

# 理PolyU 程Milestones



THE HONG KONG  
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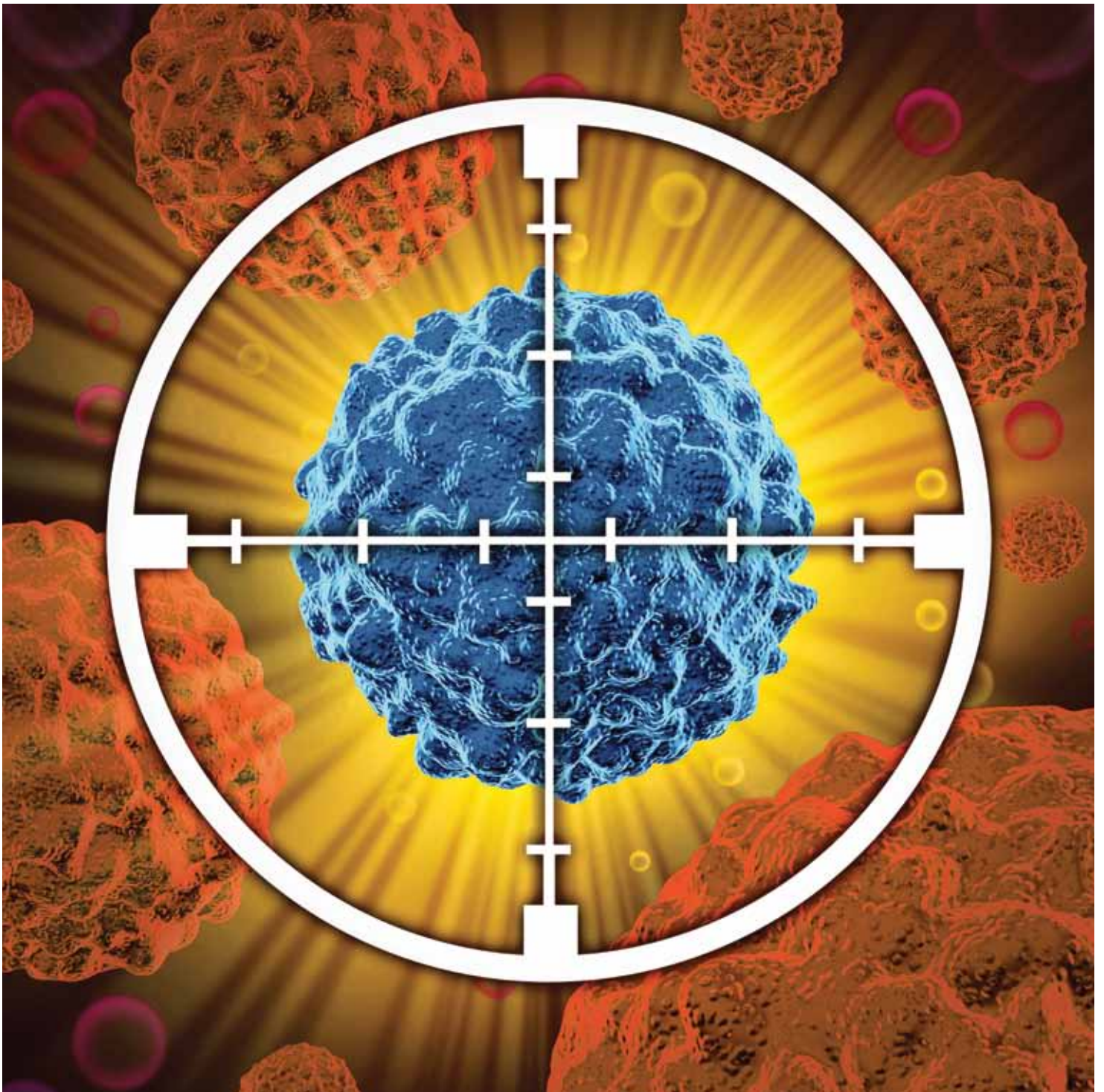
凝聚智慧 創建未來  
INNOVATION AND APPLICATION  
FOR THE FUTURE

Hope for cancer healing

癌症治療 再現曙光

June 2012

2012年6月





# Hope for cancer healing 癌症治療 再現曙光

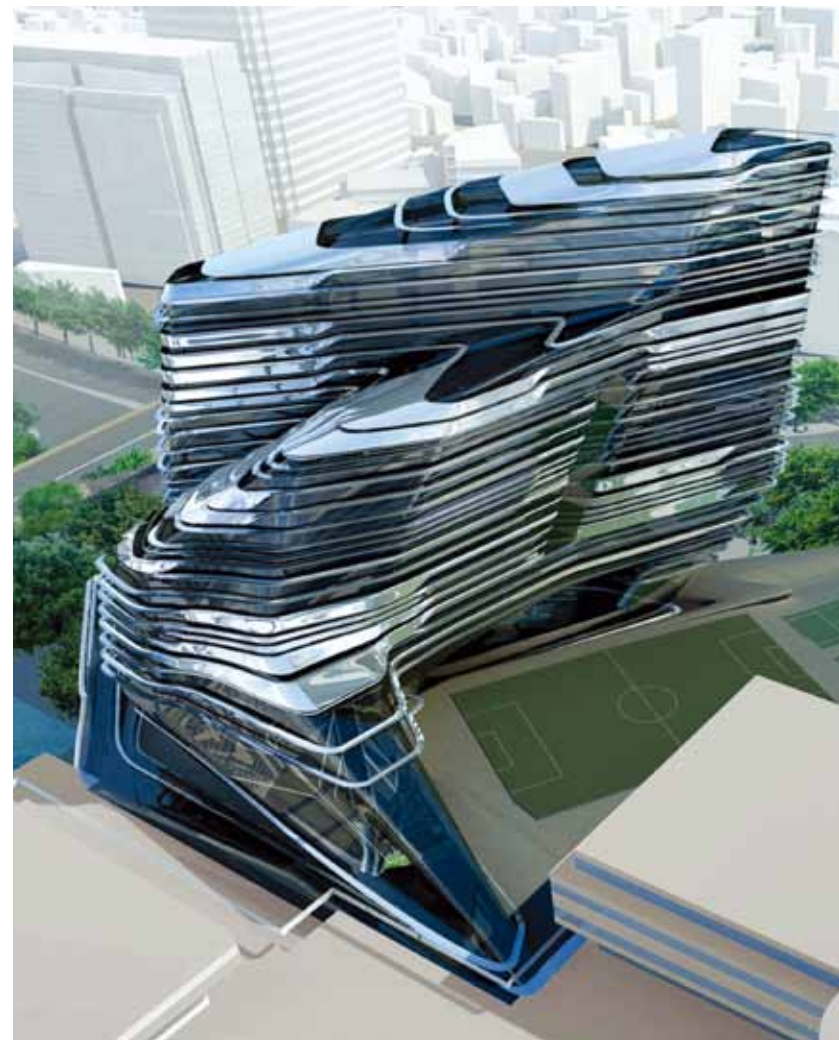


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Recent studies have pushed PolyU to the leading edge of cancer research with alternative treatment methods.

理大在癌病另類療法的最新研究中，取得突破性進展。

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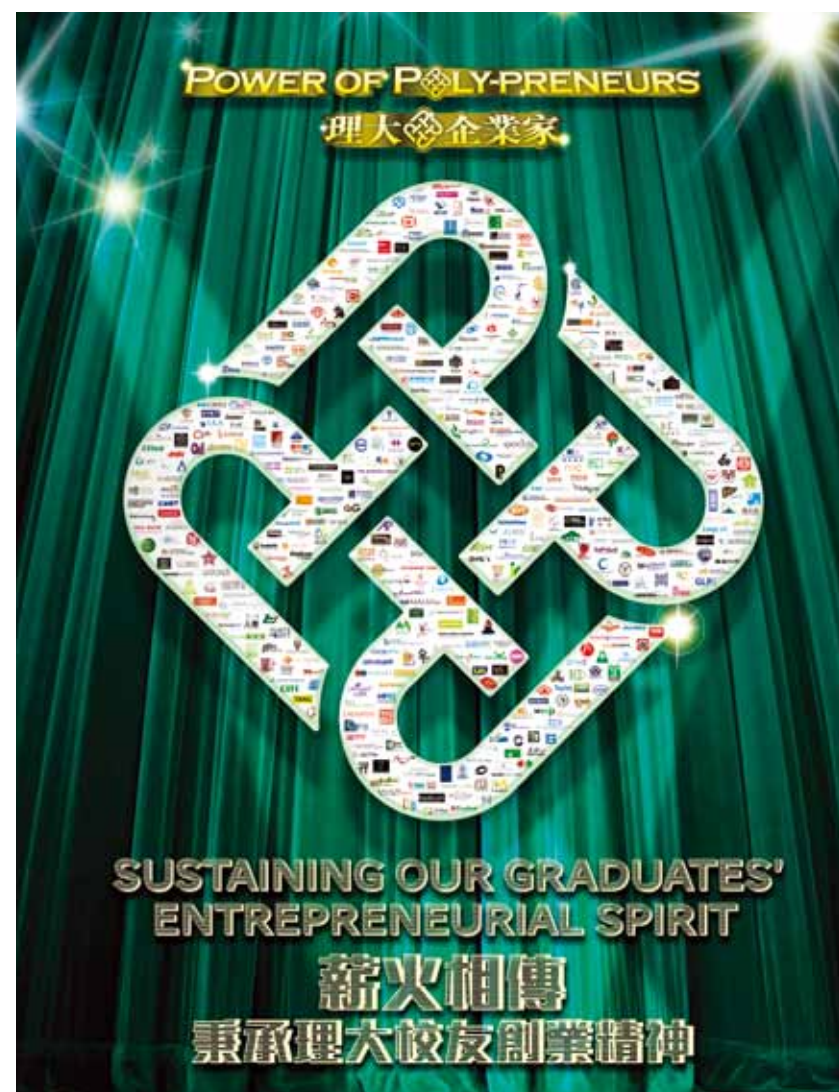
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理大在癌病另類療法的最新研究中，取得突破性進展。

# Hope for cancer healing

## 癌症治療 再現曙光

Cancer is one of the leading causes of death worldwide, outpacing the effects of AIDS, tuberculosis and malaria. A serious problem for the medical sciences, it is responsible for between seven and eight million deaths each year, with that number expected to rise to 10 million by 2020. There has long been an obvious need to deal with this situation, but current forms of treatment are often limited in their effects. Radiation therapy and chemotherapy have drastic side effects, and surgery is only helpful in those few cases that are detected early.

Fortunately, researchers at PolyU have recently made major breakthroughs that offer hope for effective alternative treatments. Ranging from the use of an African mushroom extract as a food supplement and compounds that target proliferating cancer stem cells to drugs that starve cancer cells of an essential nutrient, teams from the Department of Applied Biology and Chemical Technology have been offering new hope that this deadly disease might yet be tamed.

癌症是導致全球人口死亡的主因之一，較愛滋病、結核和瘧疾的影響更深更遠。每年因癌病致死的人數達七至八百萬，這個數字預計到二零二零年將上升至一千萬，確實是醫學上一個嚴峻的問題。這個情況一直以來都備受關注，但目前不同癌症療法的效用都有所局限。放射治療和化療有很強的副作用，而手術亦只適用於少數及早發現的病例中。

最近，理大研究人員鑽研有效的另類療法，並取得重大的突破。應用生物及化學科技學系的研究團隊，從非洲虎奶菇提取物製成保健食品，更研發針對腫瘤幹細胞繁殖的化合物，以及開發消耗癌細胞生長所需養料的藥物。這些成果令人鼓舞，為戰勝致命癌魔燃點了新的希望。







Mycelia  
菌絲體

Mature fruiting bodies  
成熟的子實體

## Mushroom extract inhibits breast cancer

The most recent breakthrough has solved a vexing problem in the use of selenium for cancer treatment. Selenium is a trace element essential for human health that has drawn attention from researchers around the world for its excellent bio-availability, low toxicity and strong anti-tumour activity. Yet these characteristics are only apparent at the nanoscale, and selenium nanoparticles clump together very easily. The challenge, then, has been to stabilize the particles so they retain their scale.

Dr Wong Ka-hing, Assistant Professor at the PolyU's Department of Applied Biology and Chemical Technology and Associate Director of the Food Safety and Technology Research Centre, solved this problem with a novel approach. He successfully prepared highly stable, size-controllable selenium nanoparticles that are water dispersible using a polysaccharide protein complex extracted from the African tiger milk mushroom. The added benefit of the process is that it can be achieved using a simple food grade redox (oxidation-reduction) system.

Looked from a slightly different angle, Dr Wong has developed a method that promises to deliver ultimate products that can be consumed as food or health supplements. This will obviously make them more appealing as anti-cancer treatments, given their ease of use and potential for wide availability. Ultimately, that could lead to governments reducing the now spiralling cost of cancer treatments in public healthcare systems.

Dr Wong's preliminary study found that the stabilized selenium nanoparticles could significantly inhibit the growth of breast cancer cells by apoptosis, or cell death. Recently, he reported even more promising results. "By using different mushroom polysaccharide-protein complexes as the stabilizer", he said, "the resulting selenium nanoparticles exhibit strong in vitro anti-tumour activity against different kinds of cancer cell lines".

In the next stage of his research, Dr Wong will evaluate the anti-cancer activity of the stabilized selenium nanoparticles on small animals, and elucidate the underlying mechanism of their growth-inhibition effects on breast cancer cells. He will also be looking to determine at how many of its developmental stages the African tiger milk mushroom could be used for cancer research. With this in mind, PolyU has partnered with the city government of Zhaoqing in Guangdong and a commercial mushroom farm to grow the mushroom in large enough quantities to support further research.

Dr Wong's research on the preparation of selenium nanoparticle with strong anti-tumour activity won him the Young Investigator Award at the 2011 International Conference on Food Factors in Taipei. In 2012, he received a Gold Medal and the Prize of the Chinese Delegation at the 40th International Exhibition of Inventions in Geneva. He holds a Chinese patent for this novel nanotechnology.

Dr Wong Ka-hing wins a Gold Medal and the Prize of the Chinese Delegation at the 40th International Exhibition of Inventions. 黃家興博士在第四十屆國際發明展中奪得金獎及中國代表團獎。



## 虎奶菇提取物抑制乳腺癌

理大的最新突破，解決了利用「硒」作癌症治療的一個棘手問題。「硒」是一種人體健康必需的微量元素。由於納米硒具有生物可用度高、毒性低及抗腫瘤活性強等特質，因而成為世界各地科研人員熱衷探索的議題。然而，納米硒粒子很容易粘結在一起，而它的特性只顯現在納米尺度中。所以，要有效地穩定納米粒子以保持其尺度實在是一個挑戰。

理大應用生物及化學科技學系助理教授兼食物安全及科技研究中心副總監黃家興博士以一個嶄新方法解開了這個難題。他從非洲品種的虎奶菇中提取多糖蛋白複合物，在一個簡單的食品級氧化還原體系中，成功研製出具有高穩定性、大小可控及可水溶的納米硒粒子。

從另一個角度來看，黃博士其實開發了一種方法，可用以製造食品或保健產品。由於這些抗癌食品易於服用和可大量供應，預計將廣受歡迎。最終，這有助減低現時政府在公共醫療體系中為治療癌病所花費龐大的開支。



“ By using different mushroom polysaccharide-protein complexes as the stabilizer, the resulting selenium nanoparticles exhibit strong in vitro anti-tumour activity against different kinds of cancer cell lines.

