HKUST

NEWSLETTER - GENESIS

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同創 - 科大通訊

World's first smart coating to fight infectious diseases
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Aeronautics guru lands on HKUST — New Provost Prof Wei Shyy
航天專家科大著陸 — 新首席副校長史維教授

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President's Message

As someone who genuinely believes in communication, I believe *Genesis* is like part of the glue that helps to hold the university together as a community. The stories in these pages are the happenings on and off the campus over the last several months. They are also your stories.

In terms of time, I am in a somewhat awkward situation. After a year on the job as president, I can no longer call myself a newcomer, and yet I am some distance away from being able to say that I know the university intimately, like some of you do. I rely partly on the reportage in the Newsletter to keep myself abreast of what goes on in our university.

But there is one thing I do know well: I know what I want to achieve for our university. More than anything, I would like to see HKUST work itself towards our destination as the institution of innovation. Asian institutions of learning, including higher learning, have often been accused of promoting rote learning and of failing to produce innovative leaders. As a world-class research university, we should lead the way in breaking out of this crusted Asian mold.

As we gear ourselves for the changes envisaged by the 3-3-4 reform, I see clearly that creative and independent thinking lie at the heart of this philosophical re-orientation. A university is, after all, a creator of new knowledge as well as a transmitter of existing knowledge. When we perform both functions well, we will then be worthy of the name of being a leading international research university.

Happy reading !

Tony F Chan

校長的話

作為科大校長，我深信溝通的重要性；而這份「同創．科大通訊」正是一股向心力，將科大這大家庭的成員凝聚在一起。科大通訊內的文章介紹過去幾個月來校園內外的活動，也就是你們的故事。

轉眼間，我成為科大校長已經一年了，不能再說自己是新近上任的校長；然而跟科大的「老臣子」比較，我對大學還算不上瞭如指掌。透過這份通訊，我對科大有更深入的認識。

我對於科大應該走的路、及如何帶領科大再闖高峰，有清晰的願景。我期望科大成為激發創新意念的學府，進一步向目標邁進。大家知道，亞洲的教育、包括高等院校培養人才的方法，有時被認為過份著重記誦，不一定能夠培養具創見的傑出領袖。科大作為一家世界級的研究型大學，必定要突破這個框框，方能培育新一代的人才。

我們正積極準備，迎接「三三四」教育改革；而教育改革的核心意義，正是激發創意和培養學生獨立思考的能力。畢竟大學的使命不但是傳授知識，更要創造知識。我們在這兩方面力求卓越，方能真真正正成為在國際學術界佔一席位的研究型大學。

祝開卷愉快！

陳繁昌

HKUST develops world's first smart anti-microbial coating to control infectious diseases

Since Hong Kong was hit by SARS in 2003, the sanitization of public places has become the norm – but are these sanitizers effective in most situations? HKUST has developed the world's first smart anti-microbial coating with intelligent and long-lasting qualities that complement the sanitizers currently being used.

Prof King-lun Yeung (left) demonstrates the application of the coating while Prof Joseph Kwan contrasts two laboratory samples to illustrate the efficacy of the coating
楊經倫教授（左）示範噴塗過程；關繼祖教授比較兩個樣本以顯示塗層的效能

Prof King-lun Yeung of HKUST's Department of Chemical and Biomolecular Engineering said, "Most disinfectants including bleach and alcohol can kill virus and bacteria at the moment they are applied to the surface of objects. When they become dry however, they are no longer effective." Whereas elevator buttons, door knobs and handrails in public places are often sanitized, there are limitations to current sanitizers. Supposing that the buttons in an elevator are wiped at 1 pm and 2 pm – if an infected person touches the buttons at 1.05 pm, other people who touch the buttons from then to 1.59 pm may be infected.

"The smart polymer in the coating can rapidly respond to contamination from touch or droplets. Whenever our hands touch the coating, or when droplets land on the coated surface, the coating will sense the increase in temperature from the body or moisture from drops, and automatically release an appropriate amount of disinfectant to inactivate the disease-causing microbes. This prevents another person touching the same surface from picking up the germs, becoming infected and further spreading the disease. Tests show that the coating is effective for at least 30 days and its effect may last for up to six months. Results also demonstrate that this smart coating can kill 99.9% of bacteria within one minute, 99% of H1N1 Human Swine Flu virus within three minutes, 99% of bacillus spores within 30 minutes, and also inhibit mold and fungal growth."

The coating contains similar ingredients to those used in cosmetics and anti-acne cream. The ingredients of this coating have been approved by the US Environmental Protection Agency and the US Food and Drug Administration and confirmed to be non-toxic and biodegradable. They do not lead to any observable skin reaction or pose threats to the environment.

"Most conventional disinfectants use biological or pharmaceutical methods and can only kill a few specified virus or bacteria. HKUST's anti-microbial coating on the other hand, uses chemical methods to kill microbes by damaging their cell envelop, resulting in cell lysis and death," said Prof Arthur Lau, the Division of Environment. Since it attacks the structure of microbes, it can disinfect a full spectrum of microbes found in body fluids, including saliva and blood. It can kill methicillin-resistant Staphylococcus aureus which is antibiotic resistant and is appearing more frequently in our community and elsewhere. The use of a smart surface coating can help control the spread of both old and new infectious diseases.

