HK) Ltd。臨床前研究發現，單一異構體能可預計和持久地耗竭精氨酸，作為治癌的方法。及後，該新型用以治癌的生物醫學聚乙二醇精氨酸酶進一步獲授權予一家於美國納斯達克上市的全球性生物製藥公司，而該公司更將這藥物推向臨床階段。2019年，美國食品藥品監督管理局已批准該獲授權機構，對Pegtomarginase進行臨床研究，以治療晚期惡性腫瘤的患者。這正是學術界與業界合作，將科研成果轉化，以改善人類生活的成功例子。

多年來，理大積極投入藥物研發，更獲國家科學技術部批准於2010年成立「化學生物學及藥物研發國家重點實驗室」，科研成果包括參與研發香港的首四種由美國食品藥品監督管理局批出「研究性新藥」申請的新藥品，有助治療癌症。





### 9> System to monitor the structural health of Hong Kong bridge

Experts from the Faculty of Construction and Environment have been engaged by CCCC Highway Consultants Co., Ltd., to develop a Structural Health Monitoring System for the Cross Bay Link - Tseung Kwan O Bridge. The system uses more than 700 sensors of 13 different types to monitor load and the structural response across the 1.8km bridge, providing real-time online data on the bridge to detect any changes or signs of degradation.

#### Impactful solutions for the railway industry

PolyU's Department of Civil and Environmental Engineering and the National Rail Transit Electrification and Automation Engineering Technology Research Centre (Hong Kong Branch) were engaged by Sanmen county government to build a smart transit transportation system and application platform. The platform will assist the local government in setting up a professional team to facilitate research and development and the commercialisation of projects. In addition, the team will also set up the "Sanmen Rail Transit Innovation Centre" to create innovative solutions and provide support services, and organise seminars and exchange activities to promote the commercialisation of smart transit transportation technologies.

### 10> Special lens to slow myopia progression in children

Myopia progression is a global problem with sight-threatening complications. In view of this, PolyU's School of Optometry has invented a revolutionary method to slow myopia progression in children based on the natural homeostatic mechanism of the eye. The aim is to produce a clear image on the retina and a defocused or blurred image in front of the retina at the same

### 大橋結構健康監察系統

建設及環境學院的專家獲中交公路規劃設計院有限公司委託，為將軍澳跨灣連接路大橋結構研發一套結構健康監察系統，利用13種合共逾700個感應器監察全長1.8公里的大橋之負載及結構反應。該系統將提供大橋結構的實時數據，以偵測各種變化，以及退化的徵兆。

#### 為鐵路業提供具影響力的解決方案

理大土木及環境工程學系及國家軌道交通電氣化與自動化工程技術研究中心香港分中心，獲三門縣人民政府委託建立智慧交通系統和應用平台，協助地方政府建立一支專業團隊，促進項目技術開發及產業化的發展。同時，將設立「國家軌道交通電氣化與自動化工程技術研究中心香港分中心三門基地」，為三門縣軌道交通企業提供創新解決方案與支援服務，並舉辦研討會等交流活動，以推動智慧交通運輸技術的產業化進程。

### 特製鏡片減慢兒童近視加深

近視持續加深可引起嚴重的視力問題，是一個全球各地都需要面對的問題。有見及此，理大眼科視光學院以眼睛的自然反饋機制為基礎，研發出能放緩兒童近視加深的突破性方案。這方案的原理是在視網膜上產生清晰的影像，同時在視網膜前方產

time, so that children have clear vision while the progression of myopia is controlled.

After years of research development, PolyU and her research collaborator HOYA Corporation (HOYA) jointly invented the Defocus Incorporated Multiple Segments (DIMS) Spectacle Lens, and co-owned its technology and patent rights. The DIMS lens is divided into zones. The central zone is a regular concave lens for corrected vision at the centre of the retina, while the rest of the lens is made up of numerous tiny lenses that focus light slightly in front of the retina to create peripheral myopic defocus. In doing so, the lens provides clear vision for the wearer at all viewing distances.

DIMS has been clinically proven to be effective at slowing down myopic progression by 59% in children in Hong Kong. It offers an impactful, non-invasive and viable option as the first line of treatment for myopia control, slowing and even preventing the development of high myopia, which is the second most common eye condition that causes visual impairment and permanent blindness in Asia. DIMS lenses have gained wide acceptance in the market since its launch in mid-2018, benefitting hundreds of thousands of myopic children in various countries and regions. The invention won the Grand Prize (Overall Championship), Grand Award and Gold Medal with the Congratulations of Jury at the 46th International Exhibition of Inventions of Geneva; and the 2020 SILMO d'Or Award (Vision) at the prestigious SILMO optical fair in France.