以不同菇類的多糖蛋白複合物作為穩定劑，其製造出來的納米硒粒子，能對不同類型的腫瘤細胞呈現高抗腫瘤活性。

”

根據黃博士的初步研究，這些穩定化納米硒能高效地誘導乳腺癌細胞凋亡。最近，他再發現令人振奮的研究結果。他表示：「以不同菇類的多糖蛋白複合物作為穩定劑，其製造出來的納米硒粒子，能對不同類型的腫瘤細胞呈現高抗腫瘤活性。」

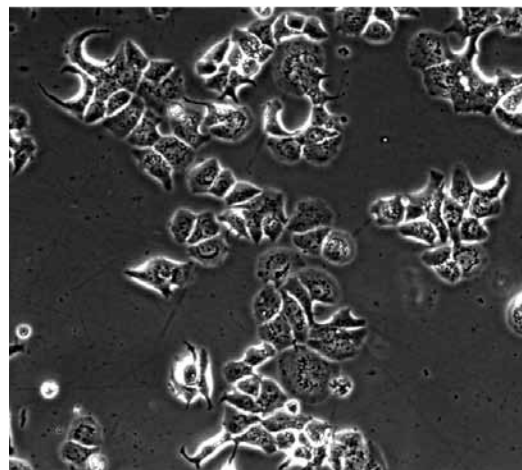
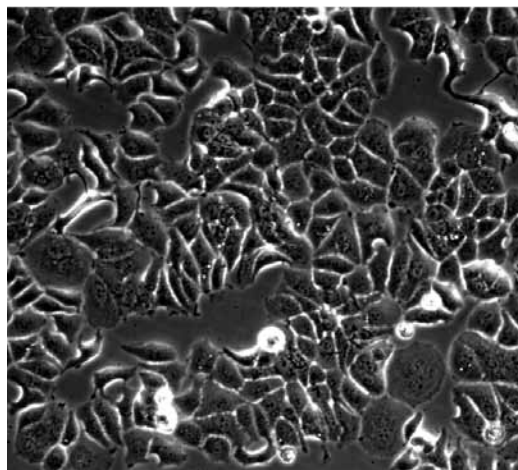
在研究的下一階段，黃博士將會評估穩定化納米硒在實驗動物身上的抗癌功效，以及探索其抑制乳腺癌細胞增長的背後機理。黃博士亦會探討虎奶菇在不同生長階段是否也可以用於抗癌研究。理大已與廣東省肇慶市政府及一所菇場達成合作協議，大量培植虎奶菇以供進一步研究之用。

黃博士這項製備抗腫瘤納米硒的研究，為他贏得於台北舉行的二零一一年國際食品保健因子大會上頒授的「青年科學家獎」。此外，這項研究亦於二零一二年於日內瓦舉行的第四十屆國際發明展中，奪得金獎及中國代表團獎。黃博士這項嶄新的納米技術擁有一項中國專利權。

Growing sclerotia  
生長中的菌核



Inhibitor treatment on breast cancer cells (right picture) versus the control treatment (left picture)  
抑制劑對抗乳腺癌細胞 (右圖) 與對照組 (左圖) 的比較



## Research collaboration targets cancer stem cell growth

Another of the more difficult problem facing cancer researchers lies in determining how to halt the early proliferation of cancer cells. Cancer stem cells, otherwise known as cancer initiating cells, exist only in small numbers but can easily proliferate and self-renew. They resist chemotherapy and radiation therapy due to their differences in cell cycle regulation and DNA repair processes, and metastasise into a range of differentiated cancer cells that form tumours.

The lack of chemical inhibitors or other agents to halt this process inspired a PolyU team led by Dr Ye Tao, Associate Professor at the Department of Applied Biology and Chemical Technology, to conduct collaborative research with teams from the Peking University Shenzhen Graduate School and the Nevada Cancer Institute in the United States.

A leading scientist in the field of chemical biology, Dr Ye has been very successful in obtaining funding from the Research Grants Council and the Innovation and Technology Fund to carry out both basic and applied research. His anti-cancer drug discovery programme was also supported by the generous donation received from Fong Shu Fook Tong Foundation and Joyce M. Kuok Foundation. Under his guidance, the PolyU team worked on the search for inhibitors of LSD1, a histone demethylase that is highly expressed in a broad range of tumours. Of nine potential inhibitors developed, two – CBB1003 and CBB1007 – proved most successful. In tests of a variety of cell lines, the two compounds inhibited the growth of cancer stem cells but had only minimal effects on other cancer cells and normal cells.

According to Dr Ye, the new LSD1 inhibitors could be put to clinical use in three ways. They

could first be used to treat malignant germ cell tumours such as teratomas, teratocarcinomas and embryonic carcinomas, all of which are usually treated through surgery or with cis-platinum. The drawback of these conventional methods is that after initial treatment, the tumours always become resistant to platinum drugs.

The inhibitors could also be used in stem-cell-based therapy. One of the difficulties posed by such therapy is that it tends to cause the formation of embryonic carcinomas, teratomas, or teratocarcinomas when embryonic and induced pluripotent stem cells incompletely differentiate in the organs of recipients. With LSD1 inhibitors selectively inhibiting these cancers, successful application of stem cell therapy could be ensured.

Dr Ye mentioned that the inhibitors will also be highly useful in selectively inhibiting the proliferation of cancer stem cells into other types of cells that cause organ-specific forms of cancer such as breast, ovarian, lung and brain cancer, and leukaemia. He said that further studies have indicated that the LSD1 inhibitors can also be used to inhibit the cancer stem cells that ultimately cause liver, gastric and kidney cancer.

Leading pharmaceutical companies such as Johnson & Johnson, Pfizer and Roche have shown great interest in further developing the new class of LSD1 inhibitors. The collaborative group's findings have also generated attention from the scientific community around the world. Part of the research work has already been published in *Cancer Research* and was highlighted by *Nature* (China) earlier this year.

## 針對腫瘤幹細胞生長的協作研究

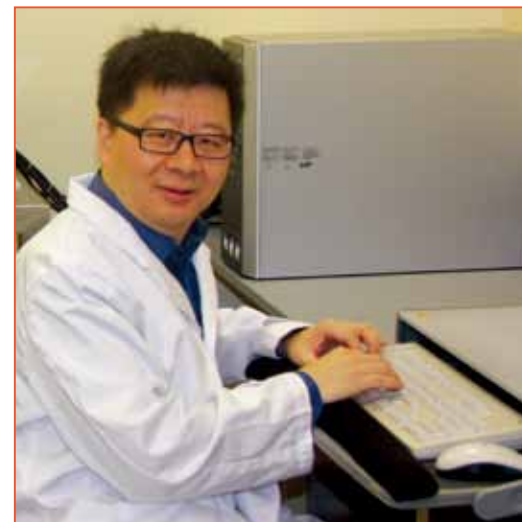
有關癌症研究的另一更大難題，是如何制止癌細胞早期的繁殖。腫瘤幹細胞（或稱腫瘤啟動細胞）數量雖然很少，但它們可以迅速繁殖和自我更新。由於幹細胞在細胞週期調控及基因損傷修復過程與正常的體細胞不同，因此它們對化療和放射治療具有較高的抵抗力。這些幹細胞還可成為腫瘤轉移的源頭。

現時缺乏化學抑制劑或其他可制止癌細胞繁殖的藥物，這啟發了理大應用生物及化學科技學系副教授葉濤博士帶領北京大學深圳研究生院和美國內華達癌症研究所的研究團隊，共同進行合作研究。

葉濤博士是化學生物學領域的權威科學家之一，並屢獲研究資助局和創新及科技基金撥款資助其基礎及應用研究。他的抗癌藥物研究項目同時也得到方樹福堂基金和郭謝碧蓉基金的捐贈支持。在他的領導下，理大團隊致力研究能高效對抗不同類別腫瘤的組蛋白去甲基酶LSD1的抑制劑。研究人員研製出九種有潛力的抑制劑，其中CBB1003及CBB1007兩種被證實最為有效。在各種腫瘤系的測試中顯示，這兩種複合物能成功抑制腫瘤幹細胞的生長，但對其他癌細胞和正常細胞的影響則很微。

葉博士說：「新開發的LSD1抑制劑可應用於三種臨床情況。首先，它們可用以治療惡性生殖系腫瘤，如畸胎瘤、畸胎癌及胚胎癌等。這些腫瘤一般以外科手術或順鉑治療，弊病是在首次治療後，通常都會產生順鉑抗性。」

這些抑制劑亦可用於幹細胞治療。這種治療的最大問題是，植入受體器官中的幹細胞或誘導性多能幹



Dr Ye Tao  
葉濤博士

“ The newly developed inhibitors can inhibit the growth of cancer stem cells but has only minimal effects on other cancer cells and normal cells.

新開發的抑制劑能成功抑制腫瘤幹細胞的生長，但對其他癌細胞和正常細胞的影響則很微。

”

細胞不完全分化導致胚胎癌、畸胎瘤或畸胎癌的形成。LSD1抑制劑選擇性地抑制這些癌病，因此有助成功施行幹細胞治療。

葉博士指出，這些抑制劑有效地選擇性抑制其他主要器官腫瘤的腫瘤幹細胞，如乳腺癌、卵巢癌、肺癌、腦癌及白血病腫瘤等。進一步的研究結果顯示，這些LSD1抑制劑亦適用於抑制肝癌、胃癌和腎癌的腫瘤幹細胞。

大型製藥公司，包括強生、輝瑞和羅氏，對進一步發展新型LSD1抑制劑均很感興趣。合作團隊的研究結果亦引起了全球科學界別的關注。部分研究成果已刊載於《癌症研究》(Cancer Research) 期刊，並於二零一二年初獲《自然（中國版）》(Nature China) 重點報導。



BCA-PEG20  
藥物

## A solid foundation

These two major breakthroughs have not occurred in isolation. In recent years PolyU has played a leading role in cancer research through efforts at the Department of Applied Biology and Chemical Technology in general and the Lo Ka Chung Centre for Natural Anti-Cancer Drug Development in particular.

Established in late 2006, the Centre carries out pioneering research into natural anti-cancer drugs, and contributes directly to the community by promoting educational training and scientific information on cancer-related discoveries. The Centre's research team itself has made two important discoveries – both related to the amino acid arginine.

Arginine is considered a conditionally essential amino acid, which means that the human body produces its own supply in most cases. Notable exceptions are premature babies, who need to receive it as a dietary supplement. Cancer cells fail to synthesize their own arginine and have to acquire arginine from the blood. The depletion of arginine in blood causes the arginine-dependent cancer cells to die while leaving the normal cells unharmed.

With a keen awareness of this process, team members at the Centre jointly researched BCT-100, a new drug for liver cancer that depletes arginine with a natural human enzyme, with Bio-Cancer Treatment International Limited (BCT) at the laboratory stage. The drug, BCT-100, is currently under phase I/II clinical trials at Queen Mary Hospital, and the results have been encouraging so far. Generating extensive local and global attention, the breakthrough earned the team both a Gold Award and a Special Gold Award at the 33rd International Exhibition of Inventions in Geneva during 2005. Thereafter, BCT followed up on additional research and development. Submitted by BCT as its sole owner, BCT-100 has become Hong Kong's first Investigational New Drug (IND) approved by the US Food and Drug Administration (FDA). BCT-100 has been granted FDA approval in March 2012 for starting the clinical trial in the U.S. Phase I clinical study on liver cancer patients will be conducted in Loma Linda University in the fourth quarter of 2012.

Since the Centre's establishment, the team has continued investigating the use of arginine depletion under the leadership of Prof. Thomas Leung and Dr Thomas Lo. They have developed a second drug, BCA-PEG20, which represents a new paradigm for treating many types of cancer. This can be best understood through comparison with a similar drug under development, ADI-PEG 20.

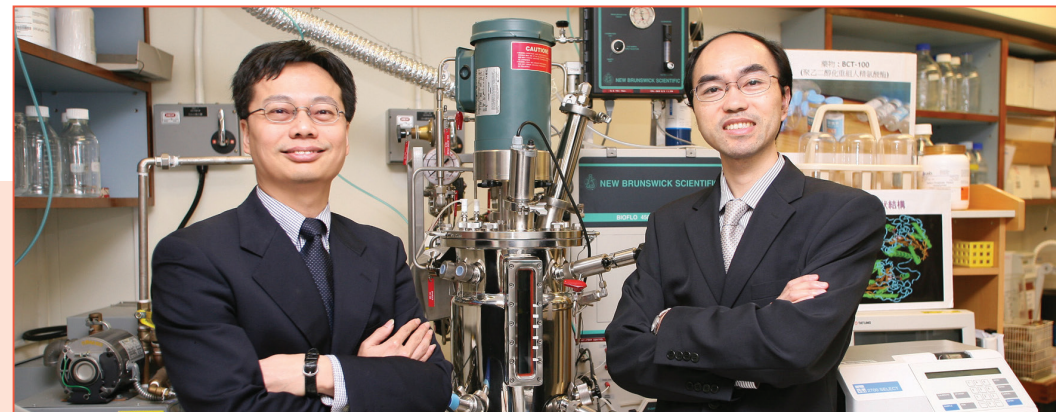
Otherwise known as pegylated arginine deiminase, ADI-PEG 20 is being developed by a major multinational biopharmaceutical company. Like BCA-PEG20, it systematically depletes arginine from cancer cells. However, despite widespread publicity and promising clinical trials, the drug is limited in its effectiveness, with a relatively small selection of cancer types affected. This is where the new PolyU breakthrough becomes very important.

The team at the Lo Ka Chung Centre recently used state-of-the-art DNA technology and protein modification to formulate a similar drug with a significantly prolonged half-life. BCA-PEG20 is based on a special heat-stable arginase – an enzyme that converts arginine into ornithine and urea – and kills cancer cells that cannot be treated by ADI-PEG20. Pre-clinical findings so far suggest that the new drug kills cancer cells effectively and safely, dramatically expanding the usefulness of arginine depletion to a wide range of cancer types.

As the team put it when describing their research, BCA-PEG20 “brings a ray of hope to cancer patients”.

For its efforts in developing the drug, the team was awarded the Prize of the State of Geneva and the Gold Medal with Jury's Commendation at the 37th International Exhibition of Inventions in 2009.

A year later, the team joined the SEED (Scientists to Entrepreneurs, Education and Development) competition, a life-sciences business plan competition sponsored and jointly organized by Roche, OrbiMed and McKinsey. Their business plan entitled “A new biological drug BCA-PEG20 for treating lung cancer and colorectal cancer” was one of 16 selected to go through to the final from a total of 77 submitted by leading scientists, researchers and entrepreneurs from throughout Greater China.

Dr Thomas Lo (left) and Prof. Thomas Leung  
勞偉雄博士(左)及梁潤松教授

“

BCA-PEG20 brings a ray of hope to cancer patients.