"We conducted tests on computer mice in the University's computer rooms by cleaning some of them with 1:99 bleach solution and the others with our anti-microbial coating. Three days later, the number of viable bacteria on mice cleaned with bleach solution increased to 3,500 CFU/ mouse, whereas mice with our coating only had a few tens of CFU / mouse. We also conducted another test to compare our coating with alcohol and 1:49 bleaching agent to evaluate their performance in killing B subtilis endospore, which is similar to anthrax spores. Results showed that both alcohol and bleach became ineffective once dried, whereas our coating remained effective for 30 days."

科大研發全球首創 智能殺菌塗層 有效控制傳染病

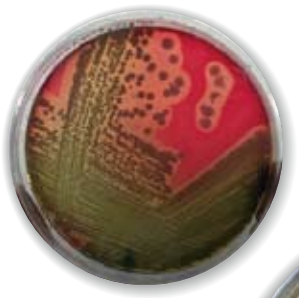
自從沙士以來，公眾地方進行清潔消毒，已經是大家慣見的情況。可是，常用消毒劑是否在大部分情況都奏效？科大經過七年時間，研製出全球首創的智能殺菌塗層，其智能特點及持久力強的優點，彌補一般消毒劑的不足。

科大化學工程及生物分子工程學系楊經倫教授表示：「用一般消毒劑如漂白水及酒精抹拭物件表面，能夠將抹拭當時的病毒與細菌殺死，可是揮發乾掉後就失效。」升降機按鈕與公眾地方的門把與扶手等，是經常進行消毒的地方；假設升降機按鈕下午一時及二時均以漂白水及酒精被抹拭一次，如果一時零五分有帶菌者接觸按鈕，那麼從這一刻到一時五十九分之間接觸按鈕的人，仍有機會被間接感染。

「我們研製的殺菌塗層獨有智能功能，一經塗在物件表面以後，塗層就不但能殺死塗抹當時的病毒與細菌，更能持久有效；之後若有人或污液接觸到塗層表面，塗層因感應到人體溫度或污液的水份，會迅速產生反應，自動釋放適量消毒劑以殺死有害微生物，從而防止其他人因接觸物件表面而受到間接感染或繼續傳播病菌。測試顯示，一經塗抹後，塗層的效能最少可以維持三十天，並有機會維持六個月。它能在一分鐘內殺滅 99.9% 的細菌，三分鐘內滅絕 99% 的甲型流感（H1N1）病毒（人類豬流感病毒），30 分鐘內殺滅 99% 的細菌孢子，以及阻止霉菌和真菌的生長。」

這種智能殺菌塗層為公共衛生界帶來佳音，其成份與化妝品或暗瘡膏的物料相似，美國環境保護署與美國食品和藥物管理局並已透過驗證證實其成分不含毒性、能以生物分解，不會對皮膚造成傷害，亦不會損害環境。

科大環境學部劉培生教授指出：「一般以生物或藥理對抗細菌或病毒的方法，只能殺滅某種特定的細菌或病毒。科大研發的殺菌塗層則使用化學方法，破壞微生物的表層結構以導致微生物死亡。」由於它從微生物的結構著手，因此能有效消滅包括唾液和血液等各種體液內一系列有害的微生物，包括滅絕越見普遍的抗藥性金黃葡萄球菌、大腸桿菌、豬流感病毒等，並大有機會殺死將來可能出現、前所未見的微生物。