### Tank-top helps youths improve spinal deformity condition

The Institute of Textiles and Clothing has invented a tank-top featuring a biofeedback system with multiple sensors to provide back muscle and customised posture training for patients with adolescent idiopathic scoliosis. The tank-top can be used with a mobile app that records the user's postures in real time and provides them with instant feedback. With progressive biofeedback training, users can learn to maintain an upright torso posture by controlling their back muscles. The invention can also be used by athletes and for posture training for the elderly. The award-winning technology was licensed to Active Biotechnology (HK) Co. Ltd, a staff-led startup, which has been admitted to the Incu-Bio Programme of the Hong Kong Science and Technology Park.

生另一個離焦或模糊影像，為兒童提供清晰的視力之餘，同時減緩近視加深的速度。

經過多年的研究，理大與豪雅光學共同研發出「多區正向光學離焦」(DIMS) 眼鏡片，並共同擁有有關技術的專利。此鏡片的中心區域是一般凹透鏡，能讓視網膜中央接收清晰的影像，其餘區域則由無數小鏡片組成，能將光線稍微聚焦在視網膜前方，產生光學離焦現象，讓佩戴此眼鏡片的人士無論距離遠近均視野清晰。

臨床實驗證明該鏡片有效減緩本地兒童近視加深的速度，成效達59%。DIMS眼鏡片提供了一個具影響力、非入侵性的可行方案，可作為控制近視的一線治療方法，有助減慢及預防演變成深近視。在亞洲，深近視正是導致視力障礙和永久失明的第二大原因。DIMS眼鏡片自2018年中推出市場後廣受歡迎，為多個國家及地區數十萬名近視兒童帶來裨益。該發明在瑞士日內瓦舉行的第46屆國際發明展中勇奪全場總冠軍、特別大獎及評判特別嘉許金獎；並於2020法國國際光學眼鏡展覽會上獲頒「鏡片/隱形眼鏡」類別大獎。

### 智能背心有助改善青少年脊柱變形情況

紡織及服裝學系發明了一件配備生物反饋系統和多個傳感器的背心，為患有原發性脊椎側彎的青少年提供背部肌肉及個人化姿勢訓練。此外，背心可與流動應用程式一同使用，實時紀錄使用者的姿勢，並提供即時反饋。透過漸進式的生物反饋訓練，使用者可逐步學習控制背部肌肉，以保持上身姿勢正確。智能背心也適用於運動員的體育訓練和長者的姿勢訓練。這項獲獎技術已授權予大學教員主導的初創企業——立剛健生物科技(香港)有限公司，並已獲納入香港科學園的生物醫藥科技培育計劃。

<11





## Supporting entrepreneurship to benefit society 支援創新創業以造福社會

PolyU has put in place a holistic framework to support entrepreneurship development among its faculty members, students and alumni to foster a spirit of "Do Well Do Good" to benefit society. The University offers education, seed grants, incubation and acceleration to support members of the PolyU community at every stage of their entrepreneurial journey.

理大設立了一個全面的框架，以支援教學人員、學生和校友的創業發展，並推動「創富創善」的創業精神，造福社會。大學會為理大社群在創業旅程中的每一個階段提供協助，包括提供教育、種子基金、培育及發展加速支援。

### Seed funding for innovative start-ups 種子基金支持初創企業

#### PolyU Micro Fund 理大微型基金

(for PolyU students and alumni 提供予理大學生和校友)

22 160+

start-ups 初創企業  
(2019/20)

start-ups 初創企業  
(since inception in 2011)  
(自 2011 年成立以來)

#### Tech Launchpad Fund 科技領航基金

(early-stage technology start-ups founded by PolyU students, alumni and professors  
由理大學生、校友和教授創辦的早期科技初創企業)

8 28

start-ups 初創企業  
(2019/20)

start-ups 初創企業  
(since inception in 2015)  
(自 2015 年成立以來)

#### Student Entrepreneurial Proof-of-Concept Fund 學生創業概念驗證基金計劃

6 60+

projects 項目  
(2019/20)

projects 項目  
(since inception in 2017)  
(自 2017 年成立以來)

#### PolyU-supported start-ups 理大支持的初創企業

300+

(70% in active operation 處於積極營運狀態)

International and regional awards won  
贏得的國際和地區獎項

200+

Follow-on funding secured  
後續資金

HK\$430+

million 百萬港元

## Supporting the commercialisation of research 支援研究成果商品化

PolyU puts a strong emphasis on promoting the commercialisation of its impactful research technologies through start-ups. During the year, nine start-ups were created by academics/students for this purpose, some of which secured funding support from PolyU's Tech Launchpad Fund, which is supported by the Innovation and Technology Commission of the HKSAR Government's Technology Start-up Support Scheme for Universities.