BCA-PEG20為癌症病人帶來一線希望。

”

## 穩固的根基

其實，理大在癌症研究方面取得的突破並非偶然。近年，理大透過應用生物及化學科技學系和專注於抗癌研究的盧家聰天然抗癌藥物研發中心進行一系列的開發工作，在癌症研究範疇一直肩負起領導的角色。

盧家聰天然抗癌藥物研發中心於二零零六年成立，旨在研發具有抗癌療效的天然藥物，並透過提供有關癌症研究的教育培訓及科學資訊，對社會作出直接的貢獻。中心的研究團隊擁有兩項重要發現，它們均與精氨酸相關。

精氨酸是一種必需氨基酸，人體通常可自行製造精氨酸，早產兒卻例外，需要以食物補充品形式攝取精氨酸。癌細胞無法自行製造精氨酸，因而依賴血液的供應。消耗血液中的精氨酸能導致這些依賴外源精氨酸的癌細胞死亡，同時人體正常細胞能維持正常功能而不受影響。

盧家聰天然抗癌藥物研發中心的研究團隊與康達醫藥科技有限公司（康達醫藥）在實驗室階段共同研發BCT-100，一種治療肝癌的新藥，以精氨酸酶誘導精氨酸耗竭作為治癌的新方法。這種藥物（BCT-100）現於瑪麗醫院進行第一及第二期的臨床試驗，效果令人鼓舞。這種新藥不但在本地及國際間受到廣泛關注，更於二零零五年在日內瓦舉行的第三十三屆國際發明展中獲得金獎及特別金獎。此外，其後康達醫藥繼續進行進一步的研究和開發，經康達醫藥提交申請，BCT-100成為首隻本港自主研發並通過美國食品藥品監督管理局批准臨床試驗申請的新藥。BCT-100於二零一二年三月獲美國食品藥品監督管理局批准，計劃於二零一二年第四季開始於美國洛瑪連達大學（Loma Linda University）進行第一期臨床研究。

中心自成立以來，研究團隊一直在梁潤松教授和勞偉雄博士領導下，致力鑽研精氨酸耗竭的用途。他們更研製出新一代的藥物BCA-PEG20，有效治療

多種癌症。要理解這種新藥的機理，必先將它與正在開發中的同類藥物ADI-PEG 20作比較。

ADI-PEG 20（精氨酸脫亞胺酶）由一所跨國生物製藥公司研發，它跟BCA-PEG20一樣，可以系統性地耗竭癌細胞中的精氨酸。然而，即使經過廣泛的宣傳，以及臨床試驗結果令人滿意，這藥物只對少數癌病種類起着作用，藥效顯然非常局限。這卻成為了理大突破性發現的重點。

最近，盧家聰天然抗癌藥物研發中心的研究人員利用基因技術，再配合分子修飾技術，成功研製出一種延長了體內半衰期而近似ADI-PEG 20的藥物——BCA-PEG20。它的主要成分是一種特殊的耐熱和穩定的精氨酸酶，是一種天然酵素，它的功能是将精氨酸分解成鳥氨酸和尿素等代謝物，並殺滅ADI-PEG 20所不能對抗的癌細胞。臨床前研究結果顯示，這種新的藥物有效且安全地殺滅癌細胞，更大幅擴展精氨酸耗竭的效用至不同類型的癌症。

研究團隊在介紹有關研究時指出，BCA-PEG20為癌症病人帶來一線希望。

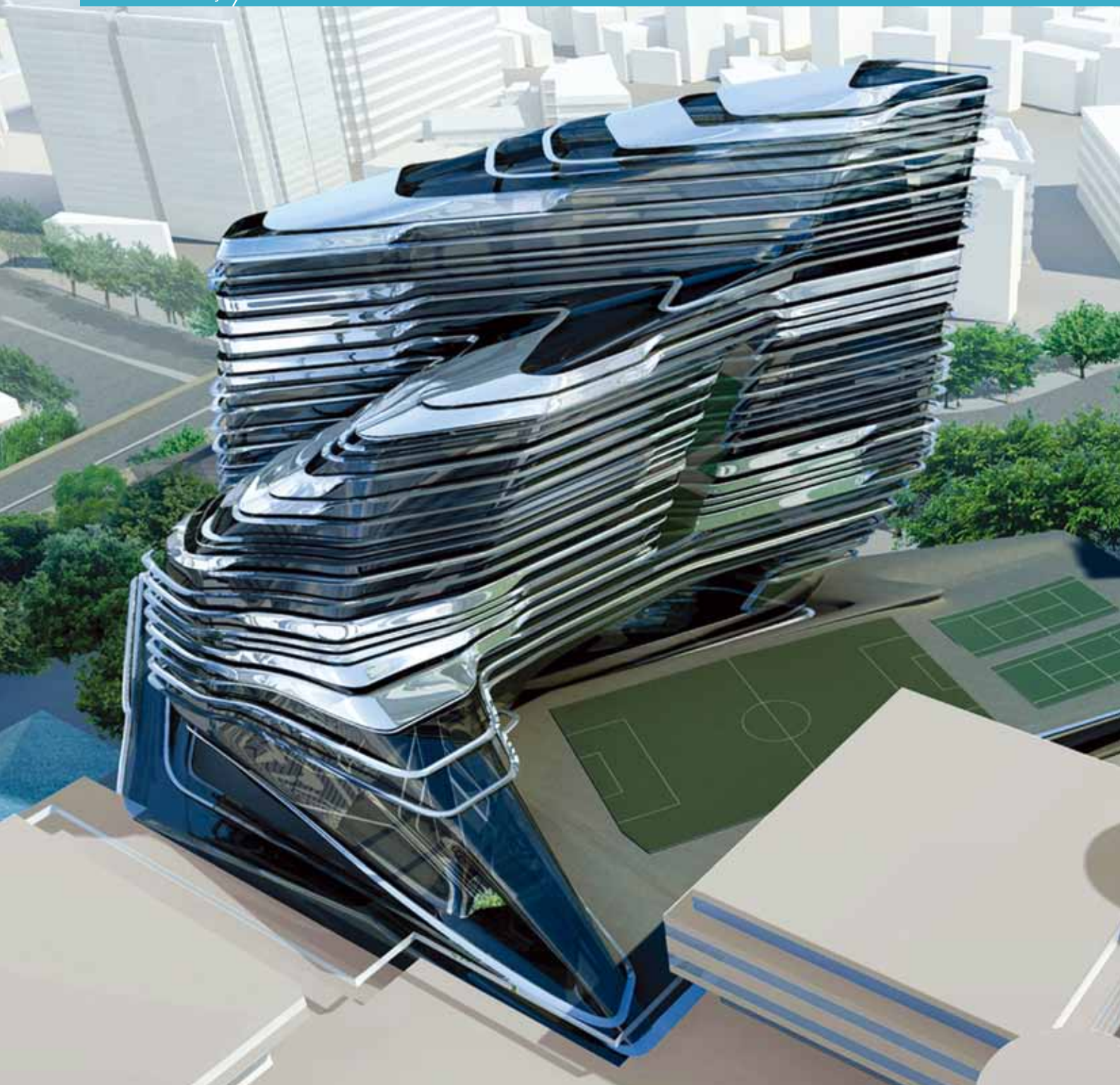
在二零零九年的第三十七屆國際發明展中，該項突破性藥物奪得日內瓦州政府大獎及評審團特別嘉許金獎。

一年後，團隊參加了由羅氏（Roche）、沃脈德資本（OrbiMed）和麥肯錫公司（McKinsey）聯合主辦的SEED金種子大賽（SEED意思是「從科學家到企業家的教育和發展」），這是一個生命科學商業計劃書比賽。理大團隊的商業計劃書題為「一種嶄新用以治療肺癌和大腸癌的生物學藥物BCA-PEG20」，在七十七份大中華區內傑出科學家、研究人員和企業家提交的計劃書中，被挑選為進入總決賽的十六份計劃書之一。

Taken together, these four breakthroughs by PolyU researchers indicate the extent to which the University is pushing back the barriers to healthy living for all. In no better way could we enact the University's motto, “To learn and to apply, for the benefit of mankind”.

以上四項理大研究人員的豐碩成果，代表着大學為改善人類健康生活而努力不懈，這正是我們彰顯大學校訓「開物成務 勵學利民」的最佳見證。◆





## Jockey Club's generosity fuels innovation

### 賽馬會慷慨捐款推動創新



(from left) Jockey Club Executive Director, Charities, Mr Douglas So; PolyU Council Chairman the Hon. Marjorie Yang; Jockey Club Chairman Mr T. Brian Stevenson; PolyU President Prof. Timothy W. Tong; and Dean of PolyU School of Design Prof. Cees de Bont host the JCDISI announcement ceremony.  
(左起) 香港賽馬會慈善事務執行總監蘇彰德先生、理大校董會主席楊敏德議員、香港賽馬會主席施文信先生、理大校長唐偉章教授及設計學院院長Cees De Bont教授一同主持宣布成立「賽馬會社會創新設計院」的典禮。

## HK\$249 million donation to boost Innovation Tower project and fund Design Institute for Social Innovation.

「創新樓」及「社會創新設計院」項目喜獲港幣二億四千九百萬元善款資助。

Innovation is a crucial element of PolyU's mission. That is why PolyU constantly searches for new knowledge, new processes and new designs to drive the University forward. In 2010, The Hong Kong Jockey Club Charities Trust has pledged to support the University's initiative in constructing the Jockey Club Innovation Tower that set to house the School of Design and the Jockey Club Design Institute for Social Innovation (JCDISI). With a very generous donation of HK\$249 million, the contribution has enabled PolyU to actualize its vision in design research and innovation. With Jockey Club Innovation Tower rising above the campus from mid-2013, a new era of innovative scholarship, collaboration and application is about to begin.

The benefaction will support state-of-the-art facilities within the Jockey Club Innovation Tower. Prof. Cees de Bont, Dean of the School, recently commented that "the building will definitely become a landmark and strengthen Hong Kong's status as a design hub".

Remarking on the extent of the funding, PolyU President, Prof. Timothy W. Tong, said that "this is the largest single donation ever received by the University since its establishment in 1937". He went on to thank the Jockey Club for its outstanding generosity and its support for "many other initiatives undertaken by PolyU over the years".

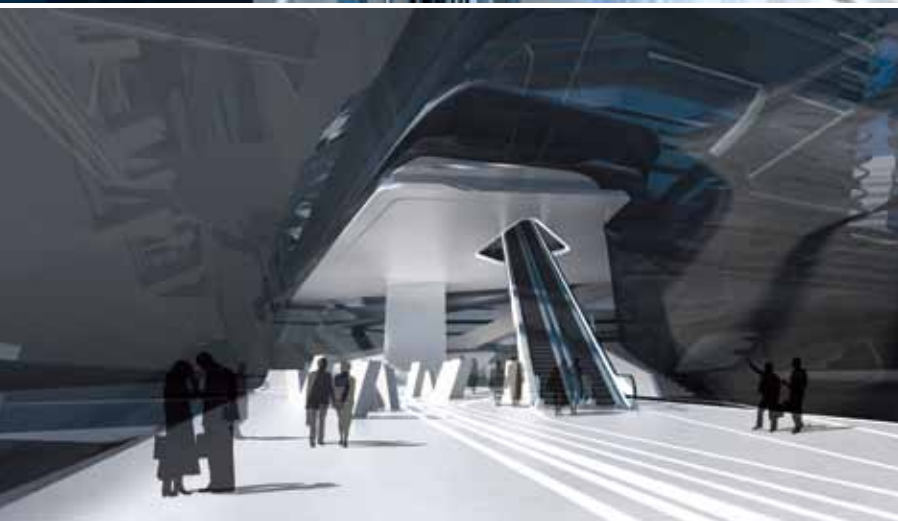
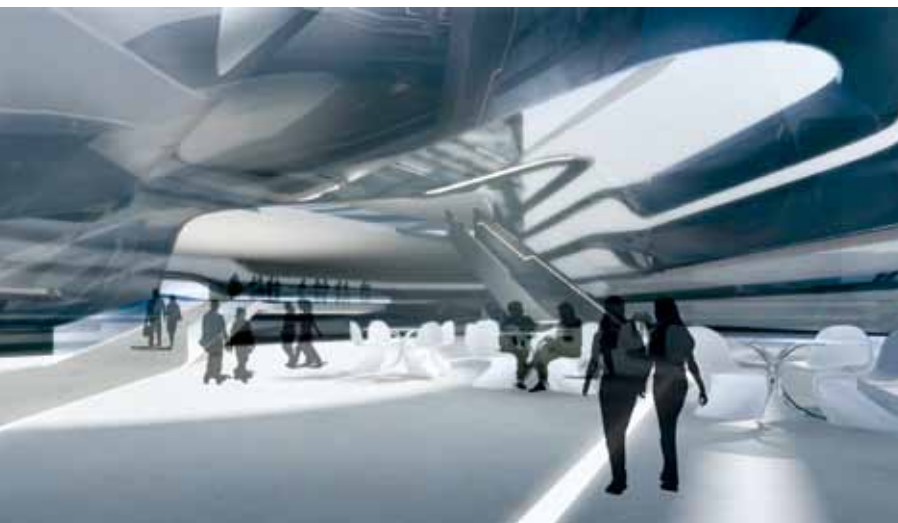
The Jockey Club Design Institute for Social Innovation will serve as a platform for developing promising design ideas with socially innovative elements. The Jockey Club will support JCDISI's establishment and fund its operating expenses for the first three years.

Speaking at the announcement of the initiative in January, Mr T. Brian Stevenson, Chairman of The Hong Kong Jockey Club, remarked that JCDISI will "provide a springboard for community education and training; foster student learning and help nurture a new generation of design professionals who are not only innovative but also socially conscious".

As an integral part of the School of Design, JCDISI is expected to become a 'third space' in the Hong Kong design landscape. It will conduct seminars and workshops and offer lectures targeting the Hong Kong design community, secondary and tertiary students, families, NGOs, community leaders and the general public.

From a research perspective, JCDISI will bridge academia and business by focusing on the development and commercialization of innovative multidisciplinary design products. It will also develop and promulgate best practices in design innovation for social good.





Within JCDISI, all design work will be grouped under four strategic themes that reflect the School of Design's core competencies: service design, sustainable environment, holistic health and adolescent and family development. Each theme will focus on emerging social needs in Hong Kong and the Pearl River Delta region. For instance, Prof. Martin Smith, Chair Professor of Industrial Design, explained that the sustainable environment theme "will look at and focus on transportation design systems within the Pearl River Delta region and Hong Kong proper".

Each thematic grouping will offer faculty members the opportunity to have closer contact with industry. Students will also benefit from working more closely with faculty members and being exposed more thoroughly to industry expectations.

Also in planning for when JCDISI is fully operational is an annual Design for Social Innovation Festival. The event will provide a creative platform for local, regional and international members of the design community to exchange views on socially innovative design. The Festival will culminate each year in the presentation of an award to an individual or group whose work best exemplifies the design for social innovation ethos.

Given their wide scope, JCDISI activities are expected to directly reach over 10,000 people each year, and very many more indirectly.

Combining JCDISI and Jockey Club Innovation Tower together will make them a highly visible marker of not just PolyU's but all of Hong Kong's design prowess. Prof. John Heskett, Chair Professor of Design, commented that the facilities available for "both joint projects with other disciplines and other institutions outside Hong Kong on a multidisciplinary basis" would mean that "Jockey Club Innovation Tower could become one of the world's leading research institutes in the field of design".

The practical outcome of this process will be a better quality of life in Hong Kong. As Mr Alvin Yip, Assistant Professor at the School of Design, put it, "this is very important for Hong Kong to rethink, to research and redesign to become a more sustainable city".

The Hong Kong Jockey Club deserves every plaudit for its very substantial role in helping to make Jockey Club Innovation Tower and JCDISI a reality. And PolyU will ensure that the Institute's vision is realized.