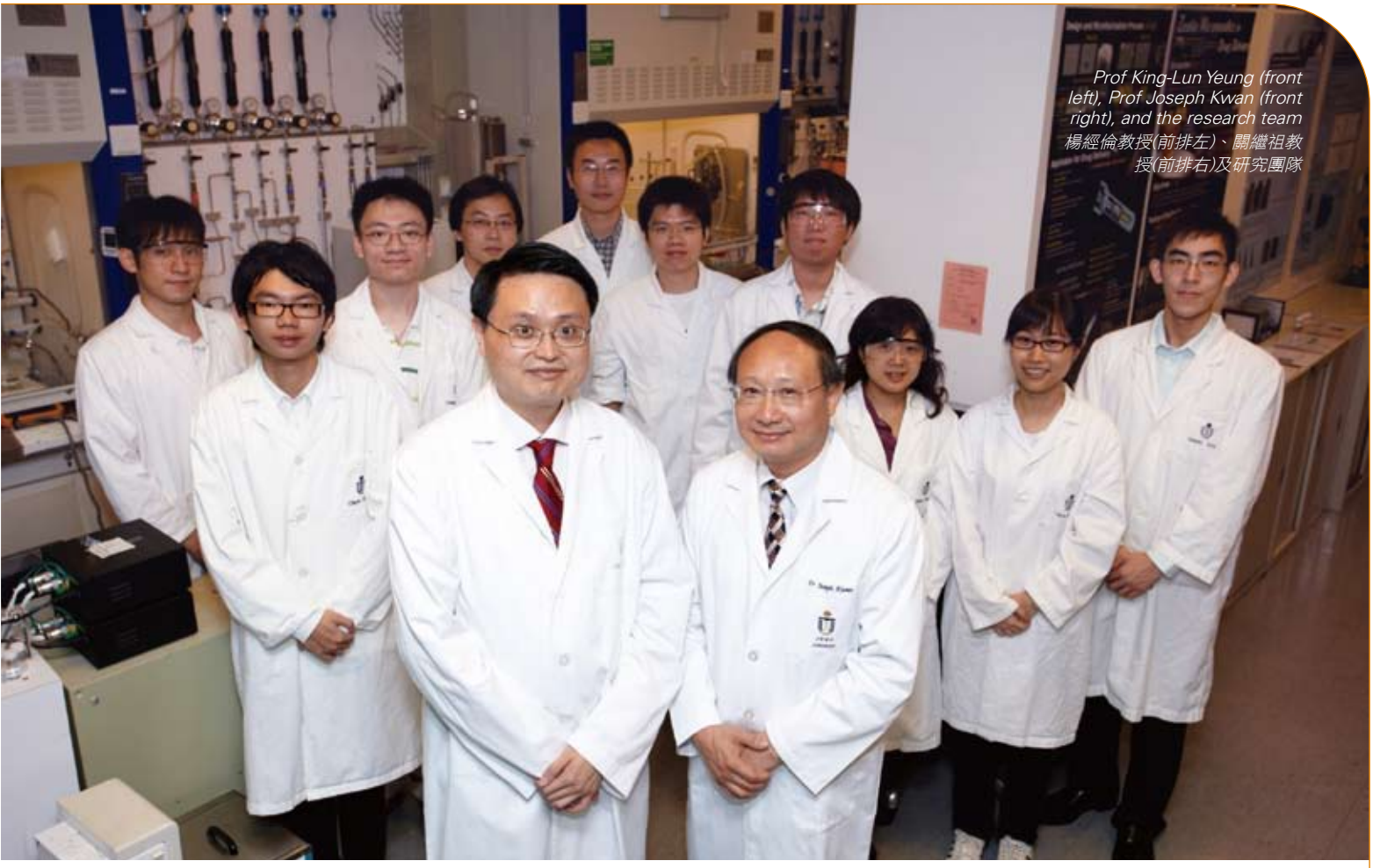
Transparent, colorless and odorless, this smart coating can be applied to glass, metal, wood, paper and even cloth. It can be easily removed by washing in detergent.

The Hospital Authority will run pilot programs and apply the coating at ICUs, medicine, surgery and the wards at certain hospitals. It may also extend the program to other hospitals. Patents have been sought in the US, Mainland China and Taiwan, and HKUST may launch the coating in the market.

Prof Joseph Kwan, Director of the Health, Safety and Environment Office, and Adjunct Professor in the Division of Environment at HKUST, said, "Disease-causing microbes, such as viruses, bacteria, fungi and spores, in addition to antibiotic-resistant micro-organisms are causing increasingly severe threats to public health."

"HKUST's anti-microbial coating prevents micro-organisms from being transmitted through contacts with surfaces. It will have a monumental effect on curbing the spread of infections on a global basis. This revolutionary coating will set a new standard in the maintenance of public health."

HKUST started research on this smart anti-microbial coating with funding support from the William Mong Institute of Nano Science and Technology at HKUST, and the Innovation and Technology Fund.



Prof King-Lun Yeung (front left), Prof Joseph Kwan (front right), and the research team
楊經倫教授(前排左)、關繼祖教授(前排右)及研究團隊

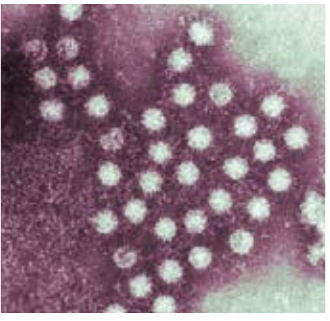
「我們在大學電腦室的滑鼠上進行測試，分別以 1:99 稀釋漂白水、及科大的智能殺菌塗層清潔滑鼠。三天後，只用漂白水清潔的滑鼠上，菌落增加至 3,500 個；塗上殺菌塗層的滑鼠則只有數十個菌落。我們亦將智能殺菌塗層與酒精及 1:49 稀釋漂白水比較，測試它們殺死芽孢的能力，結果酒精與漂白水在乾涸後完全失效，但智能殺菌塗層 30 日後仍維持全部殺菌力。」

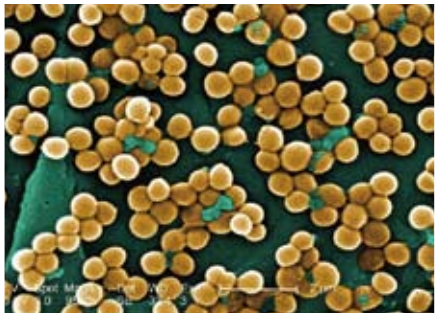
殺菌塗層是透明、無色無味的，能用於玻璃、金屬、木材、紙張及布料等多種表面，而且只要用清潔劑和清水混合的溶液便能洗淨。

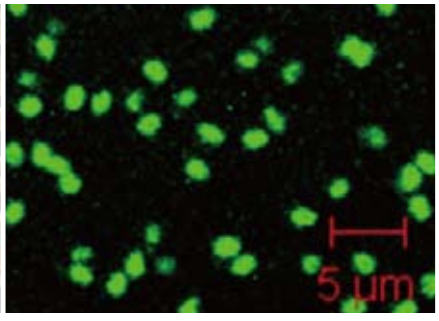
醫管局將先在部分醫院的深切治療部、內科及外科等病房試用智能殺菌塗層，之後有可能擴展至更多醫院。科大已在美國、內地及台灣申請專利，將科研成果推出市場。