理大致力於推動以初創企業型式，將具影響力的科研技術商品化。年內，理大的學者/學生採用此模式開設了九家初創企業，其中部分更獲理大成立的科技領航基金資助。該基金獲香港特區政府創新科技署的大學科技初創企業資助計劃支持。

The University also helps academics and researchers carry out market validation on their research technology to help shape the commercialisation pathway. For example, the PolyU Lean Launchpad Programme was put in place with support from industry partners. As of June 2020, the programme had supported 24 teams, working in the areas of fashion and wearable technology, health technology, smart city, AI and big data.

此外，大學支援學者和研究人員為其科研技術進行市場驗證，繼而開拓商品化的契機，例如在業界合作夥伴的支持下，設立「精益啟動創業計劃」。截至2020年6月，此計劃已支援24個團隊，涵蓋時裝與穿戴式科技、醫療科技、智慧城市、人工智能和大數據等領域。

During the year, PolyU and the Shenzhen Government jointly launched a pilot programme to help the University's doctoral graduates commercialise their research through funding support from both parties. Under the programme, six graduates will conduct their research under the guidance of academic supervisors, and commercialise it through start-up ventures with the support of industry mentors.

年內，理大和深圳政府合作推出一項計劃，雙方資助理大博士畢業生將其研究成果商品化。於此計劃中，六名博士畢業生將在學術導師的指導下進行研究，並在業界導師的支持下，透過初創企業把研究成果商品化。



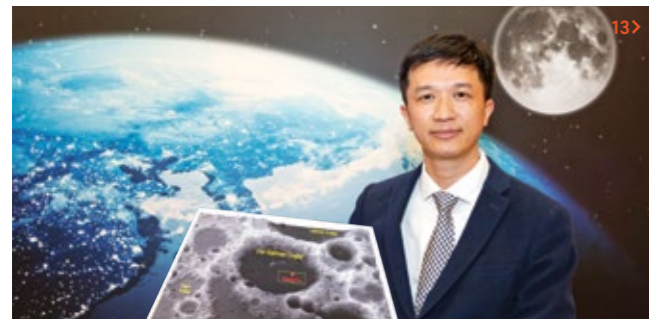
## Awards for innovations and inventions 創新發明獎項



PolyU academics and students continuously push back the frontiers of knowledge and win recognition for their remarkable achievements.

理大師生全人致力於開拓知識，屢獲殊榮，成就斐然。

Researcher 科研人員	Department 學系	Invention/Project 發明/項目	Award 獎項
Professor Chetwyn Chan 陳智軒教授	Department of Rehabilitation Sciences 康復治療科學系	Research on Key Technologies and Clinical Application of Integrated Chinese and Western Medicine for Post-stroke Rehabilitation 腦卒中後功能障礙中西醫結合康復關鍵技術及臨床應用	State Scientific and Technological Progress Awards (Second Class Prize) 國家科學技術進步獎二等獎
Professor John Xin 忻浩忠教授	Institute of Textiles and Clothing 紡織及服裝學系	Key Technology of Digitisation Textile Fabric Colours and its Industrialisation 紡織面料顏色數字化關鍵技術及產業化	State Scientific and Technological Progress Awards (Second Class Prize) 國家科學技術進步獎二等獎
13> Professor Wu Bo 吳波教授	Department of Land Surveying and Geoinformatics 土地測量及地理資訊學系	Development of a lunar topographic mapping and geomorphological analysis technique for finding the best location for Chang'e-4 landing on the far side of the Moon 研發月球地形測繪和地貌分析技術，為「嫦娥四號」選取在月球背面登陸的最佳著陸點	Leader of the Year Award 2019 by Sing Tao News Corporation Limited (Education/Professions/Technology and Innovation category) 星島新聞集團「2019年傑出領袖」(教育/專業/科技及創新組別)
14> Professor Yung Kai-leung 容啟亮教授	Department of Industrial and Systems Engineering 工業及系統工程學系	Development of the Camera Pointing System which enabled Chang'e-4 to send back stunning panoramic images of the landing and rover deployment 研發「相機指向系統」，協助「嫦娥四號」傳送登月和月球車探測活動的全景相片	Leader of the Year Award 2019 by Sing Tao News Corporation Limited (Education/Professions/Technology and Innovation category) 星島新聞集團「2019年傑出領袖」(教育/專業/科技及創新組別)



## The Silicon Valley International Invention Festival 矽谷國際發明展 2019

Researcher 科研人員	Department 學系	Invention/Project 發明/項目	Award 獎項
15> Dr Loo Ka-hong 盧家航博士	Department of Electronic and Information Engineering 電子及資訊工程學系	Smart Indoor Farming System 智能室內種植系統	Grand Award and Gold Medal with the Congratulations of the Jury 特別大獎及評判特別嘉許金獎
16> Dr Joanne Yip Yiu-wan 葉曉雲博士	Institute of Textiles and Clothing 紡織及服裝學系	Flexible Scoliotic Brace with Shape Memory Alloy Struts 配備形狀記憶合金鉸鏈的可動式矯形腰背架	Gold Medal and Special Merit Award 金獎及優異獎