「創新」是理大使命的重要元素，因此理大在推動大學向前邁進的過程中，不斷尋求新知識、新進程和嶄新設計。香港賽馬會慈善信託基金於二零一零年承諾支持理大構思興建「賽馬會創新樓」，並將設計學院和「賽馬會社會創新設計院」設於大樓內。香港賽馬會更慷慨捐贈港幣二億四千九百萬元，促使理大在設計研究與創新領域的抱負能夠實現。隨着「賽馬會創新樓」於二零一三年年中聳立於校園內，一個創新學術、協作和應用的新年代亦將正式開始。

該筆捐款將資助購置大樓內的先進設施。理大設計學院院長Cees de Bont教授表示：「大樓將會成為香港的地標，並提升香港作為設計樞紐的地位。」

理大校長唐偉章教授表示：「這是大學自一九三七年創校以來最大筆的單一捐款。」他衷心感謝香港賽馬會的慷慨支持，以及它多年來支持理大所開展的其他眾多項目。

「賽馬會社會創新設計院」將提供一個平台，以發展既優秀且能造福社會的創新設計意念。賽馬會除支持「賽馬會社會創新設計院」的成立，亦為其首三年的運作提供資助。

香港賽馬會主席施文信先生在一月公布這項設施的典禮上表示，「賽馬會社會創新設計院」將會成為社區教育及培訓的跳板，鼓勵同學學習，協助培養具創新思維及社會意識的新一代設計人才。

「賽馬會社會創新設計院」是理大設計學院重要的一部分，勢必成為香港設計領域的「第三度空間」，為香港設計界、中學和大專學生、家庭、非政府機構、社區領袖和公眾人士等舉辦研討會、工作坊及講座。

在研究的層面上，「賽馬會社會創新設計院」將成為高等院校與工商業界之間的橋樑，致力就跨界別的創意設計進行研究及商品化，並發展及推動創新設計的最佳模式，以造福社會。

「賽馬會社會創新設計院」的工作將分為四大策略性主題，反映理大設計學院的核心競爭力，它們分別是：服務設計、可持續環境發展、全人健康，以及青少年與家庭發展。這四大主題將回應香港及珠

三角地區社會發展的需要。例如：工業設計講座教授Martin Smith教授解釋道：「『可持續環境發展』主題將集中研究珠三角地區和香港的交通系統設計。」

每個主題都可讓老師與業界作更緊密的聯繫。此外，學生與老師的合作亦將更緊密，並可更透徹地了解業界的期望。

當「賽馬會社會創新設計院」全面投入運作後，該院將每年舉行「社會創新設計節」，為本地、區內以至全球設計從業員提供一個創新平台，就社會創新設計進行互相交流。在每年的設計節中，將頒授一項個人或團體大獎，以表揚最能體現社會創新精神的設計。

由於「賽馬會社會創新設計院」涉獵的範疇廣闊，預計每年將有過萬名人士直接參與其活動，而間接參與的人士亦將多不勝數。

「賽馬會社會創新設計院」及「賽馬會創新樓」的結合，將不但是理大設計實力的一個清晰標誌，而且代表着整個香港設計業的力量。設計講座教授John Heskett教授表示，大樓內提供的設施，可供學院與其他香港境外機構合作進行跨學科、跨界別的專題研究，這意味着「賽馬會創新樓」將成為其中一所全球領先的設計研究院。

整個計劃將有助提升香港的生活質素。正如設計學院助理教授葉長安先生形容：「這個項目對於香港進行重新思考、研究及設計，以期成為一個更佳的可持續發展城市，是非常重要的。」

「賽馬會創新樓」和「賽馬會社會創新設計院」的興建計劃能夠順利進行，實在有賴香港賽馬會的鼎力支持。理大由衷地感謝賽馬會在這項目中所發揮的重要作用，同時將確保「賽馬會社會創新設計院」的抱負逐一實現。❖



Life Sciences 生命科學

# Orthokeratology — a promising solution for myopia 角膜矯形術 — 近視患者救星



The children who participated in the trials wore corrective contact lenses while sleeping to slow down the progression of their myopia.

參加試驗的兒童每晚睡眠時戴着矯視鏡片，以減慢近視加深的速度。

Clinical trials by PolyU optometry expert show that orthokeratology is effective in refractive vision correction, astigmatism reduction and myopia control.

理大視光學專家進行的臨床試驗顯示，角膜矯形術有效減低近視和散光，以及控制近視加深。

Prof. Pauline Cho  
曹黃惠華教授



Myopia (or shortsightedness) is a refractive defect of the eye in which collimated light produces an image focus in front of the retina. A recent four-year study conducted by Prof. Pauline Cho from the School of Optometry and her research team concluded that orthokeratology not only corrects refractive error but is also effective in slowing the progression of myopia.

Orthokeratology is a non-surgical means of correcting vision by wearing specially designed rigid contact lenses made from high oxygen-permeable material during sleep. The lens modifies the corneal shape and corrects the focus of the eye to rectify the wearer's vision. If successful, the wearer will have clear vision without using any vision aids for the rest of the day.

The research team began two clinical trials in 2008. The first was the ROMIO (Retardation of Myopia in Orthokeratology) study, the first-ever randomized, single-masked study to investigate the effectiveness of orthokeratology for myopia control in children. Seventy-seven children aged 7 to 10 with myopia of not more than 4.00D were randomly assigned to either an orthokeratology or a spectacle group. At the end of the 24-month study, the average increase in eyeball length in the orthokeratology group was 0.36mm, whereas in the spectacle group it was 0.63mm. The study demonstrated that the increase in eyeball length was about 43% slower in children who wore the orthokeratology lenses than in those who wore spectacles.

The second study was the TO-SEE (Toric Orthokeratology-Slowing Eyeball Elongation) study, in which 37 children aged 6 to 12 with myopia of not more than 4.50D and astigmatism between 1.25D and 3.50D participated. It was found that toric design orthokeratology effectively reduced astigmatism by 79% after one month of wearing the lenses. By the end of the 24-month study, the participants' eyeball length had increased by only 0.31mm, confirming the slowing of myopic progression.

With these results, orthokeratology has been established as a safe and effective solution for vision correction and myopia control.

近視的成因，是由於眼睛屈光系統的折射出現異常，以致視物不能正確地投射於視網膜上。最近，理大眼科視光學院曹黃惠華教授與其研究團隊，用超過四年時間進行研究，證實「角膜矯形術」在矯正視力的同時，亦能有效控制近視加深的速度。

角膜矯形術是一種非手術性的矯視方法。患者於夜間睡眠時佩戴一副特製的高透氧度硬性隱形眼鏡，以逐漸改變眼球角膜弧度，藉此矯正近視。如效果理想，患者於日間將不需要依靠眼鏡或隱形眼鏡的輔助，都能擁有清晰的視力。

自二零零八年起，研究團隊開展了兩項研究。第一項研究名為ROMIO，這是全世界首個以隨機方法，針對兒童而進行的單盲角膜矯形術的研究。七十七位年齡介乎七至十歲、近視在4.00D以下的兒童，被隨機地分配到角膜矯形組或佩戴眼鏡組。經過二十四個月的時間，角膜矯形組的兒童平均眼球長度增長為0.36毫米，而佩戴眼鏡對照組兒童的平均眼球長度增長則為0.63毫米。結果顯示角膜矯形術能有效減慢兒童眼球長度增長速度達43%。

在第二項名為TO-SEE的實驗中，三十七位年齡六至十二歲、近視不高於4.50D及散光在1.25D至3.50D之間的兒童參與試驗。結果顯示，使用者於佩戴散光角膜矯形鏡一個月後，其散光減少了79%。而於二十四個月後，他們的眼球長度只增加了0.31毫米，證明角膜矯形術可減慢近視的增長。

上述臨床試驗結果證實角膜矯形術是一種既安全又有效的矯視及控制近視的方法。◆



Life Sciences 生命科學

# More Tai Chi, less fall

## 勤練太極 減少跌倒

After practising simplified Tai Chi for four months, visually impaired elderly found improvements in their balance control and head and trunk movements.

視障長者練習簡易太極操四個月後，身體平衡和頭部與身軀的轉動都大有改善。

*A Tai Chi master teaches the simplified exercises to a visually impaired elderly.*  
太極導師指導視力有問題的長者學習簡易太極操。



Dr William Tsang (right) and Dr Amy Fu introduce "Tactile Tai Chi for the Visually Impaired".  
曾偉男博士(右)與符少娥博士介紹「觸手太極操」。

Funded by the S.K. Yee Medical Foundation, Dr William Tsang and Dr Amy Fu of PolyU's Centre for East-meets-West in Rehabilitation Sciences have developed a set of Tai Chi exercises, simplified from Yang style Tai Chi 24 forms to 8 forms, to improve the sense of balance control and reduce the risk of falls in the visually impaired elderly.

In their study, forty seniors with visual impairment were divided equally into two groups. One group practised the simplified Tai Chi in 90-minute sessions, three times a week for 16 weeks, whereas the control group learned to play Djembe as a percussion activity. After four months, the Tai Chi participants showed significant improvements in their balance control and head and trunk movements compared to those in the control group.

As the visually impaired elderly learned the Tai Chi exercises, an 8-form Yang Style Tai Chi, through tactile guidance provided by the master, the set of exercises is named "Tactile Tai Chi for the Visually Impaired".

Dr William Tsang pointed out that "the exercises are suitable for visually impaired people of all ages, not just for the elderly". The research team has produced a DVD that provides a detailed introduction to the exercises.

The study's findings were published in the international journal *Age and Ageing*. They correlated with the results of another Tai Chi study conducted by the Centre in 2004, which affirmed that practising Tai Chi could help to improve the sense of knee-joint position.

理 大中西薈萃之康復科學中心的曾偉男博士與符少娥博士合力簡化楊家二十四式太極拳為八式，供視障長者練習，以改善身體平衡，並減低跌傷的機會。這項研究獲余兆麟醫療基金資助。

在研究中，四十位視力有問題的長者平均分成兩組，當中二十位以每節九十分鐘練習簡化太極操，每周三次，連續練習十六個星期；而對照組的長者則進行敲擊活動，學習非洲鼓。四個月後，研究顯示學習太極操的長者之身體平衡大有改善，而且頭部與身軀的轉動也較為靈活。

在學習過程中，視障長者透過導師觸手教導，因此這套拳法又稱為「觸手太極操」。

曾偉男博士表示：「『觸手太極操』適合不同年齡的視障人士學習，並不限於長者。」研究團隊已製作光碟詳細介紹這套拳法。

研究成果已刊載於國際學術期刊《Age and Ageing》。研究結果亦印證了中西薈萃之康復科學中心於二零零四年進行的另一項有關太極之研究，證明練習太極對改善膝關節的位置感覺有幫助。❖



Life Sciences 生命科學

# Computer games speed up stroke patient recovery

## 電腦遊戲加快中風患者的康復進度



Dr Raymond Tong Kai-yu demonstrates how the software follows the movements of body joints.

湯啟宇博士示範該軟件怎樣追蹤人體關節的動作。

**Innovative “KineLabs” body motion games enhance the effectiveness of rehabilitation treatment through training stroke patients’ motor skills.**

**KineLabs 創意體感遊戲透過訓練中風患者的運動能力，提升康復治療的效果。**



The KineLabs games win a Silver Award in the Hong Kong ICT Awards 2012: Best Innovation and Research Award. KineLabs 軟件於2012香港資訊及通訊科技獎獲得最佳創新及研究獎銀獎。



Dr Tong (right) teaches a stroke patient how to play a body motion game. 湯博士（右）指導中風患者玩體感遊戲。

Stroke patients often need to perform repetitive body movements as part of their rehabilitation programmes. Dr Raymond Tong Kai-yu, Associate Professor in Biomedical Engineering, and his research team decided to turn these monotonous exercises into fun by developing a series of computerized body motion games. With the games integrated into stroke rehabilitation programmes, patients can enjoy the fun games in a 3D virtual environment while improving their balance, reaction and motor skills to enhance the effectiveness of treatment.

Winning a Silver Award in the Hong Kong ICT Awards 2012: Best Innovation and Research Award, this series of 3D computer body motion games encourages stroke patients to exercise their upper and lower limbs through fun-filled activities such as making egg tarts, cleaning the window panes of a tram and killing cockroaches.

Dr Tong explained, “We used a Kinect sensor to capture depth data that can reproduce the body skeleton and follow the precise movements of all of the body joints. Players are required to move their upper and lower limbs to match the pre-set body motion”. The system can also record and generate reports on the patient’s success rates and response times when performing different tasks, thus monitoring the progress of their stroke rehabilitation.

To install the KineLabs games, just connect a Kinect sensor to a PC and a TV/computer screen and download a free copy of the games and the user manual from [www.polyu.edu.hk/kinelabs](http://www.polyu.edu.hk/kinelabs).

中風患者往往需要重複身體動作，以促進康復治療。有見及此，理大生物醫學工程副教授湯啟宇博士與研究團隊研發了一系列體感遊戲，將單調的運動變為有趣的康復電腦遊戲，更可結合中風康復療程，以提升治療的效果。玩家在3D虛擬環境中享受富趣味性遊戲之同時，亦可提升其平衡力、反應和運動能力，有助康復。

這一系列既有趣又富地道色彩的3D電腦體感遊戲，訓練中風患者的上肢和下肢，以改善他們的日常活動功能。遊戲包括：製作蛋撻、抹電車玻璃窗和踩蟑螂等。這套KineLabs創新軟件更在2012香港資訊及通訊科技獎獲得最佳創新及研究銀獎。

湯博士解釋：「我們利用Kinect感應器採集景深數據以重塑骨骼，追蹤人體關節的細緻動作。玩家可以透過遊戲移動上下肢，以達到訓練的預設標準。」這系統更可記錄玩家執行不同任務的成功率和反應時間，並利用資料製成報告，以監測中風患者的康復進展。

安裝KineLabs運動遊戲，只須將Kinect感應器與個人電腦及電視/電腦屏幕連接，並在以下網址免費下載遊戲和安裝手冊：[www.polyu.edu.hk/kinelabs](http://www.polyu.edu.hk/kinelabs)。



Technology 科技

# Novel technique for data-mining in herbal medicines

## 提取中藥生物活性指標的創新技術

PolyU has developed a quantitative pattern-activity relationship (QPAR) technique that effectively and accurately identifies the bioactivity indicators of herbal medicines by inputting their chemical fingerprints and related bioactivity data.

理大開發了一種QPAR技術，只需輸入中藥產品的化學指紋圖譜和相關生物活性數據，便能有效及精準地找出有關產品內藏的生物活性指標。

This breakthrough was the result of efforts by a research team comprising Prof. Chau Foo-tim of the Department of Applied Biology and Chemical Technology, Dr Sze Man-yuen and Ms Ng Chun-har of the Department of Health Technology and Informatics, Prof. M. Kvalheim Olav of the Department of Chemistry (Chemometrics) at the University of Bergen (Norway), and Dr Lau Tsui-yan of Intertek Testing Services Hong Kong Ltd.

The QPAR technique solves two significant problems in the study of complex active mixtures such as herbal medicines. It provides a model for predicting total functional activities from chromatographic profiles, and identifies the features in the chromatographic fingerprint responsible for such activities. The technique greatly reduces the time, cost and labour needed to data-mine these two pieces of important information.

The research team found that the QPAR technique had a prediction capability of better than 92% in the total immunological enhancement bioactivity of *Radix Astragalus*. The technique also successfully predicted the antioxidant active fractions of *Radix Puerariae Lobatae* (Gegen) without the need to separate individual fractions.

QPAR can be applied to study samples of herbal medicines, food and agricultural plants, etc. Through data analysis, the bioactive, functional and toxic ingredients can be obtained much faster and easier. The quality of related products can also be evaluated based on their functional activities, as in the case for Western medicines.

This innovation won a Gold Medal at the 40th International Exhibition of Inventions in Geneva, Switzerland. It also took out the Best Submitted Scientific Presentation (Poster Session) award at the 5th International Functional Food Symposium.