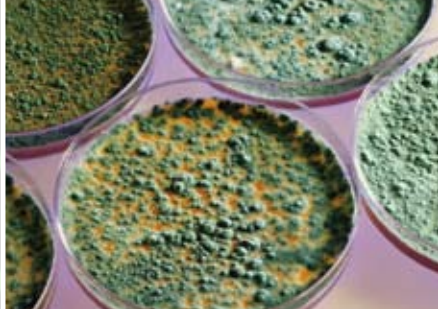
科大健康、安全及環境處處長及環境學部兼任教授關繼祖教授說：「病毒、細菌、真菌以及細菌孢子，及越來越多的抗藥性微生物都對公共衛生帶來嚴重威脅。科大研製的殺菌塗層有效避免微生物透過物件表層的接觸而散播，對遏止全球傳染病傳播帶來革命性的改變。」

科大自 2003 年開始研究智能殺菌塗層，得到科大蒙民偉納米科技研究所和創新科技基金的資助。









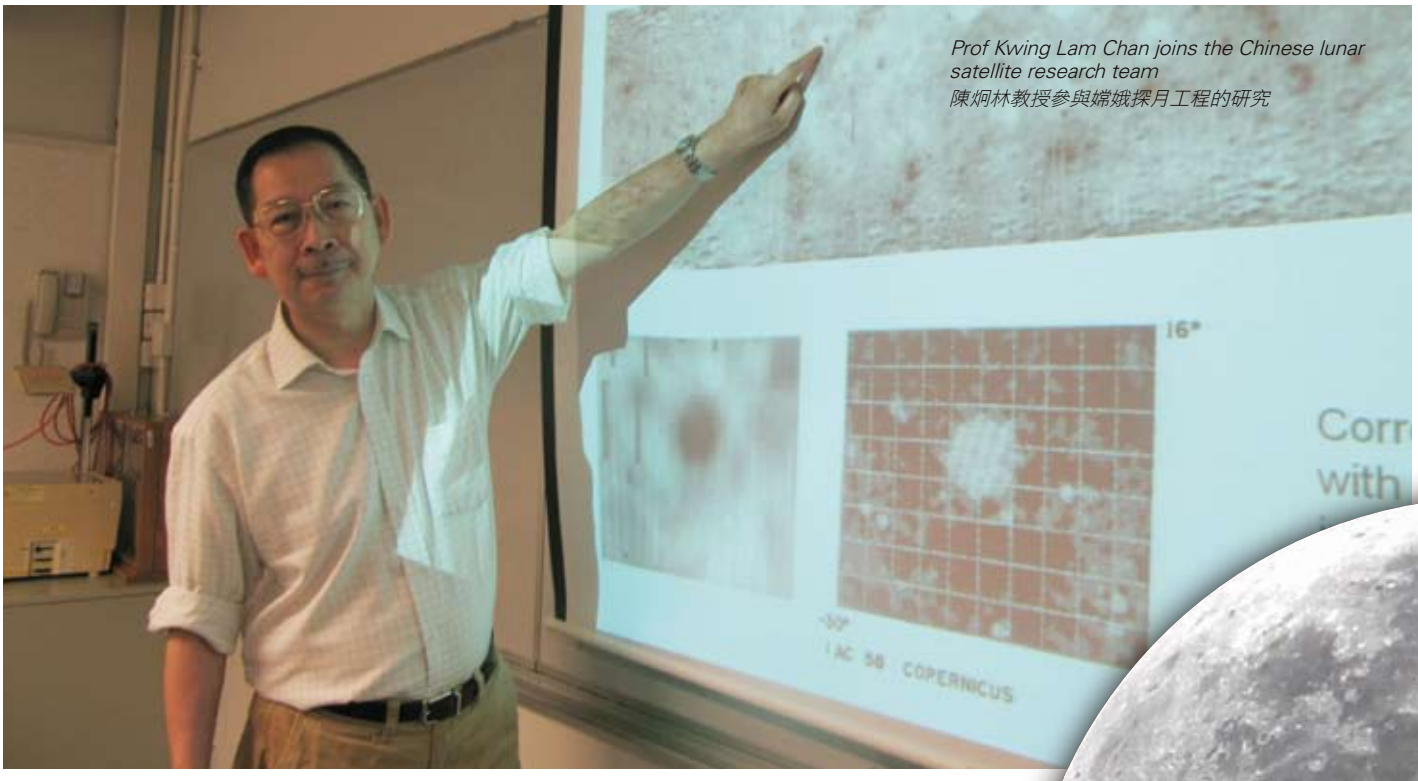
An out of this world solution to the energy crisis: The moon holds the answer

According to a famous Chinese legend, Lady Chang'e became immortal and resided on the moon after stealing and taking her husband's special drug. With technological advancement and with astronauts landing on the moon, this had long been demystified. Modern technology has nevertheless made Chang'e-1, China's first lunar probe, possible. More importantly, technology may solve the world's energy crisis by providing a carbon-free source that will last 10,000 years.