## The 71st International Trade Fair for Ideas, Inventions and New Products 第71屆國際創意、發明及新產品展

Researcher 科研人員	Department 學系	Invention/Project 發明/項目	Award 獎項
17> Professor Guo Hai 郭海教授	Department of Civil and Environmental Engineering 土木及環境工程學系	Atmospheric Acidic Ultrafine Particle Measuring Device 大氣酸性超細粒子測量器	Gold Medal and Special Merit Award 金獎及特別優異獎
18> Dr Li Lihua 李莉華博士	Department of Industrial and Systems Engineering 工業及系統工程學系	Object Detection and Distance Measurement Sensor based on Light Field Imaging 基於光場成像原理的物體偵測和距離測量傳感器	Gold Medal 金獎
Mr Gary CM Leung 梁仲明先生	Co-founder and Chief Executive Officer of Blue Pin (a PolyU supported start-up), and PhD student of the Department of Electronic and Information Engineering 理大初創企業Blue Pin聯合創辦人及總裁、理大電子及資訊工程學系博士生	Dolphin-Effective Indoor Positioning Service Dolphin-有效可靠的室內定位服務	Gold Medal 金獎





### ASM Technology Award 2019 ASM 科技大賽

Student 學生	Department 學系	Invention/Project 發明/項目	Award 獎項
Roy Chow Hung-ming, Shin Ji-ho, and Rudra Ajay Someshwar 周鴻銘、申智浩及Rudra Ajay Someshwar	Department of Mechanical Engineering 機械工程學系	ASME Competition Robot Development and Vision Based Target Alignment 機械人開發用作ASME大專生設計比 賽及視覺導航	Gold Award 金獎

### Global Student Innovation Challenge of the 13th International Convention on Rehabilitation Engineering and Assistive Technology 第13屆國際康復工程及輔助科技會議「世界大學生創新挑戰賽」

Student 學生	Department 學系	Invention/Project 發明/項目	Award 獎項
19> Chan Wai-dik Ivan, Yan Oi-wai, Lo Ho-yan, Fung Tsz-ching and To Hiu-fung 陳偉迪、甄愛慧、盧浩欣、 馮子晴及陶曉峰	Department of Rehabilitation Sciences 康復治療科學系	Snaker Spoon	Gold Award 金獎
Mo Hoi-yi, Wong Hiu-yan, Chan Mung-ni, Lau Wai- man and Chui Tsz-wan 毛凱怡、王曉恩、陳夢妮、 劉惠敏及徐紫筠	Department of Rehabilitation Sciences 康復治療科學系	Nailed it!	Bronze Award 銅獎

### National Artificial Intelligence Challenge 全國人工智能大賽

Student 學生	Department 學系	Invention/Project 發明/項目	Award 獎項
20> Zeng Hui, Yang Xi and Liang Jie 曾輝、楊熹及梁傑	Department of Computing 電子計算學系	Exploring the performance of 4K high dynamic range (HDR) standard in terms of image resolution, details, colour and dynamic range and designing business solutions 探討4K高動態範圍 (HDR) 標準在圖 像分辨率、清晰度、色彩及動態方面 的表現並設計商業方案	First Class Award (AI + 4K HDR category) 「AI + 4K HDR」組別一等獎

### 2019 HK4As Students' Award 2019年香港廣告商會金帆廣告大獎

Student 學生	Faculty 學院	Invention/Project 發明/項目	Award 獎項
21> Cheng Tsz-yin, Cheung Chi-ho, Ng Wing-ki and Wong Chun-hei 鄭子彥、張志豪、吳穎琪 及王俊晞	School of Design 設計學院	Meatless Meat Relocation Meatless Meat 重置家園計劃	Best of Show and Gold Award 最佳表現獎和金獎
Cheuk Pui-shing, Li Nga- ching, Or Wai-man and Yip Ka-lam 卓沛成、李雅晴、柯蕙汶 及葉嘉林	School of Design 設計學院	Trust Your Bite	Merit Award 優異獎
Alex Lai Chun-hei, Lui Siu-sing, Cheung King- ting and Hau Wing-lam 黎鎮熙、呂兆升、張景婷 及侯穎琳	School of Design 設計學院	No Absolute Meat, Only Absolute You 沒有絕對的肉，只有絕對的你	Merit Award 優異獎
Yip Ka-chun 葉嘉俊	School of Design 設計學院	幾成肉	Merit Award 優異獎