這創新發明是一個研究團隊的努力成果。團隊成員包括：應用生物及化學科技學系周福添教授、醫療科技及資訊學系施文遠博士和吳春霞女士、挪威卑爾根大學化學學系（化學計量學）M. Kvalheim Olav教授，以及天祥公證行有限公司劉翠茵博士。

QPAR 技術突破性地解開了研究混合物（如中藥）生物活性時兩個重大的難題。此技術提供了一個模型，利用混合物的化學色譜圖找出其活性，亦可確認在色譜圖中那些化學部分能與生物活性有着關連。這技術大大減低了提取混合物中這兩項重要訊息所需的時間、成本及人力資源。

研究團隊發現，QPAR技術能準確地預測黃芪樣本對抗癌症免疫方面指標的能力高達92%。另外，無需在實驗室內進行任何分離來分離樣本內與活性關連的化合物組分，該技術亦能成功地預測到葛根中那些組分含抗氧化的能力和水平。

QPAR技術適用於中藥、食品及農產品等方面。透過數據分析，便可更迅速和容易地找出產品在活性上和功能上的成分，以及是否含有毒成分。另外，亦可根據相關產品的活性指標，來檢測它們的品質，就像西方醫藥一樣。

該發明在第四十屆瑞士日內瓦國際發明展中奪得金獎。此外，它亦於第五屆國際功能食品座談會中獲得最佳科學演繹獎（海報組）。✦



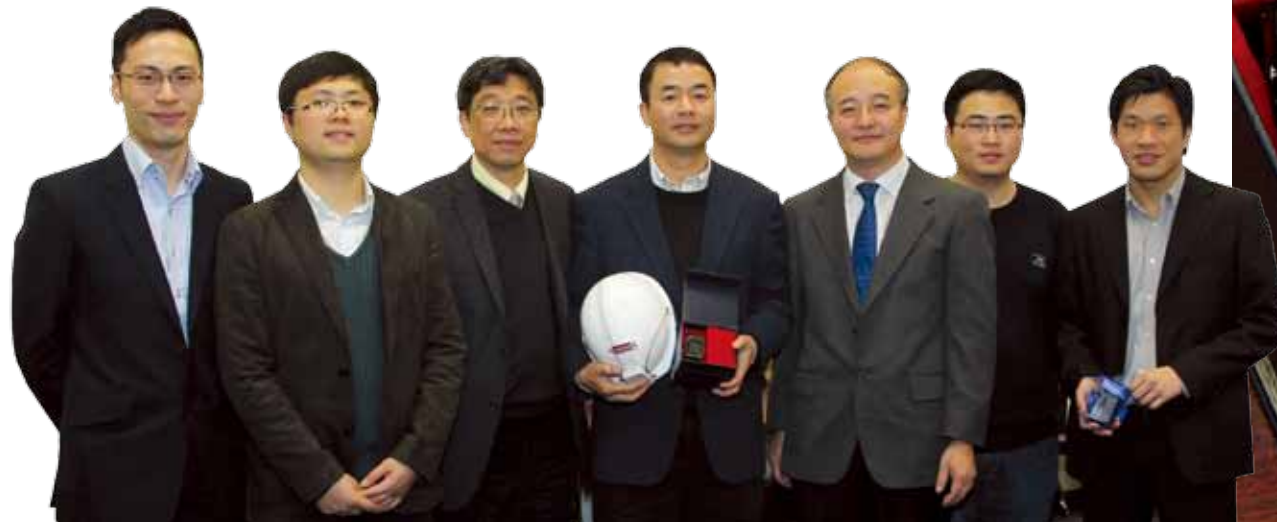
Prof. Chau Foo-tim (second from left) and his research team win a Gold Medal at the 40th International Exhibition of Inventions.  
周福添教授（左二）與研究團隊在第四十屆國際發明展中奪得金獎。



Technology 科技

# Work safe, work smart at construction site with PCMS

## 「雲建管」提升工地安全及工人效率



Prof. Li Heng of Department of Building and Real Estate (middle); Prof. Cao Jiannong, Head of Department of Computing (third from left); Prof. Ding Xiao-li, Head of Department of Land Surveying and Geo-Informatics (third from right); and other research team members

建築及房地產學系李恆教授(中)、電子計算學系系主任曹建農教授(左三)、土地測量及地理資訊學系系主任丁曉利教授(右三)及研究團隊的其他成員



Parts and accessories of the PCMS  
「雲建管」系統的配件



The PCMS involves the installation of GPS sensors onto the helmets of construction workers.

在「雲建管」系統中，建築工人的頭盔裝了定位系統(GPS)感應器。

Using process simulation and positioning technologies, PolyU has developed a Proactive Construction Management System (PCMS) and is collaborating with industry to enhance construction safety and efficiency with PCMS.

理大利用虛擬模型和定位技術研發出「雲建管」系統，並與業界緊密合作，以提升建造業的安全及效率。

With the sophisticated use of process simulation technology and GPS positioning technology, researchers at the Department of Building and Real Estate's Construction Virtual Prototyping Lab have developed a Proactive Construction Management System (PCMS) to improve construction safety and enhance project efficiency.

Headed by Prof. Li Heng, who received a first-class technological innovation prize from the Chinese Ministry of Education for this breakthrough, the research team combined the application of building information modelling for project management with GPS sensors installed on the helmets of on-site construction workers.

The PCMS uses building information modelling to create a 4D model of a construction site as a control platform and carries out real-time tracking of the positions of workers and machinery. If there is any chance of a collision, the system will automatically alert site workers to the possibility of injury by giving warning signals through the chips built into their helmets.

On the project management side, the PCMS will automatically compare the 4D model with the actual site situation to monitor progress and the project's cost effectiveness. With this system, project managers can remotely monitor the real-time progress of workers on their computers and give orders to foremen/workers for corrective action before deviations occur.

建築及房地產學系建築虛擬模型實驗室的科研人員，利用精密的建築虛擬模型技術和定位系統技術，成功研發了一套名為「雲建管」的系統，有助提升建造業的安全及效率。

在李恆教授的領導下，科研團隊將建築模型技術應用於系統的項目管理方面，再配合在地盤工人配戴的頭盔中安裝定位系統感應器一併使用。李教授更憑此突破性發明獲國家教育部頒授國家科學技術進步一等獎。

在「雲建管」系統中，建築模型技術為建築項目提供了4D模型作為控制平臺，並可以實時監測地盤工人和重型機器的位置。如兩者有互相碰撞的機會，系統會立即透過頭盔內置的晶片，自動發出警示信號提醒工人，避免意外受傷。

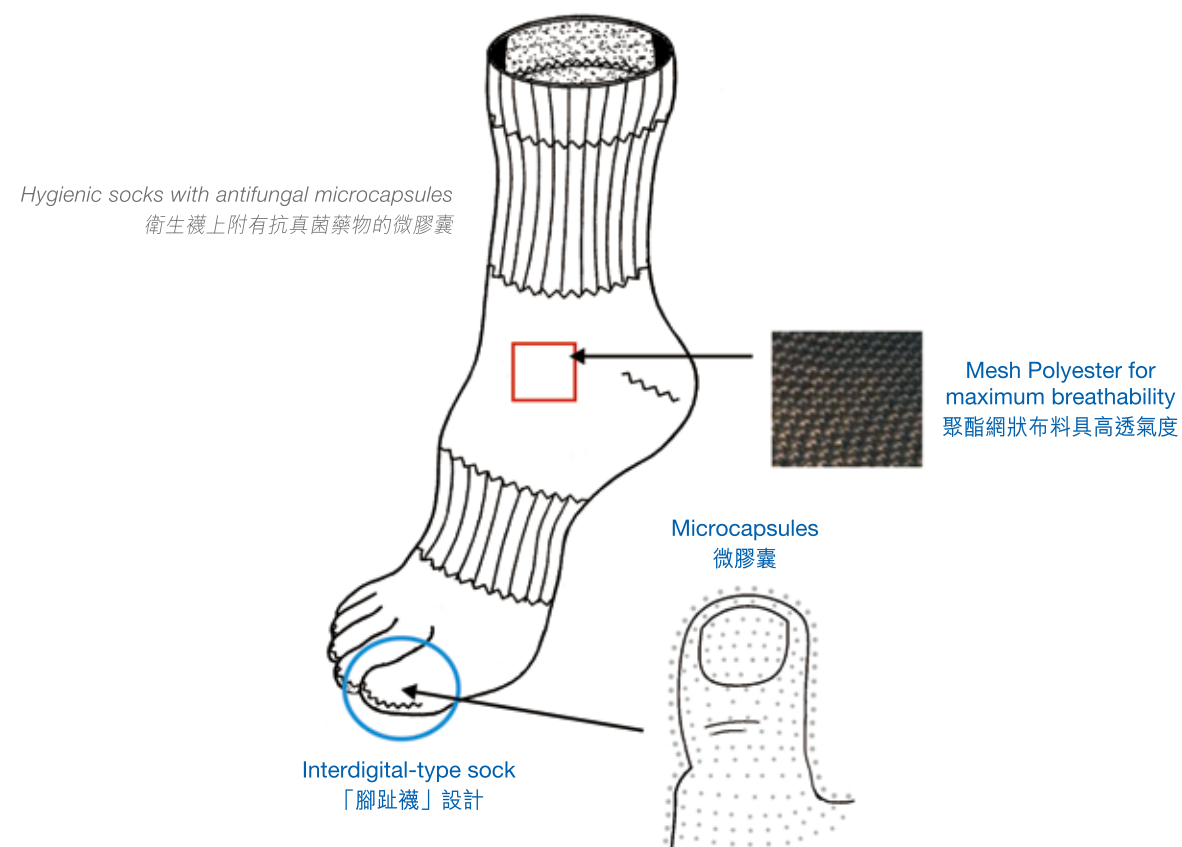
在項目管理方面，「雲建管」系統可以將工地的實際情況與4D虛擬模型自動對比，以便監察施工進度及控制成本效益。有了這個系統，項目經理就可以利用電腦實時遙遠監測工人的施工進展，並能向地盤工頭和工人發出指令，在偏差將要發生前糾正失誤。❖



Technology 科技

# Special hygienic socks for *tinea pedis* treatment

## 特製衛生襪有助治療足癬



Experts from PolyU's Institute of Textiles and Clothing have designed hygienic socks with antifungal microcapsules to increase the success rate of curing patients suffering from *tinea pedis*.

理大紡織及製衣學系專家研發出附抗真菌藥物微膠囊的衛生襪，可提升足癬患者的治療成功率。



Prof. Marcus Yuen Chun-wah (left) and Dr Joanne Yip Yiu-wan  
袁進華教授(左)與葉曉雲博士

**T**inea pedis (athlete's foot) is a common skin disease that affects a large proportion of the world's population. Recently, Prof. Marcus Yuen Chun-wah and Dr Joanne Yip Yiu-wan and their research team have developed hygienic socks for the daily pharmacological treatment of fungal infections. Developed through the use of microencapsulation technology, the socks help to increase the success rate of curing patients with *tinea pedis* and reduce the chance of relapse.

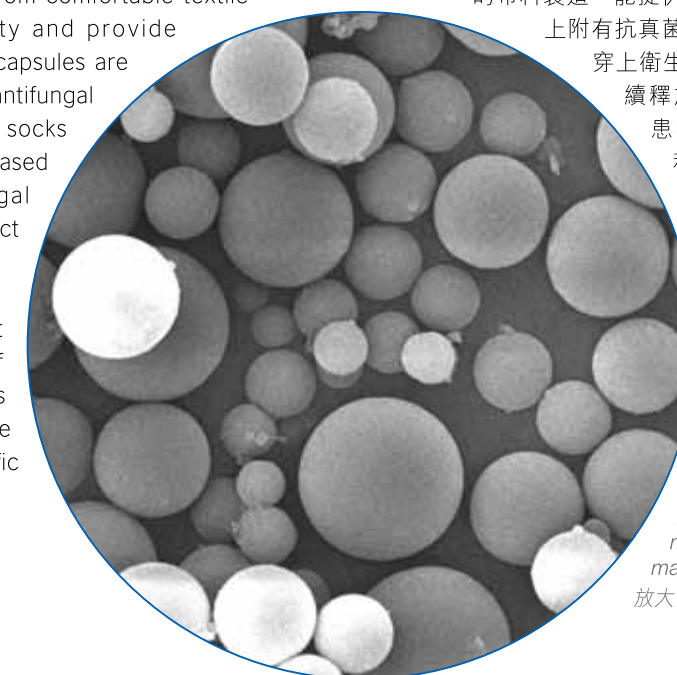
The interdigital-type socks are made from comfortable textile material with maximum breathability and provide excellent moisture management. Microcapsules are grafted onto the textile material, with antifungal agents encapsulated within. When the socks are worn, the antifungal agents are released to pharmacologically treat the fungal infection, thus reducing its irritating effect on the quality of daily life.

The invention won a Gold Medal at the 40th International Exhibition of Inventions in Geneva, Switzerland. It was also awarded a special prize from the Russian House for International Scientific and Technological Cooperation.

**足**癬(香港腳)是一種常見的皮膚疾病，世界上很多人都受它的影響。最近，袁進華教授和葉曉雲博士及研究團隊研發了一種衛生襪，可用作日常抗真菌的藥物治療。研究人員利用微膠囊技術製成這種衛生襪，有助提升治療足癬患者的成功率，並減少復發的機會。

以「腳趾襪」設計的衛生襪，採用高透氣度且舒適的布料製造，能提供有效的水份管理。布料上附有抗真菌藥物的微膠囊，當患者穿上衛生襪，抗真菌藥物就會持續釋放出來，以減低足癬對患者日常生活帶來的不便和影響。

該發明於第四十屆瑞士日內瓦國際發明展中奪得金獎，以及獲俄羅斯內務國際科學技術合作協會頒發特別獎。



Antifungal agents-loaded microcapsules with magnification  
放大的抗真菌藥物微膠囊



Technology 科技

# Lead-free environmentally friendly microrefrigerators

## 無鉛環保微型製冷器



Structure of the ferroelectric microrefrigerator  
鐵電微型製冷器的結構

Using lead-free ferroelectric refrigerants, a PolyU mechanical engineering expert invented electro-caloric microrefrigerators.

理大機械工程專家利用無鉛鐵電製冷劑開發微型製冷器。

Dr Zheng Guang-ping  
鄭廣平博士



The current trend towards reducing use of the refrigerant Freon is an important part of the fight against global warming and protection of the ozone layer. Compared with other refrigeration technologies, electro-caloric ferroelectric refrigeration is more efficient, cost effective and easy to implement.

Dr Zheng Guang-ping, Assistant Professor of the Department of Mechanical Engineering, thus developed lead-free ferroelectric ceramics that are environmentally friendly and practical for use as microrefrigerators. The microrefrigerators consist of electro-caloric ferroelectric refrigeration units 0.5-2mm in size. Each unit has 20-500 layers of ferroelectric refrigerant film. The refrigerants are lead-free and achieve a refrigeration effect of better than 4 J/g under applied voltages of 40-300V. Their energy efficiency is 86%.

These microrefrigerators can be used for cooling hot spots in high-power micro-electronic components, devices and products. The ferroelectric refrigeration methods and the ferroelectric refrigerants developed by Dr Zheng can be used to manufacture very light refrigerators and air conditioners in electric vehicles and hospitals.

This invention won a Gold Medal at the 40th International Exhibition of Inventions in Geneva, Switzerland.

為了減緩地球暖化和保護臭氧層，全球正趨向減少使用氟利昂製冷劑。無鉛鐵電材料的固態製冷技術，相對於其它機械製冷技術，有更佳的能量轉換效率、更高的成本效益，以及易於應用等優點。

有見及此，機械工程學系助理教授鄭廣平博士發明了以無鉛鐵電環保製冷劑，製造高製冷量的微型製冷器。微型製冷器是一種由無鉛鐵電材料與金屬電極交替而成的多層結構，大小為0.5-2毫米。每個製冷單元有20-500層鐵電製冷片，在無鉛製冷劑上施加40-300伏的周期電壓以實現優於4焦耳/克的製冷量，能量轉換效率優於86%。

這些微型製冷器可應用於微電子元件、儀器和產品中大功率器件降溫用途。鄭博士研發的鐵電製冷方法及鐵電製冷劑，可用以製造電動汽車及醫院內的微型雪櫃或空調器。

該嶄新發明於第四十屆瑞士日內瓦國際發明展中奪得金獎。

Business &amp; Management 工商管理

# Food cost increases trigger hotel sustainability gains

## 食物價格上揚

## 刺激酒店推動可持續發展



Researchers at the School of Hotel and Tourism Management (SHTM) have found that global increases in food prices have pushed Hong Kong hotels to enhance the sustainability of their food management practices.

酒店及旅遊業管理學院的研究人員發現，由於全球食物價格上漲，因而推動了香港的酒店在食品管理措施方面，加強可持續性的觀念。

In a recent research, Prof. Rob Law, Dr Catherine Cheung and Mr Murray Mackenzie of the SHTM have interviewed hotel food and beverage managers and executive chefs of luxury, mid-priced and economy hotels. They found that local hotels, while addressing cost increases and the common food wastage problem, do not compromise food quality.

The research revealed that the most effective strategies for addressing the situation involved the increased scrutiny of suppliers, enhanced staff training and internal communication, as well as the use of monitoring systems and environmental protection measures to reduce food wastage.

In particular, hotels need to invest in activities such as supplier evaluation, menu engineering that balances "high-cost food items with low cost commodities", quality audits, menu design reviews and quality training. At the same time, management systems can be introduced to control the environmental impact of hotel activities, which may affect food costs through the management of food waste, recycling and sustainability.

"Given that food costs are critical to any hotel's bottom line, the adoption of innovative practices and recognition of corporate social responsibility are ultimately the key to maintaining a competitive advantage in the highly competitive hospitality arena", the researchers commented.