Prof Kwing Lam Chan, a professor of Mathematics and Director of Center for Space Science Research at HKUST, was invited by the China National Space Administration (CNSA) to join the first Chinese lunar satellite research team. Working with experts at the National Observatory of the Chinese Academy of Sciences, Prof Chan was responsible for analyzing microwave data collected on the moon.

"What scientists already knew was that there are large quantities of Helium-3, a fusion fuel on the moon, estimated to be in the range of 1 million tonnes. On Earth on the other hand, there is only around 20 tonnes. The rich reserves on the moon are sufficient to produce the Earth's electricity consumption for another 10,000 years. For the same amount of material, the amount of energy produced from nuclear energy is 10 million times that of chemical energy produced from oil. Helium-3 fusion can produce energy at a cost which is only a fraction of that of oil. From an environmental perspective, Helium-3 is safe and clean. It does not contain carbon or radioactive wastes, and it boasts higher durability when burned. The next step is thus to find specific locations in which Helium-3 is stored in large quantities on the moon," said Prof Chan.

After about a year of hard work, Prof Chan and the research team made



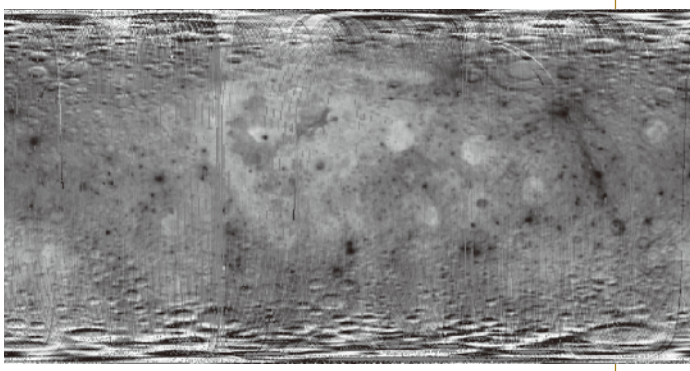
Prof Kwing Lam Chan joins the Chinese lunar satellite research team
陳炯林教授參與嫦娥探月工程的研究

月球的清潔能源可望解決地球能源危機

groundbreaking discoveries, "We discovered that there are over 200 microwave 'black spots' which are a few centimeters to more than 10 meters below the moon's surface. Compared with other locations on the moon, these spots show significant excess of temperature variations between daytime and nighttime. We believe that these black spots may be related to the composition of the lunar regolith and thus to Helium-3 as well. It has the potential to solve the energy crisis and become one of the most sought-after resources on the moon among the nations."

In order for men to explore and excavate resources on the moon, the problems of human survival there need to be solved, and appropriate locations need to be established for long-term lunar stations. Temperature and water sources are also factors to be considered. The discoveries of Prof Chan have brought forth hope, "The microwave data confirm that temperature variation of the lunar regolith, found tens of centimeters below the surface, is very small. The temperature is around minus 48 degrees Celsius close to the equator; it is warmer than Alaska's winter lows. With some technological assistance, human beings can live under such temperatures."

Prof Chan's research results help predict the distribution and storage of Helium-3 in the lunar regolith. The results have been published in *Earth and Planetary Science Letters,* a world-renowned scientific journal. Prof Chan is the first Hong Kong scholar to publish Chang'E-1's data analysis results in an international journal. A prominent astrophysicist who formerly worked in NASA's Goddard Space Flight Center, Prof Chan holds a doctoral degree of Physics from Princeton University. He joined HKUST's Department of Mathematics in 1994. He is also serving as a science advisor to the Hong Kong Space Museum.



Microwave black spots are found below the moon's surface
月壤中有深層微波黑點

在科技發達的今天，嫦娥偷取仙丹、奔向月宮的神話，早就破滅了；不過現代科技卻造就了中國人造衛星「嫦娥一號」的探月工程，並有可能為全人類帶來「仙丹」—可使用一萬年的再生能源，從而解決地球面對的能源危機。

科大數學系教授、太空科學研究中心主任陳炯林教授獲國家航天局邀請，參與嫦娥一號探月工程的數據研究工作，與中國科學院國家天文台的專家合作，負責分析國家在月球取得的微波探測數據。

「科學家已知月球表面含有豐富的氦 3，預計達 100 萬噸，遠較現時地球氦 3 含量的 20 噸為多，運輸到地球之後，可供地球使用一萬年。將氦 3 化成核能，輸出能源的效率比石油高出 1,000 萬倍，因此成本低於石油。從環保角度來看，氦 3 安全性高、潔淨、不含碳與放射性廢料，燃燒時耐用程度比其他的燃料為高。因此科學家下一步要解決的問題，就是找出這些氦 3 在月球上貯存的位置，」陳教授表示。

經過一年多的研究，陳教授與其隊伍取得重大發現：「我們發現月球數厘米至十多米深的月壤中，有二百多個『深層微波黑點』；這些黑點日夜温差較月球上其地方為大。我們相信，這些黑點有可能與月球上的氦 3 有關連。因此，這項發現可望有助解決全球的能源危機，而月球上的這些資源亦可能成為各國爭先開採的重點資源之一。」

人類若要在月球上探索與發掘能源，其中一個必須解決的問題是在月球上找到適合人類生存、居住以及建設基地的地方；温度、水源都是必須解決的問題。陳教授與其他專家的發現，亦為此帶來了希望：「我們的微波觀測證實，月球表面以下數十厘米的温度極之平穩、日夜波動小，赤道區氣温約為零下 48 度，較地球北阿拉斯加冬季的低温為高；因此，人類可以在這種温度下生存。」

陳教授的研究，有助準確地計算氦 3 在月壤的分布及存量。有關研究已在世界著名國際科研期刊《地球和行星科學通訊》刊登，陳教授是首位就該項研究獲國際期刊刊載著作的本地學者。著名的天體物理學家陳教授在普林斯頓大學取得博士後，曾於美國太空總署高達德太空飛行中心工作多年，94 年加入科大數學系，現任香港太空館顧問。

HKUST achieves breakthrough in wireless technology to facilitate network traffic

Many people watching the World Cup online this year experienced the frustration of slow connections or fuzzy images. Some mobile phone users have also complained of connection problems. For example, during China's Spring Festival, mobile phone users on the Mainland found that their congratulatory messages, via SMS, to friends and family were delayed for days. This is because radio spectrum in relation to WiFi and 3G etc is insufficient to meet the huge demands.

However, only 10 to 20% of the world's radio spectrum is currently being utilized, according to Prof Zhang Qian of HKUST's Department of Computer Science and Engineering. "Governments in most countries manage the spectrum through license, but companies which have successfully bid for licenses cannot utilize the allocated spectrum every minute throughout the day especially during non-peak hours. In most parts of the world, including Hong Kong, and even busy New York City, there is thus a severe wastage of radio spectrum."

Fortunately, engineers have come up with a solution. HKUST is one of the institutions working towards 'cognitive radio', which has been the hottest field in wireless communication during the past decade. Prof Zhang used a vivid analogy, "Radio spectrum is like a highway with many lanes. Users are drivers. Currently, only licensed wireless service providers can provide radio spectrum to users, which is like a lane dedicated to special purposes experiencing a heavy jam. If we can open up radio spectrum to licensed and unlicensed companies alike through careful management and new technologies, there will be better traffic control to alleviate traffic jams on what was initially the specified lane."

Prof Zhang was referring to the idea that governments explore policies to open up radio spectrum to companies without a spectrum license, and that licensed companies adopt business strategies to 'sell' or 'lease' their spare spectrum to unlicensed companies. "We are talking about a potential 'spectrum market' which will ultimately benefit everyday users of mobile phones and the Internet. For instance, mobile phone companies (a secondary user) may buy extra spectrum from TV stations (a primary user) during Spring Festivals when phone connections are the busiest in China. Users of mobile phones would then get stable services due to efficient traffic control. It creates a win-win situation for all."

So how about 'cognitive radio'? "Cognitive radio (CR) is an intelligent technology used to detect and predict unused radio spectrum. At HKUST, we have developed a smart system which will search for the optimal level of spare radio spectrum among primary users to determine the appropriate 'lane' for secondary users to use so as to ensure cost-effectiveness. Most importantly, the secondary users will not interfere with the primary users who will continue to have the 'right of way'. At the same time, secondary users can enjoy the stability of a continuous service as our CR device keeps searching for usable spectrum from one primary user to another."

HKUST's device, now at the stage of laboratory research, will be the size of a small chip, allowing it to be installed on mobile phones and other mobile devices when fully developed. The University has also achieved a breakthrough in analyzing the usage of radio spectrum on the Mainland. The breakthrough research, with strong potential, has brought together HKUST scholars in the areas of computer, engineering, electronics and business to explore the best antennas, wireless networks and business models.

Prof Zhang Qian explains HKUST's research breakthroughs in cognitive radio technology
張黔教授講解認知無線電技術上的研究突破

"Cognitive radio is a breakthrough technology which will enable the rise of a legal spectrum market. This is yet another revolution in wireless communication after broadband network. If government regulations and business strategies work towards the same goal, the change will be more significant than the opening up of the IDD market almost two decades ago," said Prof Zhang.

科大無線通訊突破 有效管理網絡交通

相信許多人都有這樣的經驗：在網上觀看世界盃遇上網路繁忙，畫面輸送或徐或疾；使用手機，線路接駁出現故障。春節期間，內地手機使用者發短訊向家人朋友拜年，對方收到賀語時卻已是數天後的事了。為何會有這樣的情況？這是因為無線上網與3G的射頻頻譜不足以應付需要的緣故。

科大計算機科學與工程學系張黔教授卻表示，全球頻譜的使用率，只有一至兩成左右：「大部分政府透過發牌管理頻譜，可是成功投得牌照的公司雖然每天 24 小時獲分配頻譜，卻並非每分每秒都使用頻段，尤其在非繁忙時間，就有更多閒置的頻譜。在大部分國家與地區，包括香港甚至最繁忙的紐約市，都出現嚴重的浪費情況。」

為了減少浪費，工程界正密謀對策。香港科大正努力鑽研「認知無線電技術」(Cognitive Radio, CR)，它是近十年來無線通訊行業最熱門的研究範圍之一。張教授以生動的比喻作解釋：「射頻頻譜就好像公路一樣，一條公路上有很多車道，而頻譜使用者就像是汽車司機。現時，只有持牌提供無線服務的公司可以向使用者提供頻譜，就像多條車道中只有其中一些被闢作專用車道，當許多車輛需要用專用車道時就會造成擠塞。如果我們能夠開放『專用』車道（頻譜），利用有效的管理與嶄新科技，讓持牌與沒有持牌的公司都可以合法使用頻譜，就能疏導頻譜上的『交通』，保持整體交通暢順。」