酒店及旅遊業管理學院羅振雄教授、張玉艷博士及Murray Mackenzie先生最近在一項研究中專訪了幾位豪華、中檔和經濟型酒店的酒店餐飲經理及行政總廚。他們發現，本地酒店嘗試解決成本增加和普遍的廚餘問題，但並沒有放棄對食物品質的要求。

研究指出，處理該情況的最有效策略是加緊監察供應商、加強員工培訓和內部溝通，以及實行減少廚餘的監測系統和環保措施。

酒店必須在評估供應商、改良菜單來平衡「高成本食物與低價格食品」、品質審查、檢討菜單的設計，以及品質培訓等方面投放資源。同時，亦可引入管理系統以控制酒店活動對環境的影響，透過廚餘管理、回收和可持續性發展，食品的成本或許有所調整。

研究人員表示：「食品成本對任何一間酒店有否盈利是至關重要的，因此採取創新措施和履行企業社會責任，是在競爭激烈的酒店業中保持競爭優勢的最終關鍵。」



Business &amp; Management 工商管理

# SME Business Sustainability Index helps to promote CSR

## 「中小企可持續發展指數」有助提升企業社會責任



The index launch ceremony was officiated at by (from left) Prof. Edwin Cheng, Dean of PolyU Faculty of Business; Mr Joseph Wong, Founding Chairman of the Hong Kong SME Forum; Ms Christine Fang, Chief Executive of the Hong Kong Council of Social Service; Mrs Agnes Mak, HKPC Executive Director; Ms Patricia Lui, Principal Trade Officer of the Trade and Industry Department; and Prof. Timothy W. Tong, PolyU President. 該「指數」的發佈儀式由（左起）理大工商管理學院院長鄭大昭教授、香港中小企商會聯席會議創會主席黃鵬緒先生、香港社會服務聯會行政總裁方敏生女士、香港生產力促進局總裁麥鄧碧儀女士、工業貿易署首席貿易主任呂潔梅女士及理大校長唐偉章教授一同主持。

PolyU joined hands with the Hong Kong Productivity Council in compiling the Hong Kong SME Business Sustainability Index to promote CSR in Hong Kong.

理大與香港生產力促進局攜手推出「香港中小企企業可持續發展指數」，以推動企業社會責任在香港的發展。

PolyU's Department of Management and Marketing and the Hong Kong Productivity Council (HKPC) have jointly compiled the Hong Kong SME Business Sustainability Index to promote the understanding and adoption of corporate social responsibility (CSR) as a business model for achieving business sustainability in Hong Kong.

Through assessing the performance and achievement of the 40 best SMEs with proven records in undertaking CSR initiatives, the researchers compiled an index with information on the value of their CSR and sustainable development, their CSR management and projects, and their positive contribution to economic, social and environmental sustainability.

The mean score on the index was 58.30 on a 100-point scale, which indicates that local SMEs are in the initial stage of business sustainability. In particular, the manufacturing sector received a score of 64.72, reflecting that some business sustainability practices have been implemented, while the service sector scored 55.86, indicating that it is still in the early stages.

The index and the list of companies will be updated and announced annually, with the aim of promoting the concurrent growth of businesses and society through CSR engagement.

為了增進各行業對企業社會責任的認識，並鼓勵業界以此作為企業可持續發展的營商模式，理大管理及市場學系與香港生產力促進局共同編製了「香港中小企企業可持續發展指數」（「指數」）。

該「指數」是根據四十家獲公認在企業社會責任方面有優秀表現的中小企，透過分析其社會責任和可持續發展的價值觀、對企業社會責任的管理和項目，以及對經濟、社會和環境可持續發展的正面貢獻等三個範疇的表現和成效，經評估後編製而成的。

結果顯示，本港中小企的總體平均得分為58.30分（100分為滿分），處於企業可持續發展的起步階段。其中，製造業獲得64.72分，反映廠商已實行部分企業可持續發展措施；服務業得分為55.86，仍處於起步階段。

該「指數」將每年更新，而組成指數的公司名單亦會對外公佈，藉此推動中小企與社會同步可持續發展與成長。



Social Sciences 社會科學

# Research on Putonghua assessment provides workable solutions for learning and teaching

## 普通話測試研究為教學提供解難方案

(from right) Dr Zhu Xinhua, Prof. Chan Shui-duen, Ms Lau Man-choi and Mr Yeung Kwan  
(右起) 祝新華博士、陳瑞端教授、劉文采女士及楊軍先生



Edited by Prof. Chan Shui-duen and authored by Prof. Chan, Dr Zhu Xinhua, Ms Lau Man-choi and Mr Yeung Kwan, the book covers the planning and administration of language education and assessment, the selection and adjustment of listening comprehension materials, the phonological basis of assessing pronunciation, students' performance in listening, narrating and speaking, standardized expression and phonics.

The team's collaborative effort has not only yielded much research data but also provides workable solutions to the learning and teaching of Putonghua. The book follows the success of the previous Testing Unit publication, *A Study on Primary School Putonghua Proficiency Tests*.

Over the years, members of the Testing Unit have established a series of Putonghua assessments for university, secondary and primary students, and have conducted research projects on the curriculum, teaching and assessment of the Chinese language that are useful references for education and examination organizations of Hong Kong.

The Testing Unit of PolyU's Department of Chinese and Bilingual Studies has released a book entitled *Study on Secondary School Putonghua Proficiency Tests* after a comprehensive research on Putonghua assessment.

理大中文及雙語學系測試組在進行一項全面的普通話測試研究之後，出版了《中學普通話水平考試研究》一書。

此書由陳瑞端教授主編，主要作者為陳教授、祝新華博士、劉文采小姐及楊軍先生，透過實證研究，探討語言教學和語言測試的規劃與實踐、聆聽語料選擇和調整、語音測量音位學基礎、學生聆聽表現的評估、規範表達、語音間接表現、朗讀與說話表現等。

在研究團隊的努力協作下，這項研究不但收集到大量的數據，而且為普通話的教與學提供有效的解難方案。該著作是測試組繼出版《小學普通話水平考試研究》一書後取得的另一項成果。

多年來，測試組成員已研製出一系列專為大學、中學及小學而設的普通話水平考試，又在中文課程、教學與評估領域開展了多項研究，當中的一些成果可供香港的教育與考評部門參考。

# Winning Projects at the 40th International Exhibition of Inventions (Geneva, Switzerland, April 2012)

第四十屆國際發明展中獲獎項目（瑞士日內瓦，二零一二年四月）

Award 獎項	Project 項目	Principal Investigator/ Inventor 首席研究員/發明者	Department/Division 學系/學部
Gold Medal 金獎 The Prize of the Chinese Delegation 中國代表團獎	Preparation of Selenium Nanoparticles with Strong Anti-Tumour Activity Using Tiger Milk Mushroom 利用虎奶菇製備抗腫瘤納米硒 (See Cover Story on P.1) (見第1頁封面故事)	Dr Wong Ka-hing 黃家興博士	Department of Applied Biology and Chemical Technology 應用生物及化學科技學系
Gold Medal 金獎 Mau Award for the best Educational Innovation from Mehr Alborz University in I.R.IRAN 伊朗大學特別大獎	3D Ultrasound Imaging for Spine Scoliosis 基於三維超聲的脊柱側彎的評估	Prof. Zheng Yongping 鄭永平教授	Inter-disciplinary Division of Biomedical Engineering 生物醫學工程跨領域學部
Gold Medal 金獎 Special Prize – Gold Medal from Association “Russian House for International Scientific and Technological Cooperation” 俄羅斯內務國際科學技術合作協會特別獎 - 金獎	Hygienic Socks with Antifungal Microcapsules for Patients with Tinea Pedis (Athlete's foot) 採用微膠囊技術研發治療足癬(香港腳)的衛生襪 (See Research Story on P.23) (見第23頁科研故事)	Prof. Marcus Yuen Chun-wah 袁進華教授 Dr Joanne Yip Yiu-wan 葉曉雲博士	Institute of Textiles and Clothing 紡織及製衣學系
Gold Medal 金獎	A Novel QPAR Technique for Extracting Valuable Information from Herbal Medicine 提取中藥內隱藏珍貴訊息的創新技術 (See Research Story on P.19) (見第19頁科研故事)	Prof. Chau Foo-tim 周福添教授 Dr Daniel Sze Man-yuen 施文遠博士	Department of Applied Biology and Chemical Technology 應用生物及化學科技學系 Department of Health Technology and Informatics 醫療科技及資訊學系
Gold Medal 金獎	Lead-free Ferroelectrics Based Microrefrigerator 基於無鉛鐵電材料的微型製冷器 (See Research Story on P.25) (見第25頁科研故事)	Dr Zheng Guang-ping 鄭廣平博士	Department of Mechanical Engineering 機械工程學系
Silver Medal 銀獎 Special Award from Romanian Association for Nonconventional Technologies, Bucharest Romania 羅馬尼亞創新科技協會特別大獎	Functional and Decorative Textile Products through Sputtering Technology 功能性與裝飾性的濺射鍍紡織產品	Dr Kinor Jiang 姜綬祥博士	Institute of Textiles and Clothing 紡織及製衣學系
Silver Medal 銀獎	A Novel inline Hydropower System for Power Generation from Water Pipelines 內聯閉式輸水管水力發電系統	Prof. Yang Hong-xing 楊洪興教授 Mr Chen Jian 陳建先生 Dr Lu Lin 呂琳博士	Department of Building and Services Engineering 屋宇設備工程學系



# PolyU celebrates entrepreneurial spirit of alumni

## 理大表彰校友創業精神



1. Officiating guests of the event: (from left) PolyU Vice President (Institutional Advancement and Partnership) Prof. Angelina Yuen, Deputy Chairman of PolyU Council Dr Ng Tat-lun, PolyU President Prof. Timothy W. Tong, and President of The Federation of The Hong Kong Polytechnic University Alumni Associations Ir Prof. Johnny Fan  
主禮嘉賓包括：(左起) 理大副校長(學院發展及合作)阮曾媛琪教授、校董會副主席伍達倫博士、校長唐偉章教授及校友會聯會會長樊紹基教授工程師

In celebrating PolyU's 75th Anniversary and the entrepreneurial spirit of its venturesome graduates, the "Poly-preneur Night" was held on 31 May 2012 at Hotel ICON. Over the years, through starting up their own businesses and creating employment opportunities, PolyU graduates have been contributing to the advancement of economy and bringing economic benefits to the society at large.

Speaking at the occasion, PolyU President Prof. Timothy W. Tong expressed his appreciation to the Poly-preneurs. He also said, "PolyU is dedicated to cultivating 'Do Well, Do Good' entrepreneurship culture among the younger generation, and nurturing them to become socially responsible entrepreneurs of tomorrow."

As a special anniversary gift to their alma mater, more than 400 company logos of Poly-preneurs were gathered to create a gigantic PolyU logo. This carried a deeper meaning of showcasing to the community the solidarity and concerted efforts of PolyU's strong alumni force.

The event also saw the debut of a book titled "Indistinguishable from magic" compiling over 75 outstanding PolyU projects and applications to exemplify the University's efforts and achievement in knowledge transfer. Ranging from sensors that can check railway tracks for cracks to a robotic hand which responds to stroke patients' mental intentions, PolyU has scored unparalleled success in creating remarkable breakthroughs for the benefit of the community. Throughout the years, many Poly-preneurs have been very supportive to PolyU-developed technologies and have offered great assistance in commercializing these novel innovations.

In pursuit of knowledge transfer, PolyU's Institute for Entrepreneurship (IfE) was established to serve as an important platform to forge closer links between academics and business for their mutual benefits. Recently, IfE has expanded its function in fostering innovation and entrepreneurial culture in the University and the community. One of the key initiatives is the creation of "Poly-preneur" community to advocate entrepreneurship.

The University recognizes the long-time contribution of its entrepreneurial graduates at the "Poly-preneur Night".

大學舉行「理大企業家之夜」，表揚校友企業家多年來的貢獻。



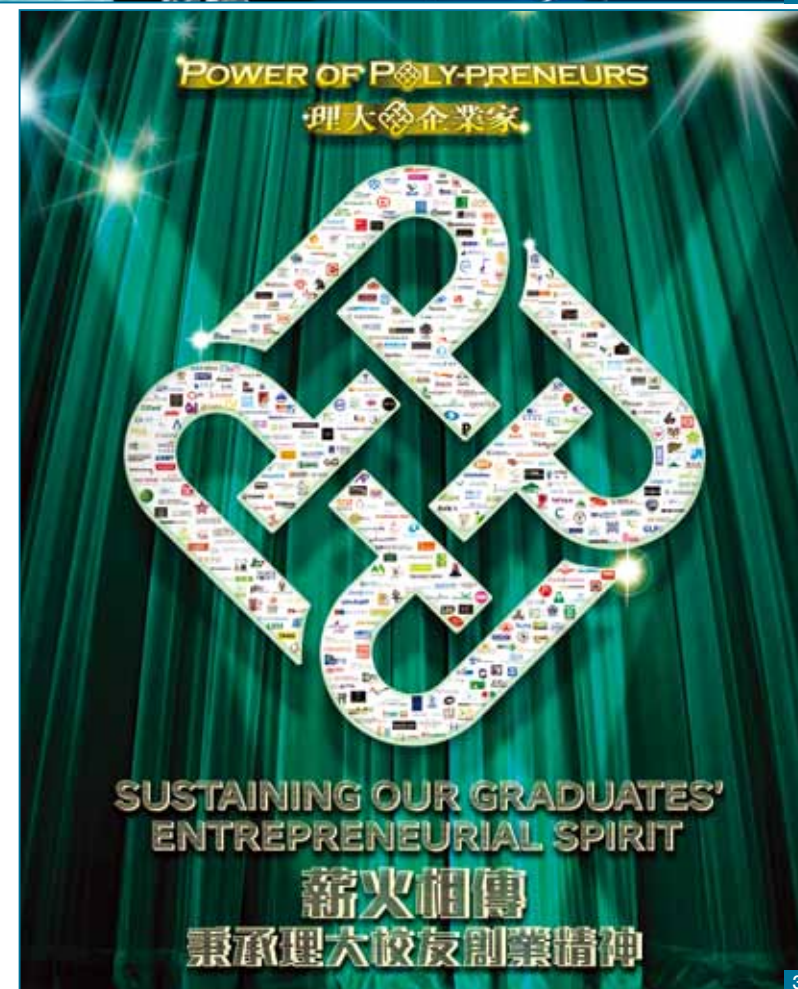
為慶祝理大建校七十五周年，以及表揚校友毋懼風險與困難的創業精神，大學在五月三十一日於唯港薈舉行了「理大企業家之夜」。過去多年，無數理大校友建立起自己的事業，並創造了許多就業機會，他們不但對香港的經濟發展作出貢獻，更為社會帶來了經濟效益。

理大校長唐偉章教授在晚宴上讚揚「理大企業家」，他更表示：「理大矢志培育年青一代發揚『有利且有善』(Do Well, Do Good)的創業文化，讓他們成為富社會責任感的未來企業家。」

為慶祝建校七十五周年，四百多位「理大企業家」將自己創立的公司的商標併合成一幅巨型的理大校徽，送贈予母校以誌紀念。該巨型校徽向社會各界展示理大團結和強大的校友網絡，意義深遠。

「理大企業家之夜」亦是理大全新輯知識轉移專書《Indistinguishable from magic》面世的日子。該書輯錄了逾七十五項理大科研與應用項目，展示大學在知識轉移方面的努力和成果。從監測鐵路路軌裂縫的傳感器技術，到按中風病人的意志而活動的肌動機械手，理大的科研成就豐碩，造福社會。多年來，眾多「理大企業家」對大學研發的技術均表支持，並協助將這些嶄新技術商品化。

理大致力推動知識轉移，並成立企業發展院，為學術界及工商界提供一個重要的平台，聯繫及促進雙方更緊密的合作，以期達到共贏。最近，理大更擴大了企業發展院的職能，讓它在校內及社會上承擔培育創新及企業精神的使命。建立「理大企業家」社群就是大學推動創業精神的連串活動之一。



2. Poly-preneurs share their success mottos on the "tree of success".  
「理大企業家」在「成功之樹」上分享他們創業成功之道。

3. Company logos of Poly-preneurs form a gigantic PolyU logo.  
「理大企業家」的公司商標併合成一幅巨型的理大校徽。





## President's Awards recognize outstanding staff 校長特設獎項 表彰傑出員工

On 25 November 2011, five individuals and one team were named recipients of President's Awards for Excellent Performance/Achievement 2010/11, in recognition of their outstanding achievements in teaching, research and scholarly activities, as well as services.