換句話說，當局可以研究開放頻譜的政策，讓有頻譜牌照的公司以售賣或租賃的方式將頻譜轉讓給沒有牌照的公司。「這樣，將來有可能會出現『頻譜市場』，而所有日常使用手機與互聯網的人士都將受惠。比如說，如果內地手機服務公司（頻譜的次用戶）可以在春節手機使用率最高的時候向電視台（頻譜的主用戶）購買其空閒的頻譜，手機用戶就可以在繁忙時段繼續享有與平常一樣穩定的服務。有效的交通管制，能製造多贏的局面，」張教授說。

那麼，認知無線電如何派用場？「認知無線電是一種智能技術，能夠感知及預測空閒的射頻頻譜。科技大學發展的智能系統，不但能夠自主尋找和使用空閒頻譜資源，更能以優化的感測機制，尋找數量恰到好處的主用戶與空閒頻譜，而不會浪費太多時間搜尋過多頻譜，以確保在成本與效益之間取得最佳的平衡。最重要的是，主用戶在任何時間都有優先權，主用戶回來上網時，次用戶就會退出並找尋其他空閒頻譜，確保不會對主用戶構成干擾。同時，我們的認知無線電裝置將繼續為次用戶搜尋其他主用戶與空閒頻譜，確保次用戶服務的穩定性。這樣，我們就能保證雙方都能享用最優質的頻譜服務，」她說。

科大現時在實驗室研究的智能系統裝置，可望於不久的將來縮細成為芯片大小，屆時可以安裝在手機、電子手帳、手提電腦等流動設備上，令手機上網等過程更為暢順。另外，科大對內地頻譜的使用情況進行了全面的測量和分析，取得突破。這項潛力優厚的研究亦得到校內各學系的支持，計算機、工程、電子及商業管理等學者攜手合作研究天線裝置、網絡系統與商業模式，務求發揮認知無線電的潛能。

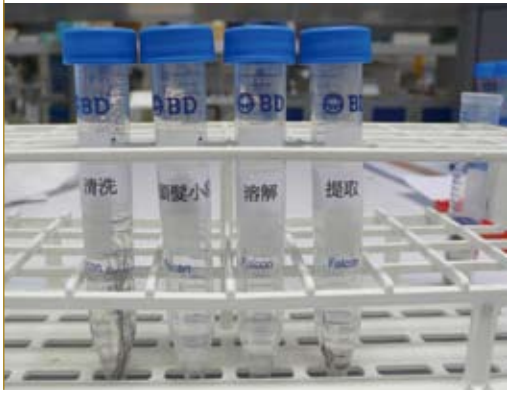
張教授卻表示：「認知無線電是一項突破性技術，讓『頻譜市場』成為可能，有機會在寬頻之後掀起下一場無線通訊的革命。如果政府政策與商業策略能夠配合，情況將與十多年前國際長途電話服務由壟斷變成開放市場的情況相似，帶來重要的變革。」

HKUST develops hair-based drug testing

Drug abuse among youngsters has become a growing concern in Hong Kong in recent years. Although the most common method of drug detection is a urine test, the Division of Life Science at HKUST has developed a new and improved method that should save both time and embarrassment.

The new hair test boasts the advantages of yielding quick and accurate results, eliminating forgery, and the ability to detect drugs used as long as three months previously. Now HKUST is partnering with community organizations and schools to conduct hair-based drug tests and help them implement education and rehabilitation programs.

Prof Karl Tsim, Head of the Section of Marine Ecology and Biotechnology of the Division of Life Science said, "There are many shortcomings associated with urine tests, despite the fact that they yield quick results. To prevent forgery, their samples need to be taken at designated locations by designated personnel. Test papers used may result in 'false positive' outcomes since they may be over-sensitive to drugs used for coughs, intestinal problems or Chinese herbal medicines. Urine tests may also lead to 'false negative' outcomes when drug abusers take synthetic urine powder, or if they take new drugs which cannot be detected by urine testing. Urine tests can only detect drugs taken within the past few days and lose their effectiveness beyond this time frame."



HKUST-developed hair tests have many advantages over urine tests. They are accurate and there is little chance of false results. They don't cause embarrassment. More importantly, they address the issue of drug abusers using several kinds of drugs. The technology successfully detects 10 commonly used drugs including Cannabis, Ketamine, Cocaine, Heroin, Morphine and MDMA. It will be extended to 30 kinds of drugs in the future.

"Our close ties with local hospitals means we have information on the latest trends in drug abuse. Our hair tests have great flexibility, which enables us to add to the list of the newly popular drugs. It takes six to 12 months for a new drug to become popular and it takes only two to three months for us to successfully modify our mechanism to detect the new drug. This means that we will be well prepared for detection before the abuse of the new drug reaches its peak," said Dr David Lau at the Division of Life Science.