二零一一年十一月二十五日，理大頒發二零一零／一一年度「校長特設卓越表現／成就獎」予五位教職員及一個團隊，表揚他們在教學、研究及學術活動、以及服務方面的傑出表現。

### Teaching (Individual) 教學 (個人獎項)



#### Dr Henry Chan

The teaching philosophy of Dr Henry Chan, Associate Professor at the Department of Computing, can be summarized in one word: TEACH - Thoughtful, Enthusiastic, All-rounded, Creative and Helpful. With this in mind, he is dedicated to nurturing students, developing their potentials and realizing their dreams.

He plays an important role in defining the Department's CARE education aim: Career, Applications, Research and Entrepreneurship. He also proposed a 5S Model - a Student-oriented, Systematic and Synergistic model for computing education with five essential components: Scheme, Streams, Specializations, Skills and Spirits. Besides, he founded the Advanced Enterprise Infrastructure Lab which provides students with many worthwhile learning opportunities.

#### 陳峻斌博士

電子計算學系副教授陳峻斌博士的教學理念可以用一個英文字(TEACH)來概括：關顧學生 (Thoughtful)、對教學充滿熱誠 (Enthusiastic)、多才多藝 (All-rounded)、具備創意 (Creative) 和樂於助人 (Helpful)。因此，陳博士全心全意培育學生，協助他們發揮潛能，實現夢想。

電子計算學系「CARE」教學目標中，「CARE」代表事業 (Career)、應用 (Applications)、研究 (Research) 和創業 (Entrepreneurship)，陳博士在界定此目標的過程中扮演著重要的角色。他更提出5S模型，這是一個以學生為本、有系統性和有協同效應的電子計算教育模型，當中包含五個重要的部分：組合課程 (Scheme)、專業範疇 (Streams)、主修學科 (Specializations)、技能 (Skills) 和精神 (Spirits)。此外，他創立了「創新企業網絡實驗室」，為學生提供了許多寶貴的學習機會。



#### Prof. Iris F. F. Benzie

Chair Professor and Associate Head at the Department of Health Technology and Informatics Prof. Iris F. F. Benzie's teaching philosophy centres around student engagement and responsibility, developing a culture of mutual respect and trust and establishing common goals that are ambitious but attainable. She is committed to promoting students' confidence to support their development as responsible members of society and future leaders of their professions and the community. Her teaching methods are innovative, creative, stimulating, highly-effective and very well received by students.

In addition, she makes a substantial contribution to the planning, administration, management and delivery of teaching at departmental, faculty and University levels. She continually strives to enhance her own teaching and mentors colleagues, shares teaching materials, ideas and insights.

#### Iris F. F. Benzie 教授

醫療科技及資訊學系講座教授兼副主任 Iris F. F. Benzie 教授的教學理念，是建構於學生的參與和責任感。她與學生建立起互相尊重和互信的文化，並訂立遠大但可行的共同目標。她致力提升學生的自信，啟發他們成為有責任心的公民，以及專業界別和社會的未來領袖。她的教學方法創新、富有創意、具啟發性、高效益，所以深受學生歡迎。

此外，她在其學系、學院和大學層面的規劃、行政、管理和教學各方面，都有重大的貢獻。她不斷努力提升自己的教學表現，並積極指導同事、分享其教材、意念和見解。



## Research and Scholarly Activities (Individual) 研究及學術活動 (個人獎項)

**Prof. Chen Xiaojun**

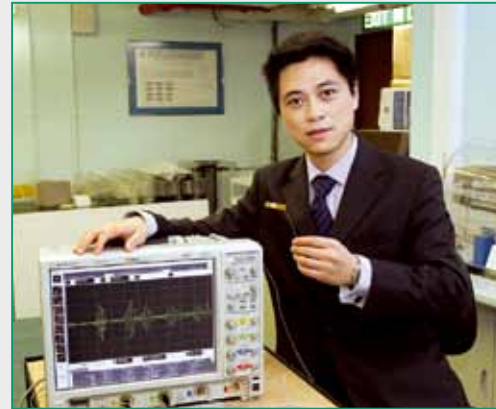
Prof. Chen Xiaojun, Professor and Associate Head at the Department of Applied Mathematics, has made outstanding contributions to both the theory and algorithms for solving nonsmooth, nonconvex optimization problems, stochastic equilibrium problems and nonlinear equations with many important applications in engineering and economics. She has published over 80 papers in major journals. Between 2007 and 2010, she was listed as one of the 1,075 most highly cited mathematicians in the world over the preceding ten years on The Institute for Scientific Information's website.

She has successfully won General Research Fund of the Research Grants Council for four consecutive years since 2008. Her excellent research achievements have earned wide recognition and helped raise the department's professional standards in mathematical research.

**陳小君教授**

應用數學系教授兼副系主任陳小君教授在研究方面貢獻良多，她提出了重要的理論和算法，解決非光滑、非凸優化問題、隨機平衡問題和非線性方程式等，並成功應用於工程學和經濟學上。她在主要期刊中發表了超過八十篇論文。二零零七至二零一零年間，她被列為在之前十年於美國科技資訊網站上最常被引述的一千零七十五位全球數學家之一。

自二零零八年起，陳教授連續四年獲得研究資助局「優配研究金」的撥款資助。她卓越的研究成就獲得廣泛認同，並有助提升學系在數學研究方面的專業水平。

**Dr Su Zhongqing**

The major research interests of Dr Su Zhongqing, Assistant Professor at the Department of Mechanical Engineering, include structural health monitoring, smart materials and structures. Dr Su leads a research team in the Department dedicated to the development of structural health monitoring technologies. Over the past few years, he has secured more than HK\$5 million funding as a Principal Investigator.

Dr Su has published over 100 scholarly papers including some 60 in top journals, and authored two books and four book chapters, along with three edited conference proceedings. In 2006, he received an Early Career Symposium Fellowship Award from the Australian Academy of Technological Sciences and Engineering in recognition of his outstanding research achievements at an early career stage.

**蘇眾慶博士**

機械工程學系助理教授蘇眾慶博士的主要研究範圍包括：結構健康監測、智能物料和結構。蘇博士在學系中領導一個研究團隊，專門發展結構健康監測技術。過去幾年間，以他為首席研究員的項目，成功獲得逾五百萬港元的研究撥款資助。

蘇博士發表的學術文章逾百篇，其中六十多篇已刊載於頂尖學術期刊，他更出版了兩部著作、四篇專書論文，以及為三部學術會議論文集擔任編輯。二零零六年，蘇博士獲澳洲技術科學及工程學院頒發青年學者獎，以表揚他在事業的早期階段已擁有卓越的科研成就。

## Services (Individual) 服務 (個人獎項)

**Dr Vincent T.Y. Ng**

Dr Vincent T.Y. Ng, Associate Professor and Associate Head at the Department of Computing, always seeks opportunities to serve PolyU and the wider community. He and his colleagues have launched a community service programme in the Department to help students acquire professional and lifelong learning experience through serving others. In the past decade, more than 40 projects have been implemented, with over 200 students participated and 2,000 people benefited. In the past five years, he has successfully secured over HK\$5 million of external funding to support those projects.

Dr Ng has also been working on the establishment of qualification standards of IT professions, as well as actively involving in drug prevention programmes.

**吳道義博士**

電子計算學系副教授兼副系主任吳道義博士一直致力服務理大及社會。他與同事在學系推行社會服務計劃，讓學生從服務他人中汲取專業知識和終身學習的經驗。過去十年，吳博士開展了超過四十項服務計劃，有逾二百名學生參與，讓二千多位社會人士受惠。過去五年間，他更成功獲得外界逾五百萬港元資助實行該等計劃。

此外，吳博士亦參與設立資訊科技專業人士資歷基準的工作，並積極投入各項禁毒計劃。

## Services (Team) 服務 (團隊)



(from left) **Dr Lo Veng-cheong, Dr Lam Chi-hang, Mr Matthew Wong Man-hon, Prof. Helen Chan-Wong Lai-wa, (from right) Dr Mak Chee-leung, Dr Wong Yuen-wah, Mr Eugene Ng Yu-him and Dr Ong Chung-wo at the Department of Applied Physics**

The Community Weather Information Network (Co-WIN) was established in 2007 under the leadership of Dr Ong Chung-wo in collaboration with the Hong Kong Observatory to provide real-time weather information for the public via the internet. In addition to weather data sharing, Co-WIN provides a platform for participating schools and its member institutions to exchange observational experiences and to organize related educational activities.

In recognition of its efforts in raising community awareness towards weather and climate, Co-WIN received the prestigious Vaisala Award for Weather Observing and Instrumentation 2010 from the Royal Meteorological Society. Co-WIN also won the Best Collaboration Certificate of Merit (Service) in the Hong Kong Information and Communication Technology Awards 2011.

(左起) 應用物理學系羅永祥博士、林志恒博士、黃文翰先生、陳王麗華教授、(右起) 麥熾良博士、黃元華博士、吳宇謙先生及王聰和博士

「社區天氣資訊網絡」由理大應用物理學系王聰和博士領導，於二零零七年與香港天文台共同籌建，旨在透過互聯網向公眾提供實時的天氣資訊。除了氣象數據分享外，「社區天氣資訊網絡」亦為參與的學校和網絡成員提供了一個平台，讓他們交流天氣觀測的經驗，以及組織相關的教育活動。

該網絡榮獲英國皇家氣象學會頒授「二零一零年維薩拉獎—天氣觀測及儀器應用」，以表揚它在推廣天氣及氣候教育方面所作出的貢獻。此外，該網絡更獲得二零一一年香港資訊及通訊科技獎最佳協同合作（服務）優異證書。❖



# PolyU pays tribute to the Tang family for four decades of support

## 理大感謝唐氏家族 支持大學發展四十多年

PolyU has named a square in the hub of its campus to pay tribute to the late Dr Tang Ping-yuan and his son Dr Jack Tang Chi-chien for their long-standing support to the Institution over the past four decades.

At the Tang Ping Yuan Square naming ceremony held on campus on 17 April, Dr Jack Tang Chi-chien, Chairman Emeritus of Tristate Holdings Limited (middle in picture), unveiled the commemorative plaque in the company of the Honourable Marjorie Yang Mun-tak, Chairman of PolyU Council (left), and Prof. Timothy W. Tong, PolyU President (right).

In his vote of thanks, Prof. Tong said, "The ceremony carries a very special meaning as it is an important part of PolyU 75th anniversary celebration. It represents a tribute to Dr Tang Ping-yuan and the Tang family at a time when PolyU marks a significant milestone in its long and unique history."

The late Dr Tang Ping-yuan was the first Chairman of the Polytechnic Planning Committee during the period of 1969 to 1971. Under his chairmanship, the committee studied the possibility of establishing a polytechnic in Hong Kong. In spite of the untimely death of Dr Tang senior in 1971, the recommendation of upgrading the Hong Kong Technical College to a polytechnic status was later accepted by the Government in July 1971. This led to the establishment of the Hong Kong Polytechnic in 1972. The Institution subsequently acquired university status in 1994.

## PolyU sets up Ho and Ho Foundation Scholarship 理大成立「可蘊基金獎學金」

PolyU has received a generous donation of HK\$8 million from Ho and Ho Foundation Ltd to set up the "Ho and Ho Foundation Scholarship". The scholarship will be used to support mainland students with outstanding performance, in particular those from the "Red Triangle" areas (Shaoguan of Guangdong province, Ganzhou of Jiangxi province and Chenzhou of Hunan province), for pursuing their studies at PolyU.

The agreement was signed by Mr Ho Ming-sze, Life Honorary Chairman of Ho and Ho Foundation Ltd. (right in picture), and Prof. Walter W. Yuen, PolyU Vice President (Academic Development) (left).

理大最近獲可蘊基金有限公司慷慨捐贈港幣八百萬元，成立「可蘊基金獎學金」，主要用作資助表現卓越的內地學生，尤其是來自「紅三角」地區（廣東韶關、江西贛州、湖南郴州）的學生來港在理大升學。

有關協議由可蘊基金有限公司永遠榮譽主席何銘思先生（圖右）與理大副校長（學術發展）阮偉華教授（圖左）一同簽署。◆

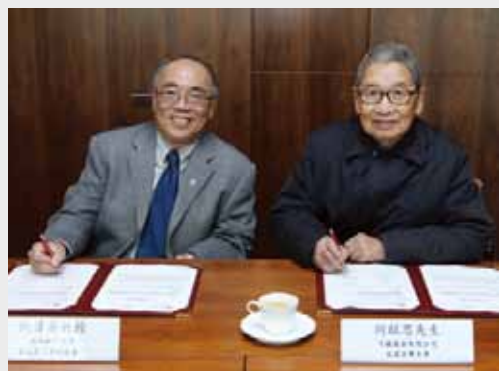


理大舉行「唐炳源廣場」命名典禮，以答謝已故唐炳源博士及其哲嗣唐驥千博士過去四十多年來對理大發展的鼎力支持。

典禮於四月十七日假理大校園舉行，聯亞集團有限公司名譽主席唐驥千博士（圖中）在理大校董會主席楊敏德議員（圖左）及校長唐偉章教授（圖右）陪同下為「唐炳源廣場」紀念牌匾揭幕。

唐教授致謝辭時表示：「這命名典禮別具意義，它一方面是理大慶祝建校七十五周年的主要活動，另一方面是答謝唐炳源博士及其家族在本校悠久而獨特的歷史發展中擔當著極重要的角色。」

已故的唐炳源博士於一九六九至一九七一年間擔任香港理工學院籌劃委員會的首屆主席，在他的領導下，籌劃委員會正式研究在本地成立一所理工學院的可能性。唐老先生身故後，籌委會完成有關建議交予政府審批。其後政府於同年七月批准把香港工業專門學院升格為香港理工學院的建議。香港理工學院終於一九七二年成立，並於一九九四年正式取得大學地位，正名為香港理工大學。◆



## \$10 million boost for "PolyU — Henry G. Leong Mobile Integrative Health Centre"

### 「理大—梁顯利流動結合保健中心」續獲千萬資助

PolyU has recently received a generous donation of HK\$10 million from Tai Hung Fai Charity Foundation to support the operation of "PolyU — Henry G. Leong Mobile Integrative Health Centre" for the coming three years.

Officiating at the ceremony were Prof. Alfred Chan Cheung-ming, Chairman of the Elderly Commission; Mr Edwin Leong, Founder of Tai Hung Fai Charity Foundation; Prof. Timothy W. Tong, PolyU President; Prof. Angelina Yuen, Vice President (Institutional Advancement and Partnership); and Prof. Samantha Pang, Head of PolyU's School of Nursing.

Through the Centre, which is a modified truck equipped with a range of advanced facilities, PolyU's health and social care professionals reach out to the community to provide free health checks and monitoring for the elderly in need.



理大近日獲大鴻輝慈善基金慷慨捐款港幣一千萬元，支持「理大—梁顯利流動結合保健中心」未來三年的營運開支。

捐款儀式由安老事務委員會主席陳章明教授、大鴻輝慈善基金創辦人梁紹鴻先生、理大校長唐偉章教授、副校長（學院發展及合作）阮曾媛琪教授及護理學院學院主任彭美慈教授主持。

該中心由一輛全新貨車改裝而成，配備多項先進儀器。理大專業護理人員能透過該中心走進社區，為有需要的長者提供免費身體檢查服務。◆



## UBS Invitational Golf Tournament raises over \$2M UBS高球邀請賽籌逾二百萬元善款

More than 50 golf teams comprising prominent business and community leaders, alumni and friends of the University rendered support to "PolyU 75th Anniversary UBS Invitational Golf Tournament" held earlier at Mission Hills Golf Club in Dongguan. The fun-filled event has raised over HK\$2 million for the long-term development of the University.

理大早前假東莞觀瀾湖高爾夫球會舉行「理大75周年校慶UBS高爾夫球邀請賽」，吸引了超過五十支隊伍參加，參賽者包括工商界夥伴、社會賢達、理大校友及友好等，他們一共籌得逾港幣二百萬元，支持理大的長遠發展。◆

## Naming of Dorothy Wong Intensive Care Laboratory 「黃玉蘭深切護理實驗室」命名典禮

PolyU recently named the Intensive Care Laboratory of its School of Nursing after the late nurse Ms Dorothy Wong in recognition of her ardent support and generous donation of HK\$2 million to the University.

The naming serves the dual purpose of expressing our gratitude to Ms Wong and encouraging our students to strive for continuous improvement in their career as health care professionals.

理大早前舉行「黃玉蘭深切護理實驗室」命名典禮，以答謝已故護士黃玉蘭女士慷慨捐贈港幣二百萬元予理大，以支持大學的發展。

藉著該命名典禮，本校除了答謝黃女士對理大的支持外，更鼓勵學生不斷提升技能，成為才德兼備、無私和盡心的護理專才。◆

## Donation from outstanding alumnus 傑出校友捐款支持母校

PolyU has received a generous donation of HK\$2 million from its outstanding alumnus Mr Wong Tit-shing, Chairman of Jetta Company Ltd., in support of student development.

Having served in the toy industry for more than 40 years, Mr Wong was the first Asian who took up the role of President of the International Council of Toy Industries. He was presented the Outstanding PolyU Alumni Award in 2009 and the Industrialist of the Year Award by the Federation of Hong Kong Industries in 2011.

理大喜獲鎮泰有限公司主席兼傑出校友黃鐵城先生慷慨捐款港幣二百萬元，支持學生發展工作。

黃鐵城先生從事玩具業四十多年，是首位國際玩具業協會的華人總裁。他於二零零九年獲選為「傑出理大校友」，並於二零一一年獲香港工業總會頒發「傑出工業家獎」。◆



# PolyU scholars listed on National Science and Technology Programmes Expert Database

## 理大學者名列《國家科技計劃專家庫》



The Innovation and Technology Commission (ITC) announced on 10 February that the 56 Hong Kong experts it recommended for the National Science and Technology Programmes Expert Database have been approved by the State Ministry of Science and Technology (MOST). Among them, nine experts are from PolyU. They are:

- 1 Prof. Timothy W. Tong, President
- 2 Prof. Philip C.H. Chan, Deputy President and Provost
- 3 Prof. Walter W. Yuen, Vice President (Academic Development)
- 4 Ir Prof. Alex Wai, Vice President (Research Development)
- 5 Prof. Wong Kwok-yin, Dean, Faculty of Applied Science and Textiles
- 6 Ir Prof. Teng Jin-guang, Dean, Faculty of Construction and Environment
- 7 Prof. Charles Surya, Acting Dean, Faculty of Engineering
- 8 Prof. Wong Wing-tak, Head, Department of Applied Biology and Chemical Technology
- 9 Ir Prof. W.B. Lee, Chair Professor, Department of Industrial and Systems Engineering

This is the first time the ITC has recommended Hong Kong experts for the Expert Database. The experts will support the work of MOST and participate in compiling the application guide for national science and technology programmes, assessing project applications and evaluating progress of approved projects. They will also put forward views and proposals for managing these programmes.

PolyU is committed to promoting the advancement of society through the application of knowledge. Through the participation of our experts in the development and review of national science and technology projects, it is expected that the University could contribute further to the advancement of innovation and technology of the Mainland with its own strengths.

創新科技署二月十日公布，其推薦的五十六名香港專家已獲國家科學技術部（科技部）批核，將名列《國家科技計劃專家庫》（專家庫）。當中包括九位理大學者，他們是：

- 1 校長唐偉章教授
- 2 常務及學務副校長陳正豪教授
- 3 副校長（學術發展）阮偉華教授
- 4 副校長（科研發展）衛炳江教授、工程師
- 5 應用科學及紡織學院院長黃國賢教授
- 6 建設及環境學院院長滕錦光教授、工程師
- 7 工程學院署理院長徐星全教授
- 8 應用生物及化學科技學系系主任黃永德教授
- 9 工業及系統工程學系講座教授李榮彬教授、工程師

這是創新科技署首次推薦香港專家進入專家庫。專家們會配合科技部的工作，參與編制國家科技計劃項目的申請指南、擔任科研項目的評審工作和評估已批准項目的執行情況，及對國家科技計劃管理提出意見和建議。

理大一向致力透過應用知識促進社會的發展。理大學者名列專家庫後，將可透過參與國家科技計劃項目的制定和評審，進一步善用大學的科研優勢，積極推動國家創新科技發展。💎

# Top scholars elected IEEE fellows

## 優秀學者當選電機電子工程師學會院士

Ir Prof. Alex Wai, PolyU Vice President (Research Development) and Chair Professor of Optical Communications (right in picture), and Prof. Siu Wan-chi, Chair Professor of Information Engineering (left), have been elected Fellows of IEEE (The Institute of Electrical and Electronics Engineers) in January 2012. The awards are recognition of their contributions to advancing the research in photonics and signal processing respectively.

The IEEE Fellowship is one of the most prestigious international recognitions for scientists and engineers in the electrical and electronic engineering and computer science fields.



理大副校長（科研發展）兼光通訊講座教授衛炳江教授、工程師（圖右），與資訊工程學講座教授蕭允治教授（圖左），於二零一二年一月當選電機電子工程師學會（IEEE）院士，表揚他們分別在光電子學及信號處理研究的貢獻。

IEEE院士的榮銜是授予電機電子工程及計算機科學領域的科學家及工程師的其中一項最崇高之國際榮譽。💎

# Reflecting on “Vision of Peace” through film representation

## 從電影中探討和平願景

Although the Second World War ended more than 60 years ago, its memories continue to shape the way Asian countries relate to each other and envision their collective future. In the films of China, Japan and Korea, this tragic event in human history continues to occupy an important place, making this visual art form an ideal medium to explore the evolving attitude towards war and peace in Asia.

In February this year, PolyU's Department of Chinese Culture hosted an international conference on “Visions of Peace, Memories of War: Filmic Representations of World War II in China, Japan and Korea”, bringing together 19 international scholars from various countries in Asia, Europe, North America and the South Pacific region to examine the depiction of World War II from a multiplicity of perspectives.

Speaking at the opening ceremony of the Conference were Prof. Huang Chu-ren, Dean of Faculty of Humanities, and Prof. Chu Hung-lam, Head of Department of Chinese Culture.

The Conference was supported by the Faculty of Humanities and the Japan Foundation, a prestigious international grant foundation in Asia.



二次大戰結束距今已有六十多年之久，但亞洲各國對二戰的一切記憶猶新。而中、日、韓電影作為視覺藝術的媒介，正好展示出三地對戰爭與和平的態度。

今年二月，理大中國文化學系舉行以「和平願景，戰爭回憶：中、日、韓電影對二次世界大戰的表述」為題的國際研討會，邀請了來自亞洲、歐洲、北美及南太平洋地區等十九位國際學者以三地電影為對象，從不同角度討論電影媒介如何闡述主題。

人文學院院長黃居仁教授及中國文化學系系主任朱鴻林教授亦在研討會開幕禮上致辭。

是次研討會由理大人文學院與日本國際交流基金會聯合資助。該基金會是亞洲著名的國際基金會。💎





## A Leader by Design

New Dean set to extend  
School of Design's success

### 設計領導人

新任院長推動設計學院更上層樓

At the core of design is refinement — the reallocation of effort and resources to achieve ever better outcomes. Prof. Cees de Bont, recently appointed Dean of the School of Design and Chair Professor of Industrial Design, knows this well. Recognizing the School's considerable achievements to date, he recently described it as having "much potential to become one of the world's leading design schools".

He added that the under-construction Innovation Tower, which will house the School from mid-2013, and the recently announced Jockey Club Design Institute for Social Innovation illustrate that PolyU itself is "very serious about design".

Prof. de Bont has joined PolyU from Delft University of Technology in the Netherlands, where he held the design deanship from 2005. Apart from his academic research on consumer acceptance, consumer behaviour and the adoption of innovation, he has held several consultancy and management positions in industry. His keen awareness of consumer expectations and industry needs places him in the ideal position to lead the School of Design into a new era.

With its proximity to the manufacturing industry, Prof. de Bont said that the School is in a unique position to educate designers who can help

It is also important to nurture students as future leaders, and the key according to *Prof. Cees de Bont* is to nurture their self-confidence so they become aware of their talents and "feel encouraged to explore".

同樣重要的是培養學生成為未來的領袖，方啟思教授認為關鍵在於幫助他們建立自信心，讓他們認識自己的才華，並感到學院積極鼓勵他們發揮探索精神。

manufacturers move from producing goods to "developing and designing value-added, branded products and services". He will be looking in particular at further intensifying collaboration with business and engineering, because interaction with people from different backgrounds is essential in helping designers to develop "innovative concepts that can be produced and have market potential".

It is also important to nurture students as future leaders, and the key according to Prof. de Bont is to nurture their self-confidence so they become aware of their talents and "feel encouraged to explore". That exploration would ideally include greater exposure to design challenges and approaches to design through visiting the Chinese mainland, Europe and the United States.

In terms of research, Prof. de Bont highlighted that PolyU is now ranked 12th in the world in the number of publications in major design journals. His ambition is break into the top 10 within five years. To achieve that, further guidance and training will be needed to help staff members become more research active. The process will also require "a repositioning and better utilization of our research labs".

Prof. Cees de Bont — the designer — is already at work.

設計的核心是精益求精——透過編配人手及資源，爭取更好的成績。早前獲委任為設計學院院長兼工業設計講座教授的方啟思教授，深明此理。理大設計學院的卓越成就備受肯定，方教授亦認為她有「很大潛力成為世界領先的設計院校之一」。

他補充說，正在興建的創新樓，將由二零一三年中開始成為學院的新基地，加上近日宣佈成立的賽馬會社會創新設計院，可見理大「非常重視設計」。

方教授加入理大前，是荷蘭代爾夫特理工大學設計學院的院長，並從二零零五年起擔任該職。除了有關消費者接納、消費者行為及應用創新的學術研究外，方教授也曾擔任業界多個顧問和管理職位。他對消費者期望及業界需求有深刻的認識，定能帶領設計學院的發展進入新紀元。

藉著與製造業界緊密的聯繫，方教授認為學院有一個獨特的角色，可以教育設計師，使他們幫助製造商從生產商品轉移至「開發和設計增值的、有品牌的產品及服務」。他將致力進一步加強商界及工程界的協作，因為他認為讓不同背景的人士互相交流，對設計師構想「可轉化成產品及具市場潛力的創新概念」，非常重要。

同樣重要的是培養學生成為未來的領袖，方教授認為關鍵在於幫助他們建立自信心，讓他們認識自己的才華，並「感到學院積極鼓勵他們發揮探索精神」。有關探索包括透過到訪中國內地、歐洲及美國等地，見識更多有關設計的挑戰及點子。

在研究方面，方教授指出，按在主要設計期刊發表文章的數量計算，理大現時全球排名第十二位。他的目標是在五年內躋身十大。要實現這目標，將需要進一步的指引及培訓，幫助教員更積極投入研究，而這過程亦需要「重新定位及更好地利用學院的研究實驗室」。

方啟思教授 — 設計大師 — 已整裝待發。◆





## Focused on the Bigger Picture

Head of School of Accounting and Finance thinking big without forgetting the details

### 放眼大局

會計及金融學院主任滿腹大計同時不忘細節

A fundamental element of effective tertiary education is the delicate balancing of teaching and research. As recently appointed Head of the School of Accounting and Finance (AF) and Chair Professor of Accounting, Prof. Agnes Cheng's vision is "to prepare students for the ever-changing and challenging international business world" by bringing top-tier research to the classroom. She aims to ensure this through the implementation of "effective strategies and efficient methods".

Prof. Cheng is aware of the challenge for many staff in meeting the university's tough teaching and research standards. She believes that everyone should be given a fair chance to work under a caring environment. Taking an open and inclusive approach, she intends to build an AF family in which each member "cares, respects and helps each other". She will also make the staff aware that she is open to criticism and suggestions and plans to motivate them by developing a transparent evaluation system.

When asked how she intends to nurture the leaders of tomorrow, Prof. Cheng replied that leaders needed to "think big and mind the details". She explained that it was important for a leader to see the bigger picture, to understand the changing world and to set forward-looking goals. Yet it is just as important to pay attention to the organizational structure and culture, and to keep an eye on the daily happenings that are important to the smooth running of the organization.

One of Prof. Cheng's longer-term goals is to foster cross-disciplinary research in accounting, finance, economics and law. She is an active researcher herself, and has a particular interest in financial accounting archival research, capital market research and cost allocation models. She has published in many prestigious accounting journals and is currently the editor of the *Asia-Pacific Journal of Accounting and Economics*.

Prof. Cheng came to PolyU from Louisiana State University in January this year. Since graduating from National Taiwan University, she has spent much of her career in the United States. She became a full Professor of Accounting while at the University of Houston in 1999. Apart from her academic positions, she has also held several executive positions in professional organizations, including President of the Chinese Accounting Professors Association of North America (CAPANA) and Vice President of the International Association for Accounting Education and Research (IAAER).

With a world of experience, Prof. Cheng is set to make substantial local contributions right here at PolyU.

When asked how she intends to nurture the leaders of tomorrow, Prof. Agnes Cheng replied that leaders needed to "think big and mind the details".

至於如何培育明日的領袖，鄭振興教授認為領袖需要「大處著眼，小處著手」。

高等教育要達致顯著的成效，其中的基本要素是教學與科研互相平衡。鄭振興教授早前獲委任為會計及金融學院主任兼會計學講座教授，她的願景就是透過把頂級科研引入教室，「裝備學生面對不斷變化及充滿挑戰的國際商業社會」，並將通過實施「有效益的策略和有效率的方法」達致目的。

鄭教授明白，要達到大學嚴格的教研要求，對不少教員來說是一項挑戰。她認為在關愛的環境下，每人都應有公平的工作機會。她希望以開放和包容的態度，把學院建設成一個大家庭，當中每位成員都「互相關心、尊重和幫助」。她還會讓教職員知道，她樂於接受批評及意見，並計劃建立一套透明的評核機制，推動他們有更好的表現。

至於如何培育明日的領袖，鄭教授認為領袖需要「大處著眼，小處著手」。她解釋道，一個領袖要放眼大局，洞悉時勢變化並訂定具前瞻性的目標。但同樣重要的是，要留意機構的架構及文化，並掌握日常事務，這對機構的順利運作十分重要。

鄭教授其中一個較長期的目標，是促進會計、金融、經濟學和法律的跨學科研究。她個人亦積極從事研究，尤感興趣的是財務會計檔案研究、資本市場研究和成本分配模型。她曾於多份著名會計期刊發表論文，目前是《亞太會計與經濟學期刊》的編輯。

鄭教授於今年一月加入理大，之前任職於美國路易斯安那州立大學。她於國立臺灣大學畢業後，大部分時間都在美國發展事業。一九九九年，在休士頓大學成為全職教授。在學術界以外，鄭教授亦在多個專業組織擔任行政職務，包括北美華人會計教授協會會長及國際會計教育與研究學會副會長。

鄭教授憑著在國際上的豐富經驗，將為本港理大作出重要的貢獻。◆





**PolyU Milestones** is The Hong Kong Polytechnic University magazine published by the Communications and Public Affairs Office.

「理程」是香港理工大學刊物，由傳訊及公共事務處編印出版。

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