Prof Tsim added, "Hair tests are desirable for many reasons. Drugs and their metabolites, after infiltration into human blood, will be stored in hair follicles. By detecting drugs and their metabolites in hair segments, it is possible to trace the person's habits and history of drug abuse by the month. Our new technology, based on High Performance Liquid Chromatography-Chip-Mass Spectrometry (HPLC-Chip-MS/MS), has been further improved during the past year to reach a high level of sensitivity (pg/mg)."

Prof Karl Tsim explains the advantages of hair test
詹華強教授講解頭髮驗毒的好處

Dr Lau said, "HKUST is conducting hair tests for community organizations and schools. The organizations need only collect a sample of 10 hair segments (no less than 4 cm) from the testers. They will then mail the samples to HKUST using codes and withholding the names of those being tested. If they mail the samples to the University on Monday morning and the samples reach us by 6 pm on Tuesday, we can complete the tests and send the reports to the organizations via email by Friday afternoon."

He added, "Our system enables mail delivery of samples and email delivery of reports. The easy-to-use and anonymous system protects the identity of the individual being tested. He or she will remain anonymous even if there are delivery issues. We consider this part of the University's social responsibility to help identify drug abusers and assist them in their rehabilitation and pursuit of a new life."

科大頭髮驗毒提供快而準的測試

近年青少年吸毒的情況備受社會關注，現時最常用的方法是尿液驗毒；科大生物系則提出以頭髮驗毒，此方法不但快而準，更可減低造假的機會，及檢驗出遠至三個月前吸食的毒品。科大現為社福機構與學校進行頭髮驗毒，協助它們推行教育及復康計劃。

科大生命科學部海洋生態學與生物工程系主任詹華強教授表示：「尿液驗毒雖然快捷，卻有多個缺點。尿液的採集需在指定地點、由專人收集，否則樣品極易作假。另外，驗尿試紙有可能將相似物質誤認為目標毒品，造成『假陽性』的驗毒結果，譬如對傷風藥、腸胃藥及中藥出現均有可能被誤認。同時，驗尿亦可能造成『假陰性』的驗毒結果，譬如吸毒人士使用人工合成的尿粉，亦可造成『假陰性』；而新類型藥物亦不一定能在測試中檢測出來。此外，驗尿只可檢測受測試者數天內有否吸毒，超過時限後即失效。」

科大開發的頭髮驗毒測試方法，在多個方面均較尿液驗毒優勝。它準確度高、造成假陽性和假陰性的機會低、不會令受試者感到尷尬。它亦可針對近年吸毒者同時吸食多種毒品的趨勢，可檢測包括大麻、氯胺酮（K仔）、可卡因、海洛因、嗎啡、搖頭丸等十種常用毒品，並有機會將可檢測的毒品擴展至近 30 種。

「我們與醫院有密切聯繫，能充分掌握全港最新最常被濫用毒品的趨勢。另外，頭髮驗毒有很大彈性，可以將新興毒品加入受檢測之列。由於一種毒品在吸毒者之間流行起來，需要半年至一年時間；而我們約兩至三個月已經可以研製出檢測新興毒品的方法，因此我們的驗毒機制可以在該種毒品流行的高峰出現之前已準備就緒，有效驗出該毒品」，科大生命科學部劉大偉博士表示。

詹教授稱：「頭髮驗毒的好處很多，其原理主要在於毒品或其代謝物進入血液後，將貯存在頭髮毛囊內，並且不會流失。因此只要化驗頭髮中的毒品或其代謝物，即可掌握受試者的吸毒情況，包括其吸毒習慣與歷史，精確度可達至以月為單位。我們的新技術以液相色譜——晶片 / 質譜 (HPLC-Chip-MS/MS) 為基礎，經過一年多的技術改良，現在檢測的靈敏度可達到皮克級 (pg/mg)。」

劉博士說：「科大現正為社福機構與學校進行檢測，機構只需收集受試者約 10 條（不少於 4 厘米長的）頭髮，然後把不記名、只附編號的樣本寄給科大。若樣本於周二下午六時前寄至科大，則三個工作天後的周五下午，科大已可完成檢驗並透過電郵將驗毒報告發放給機構。樣品及報告以郵寄與電郵的方法傳遞，過程簡單方便。由於樣品不記名，即使寄失亦不會洩露受試者的個人私隱。科大將這項服務視作大學的社會責任，希望提供準確的科學數據，讓社福、教育及醫療界更有效地推行抗毒工作。」

頭髮驗毒與尿液驗毒之比較：
Comparison between hair-based tests and urine tests:

	尿液 (試劑盒) **Urine tests**	**頭髮** **Hair tests**
Drugs taken during this period can be detected 檢驗期限	Short (1 day to a few days) 短 (1天至數天)	Long (7 days to 3 months) 長 (7天至3個月)
Sampling 取樣過程	Easy but embarrassing 容易、尷尬	Extremely easy and not embarrassing 更容易、不尷尬
Risks during handling and delivery 處理及運送時的風險	High 高	Low 低
Possibility of forgery 造假可能性	Relatively High 高	Relatively Low 低
Time needed for detection 檢驗時間	A few minutes 數分鐘	1 to 2 days 1 至 2 天
Resistance to sampling 取樣侵犯性	High 相對高	Low 相對低
Whether short-term suspension of abuse will affect test results or not 檢驗結果受短期停用影響	Yes 會	No 不會
Detection of history of drug abuse 顯示吸毒歷史	No 否	Yes (history and dosage) 是 (可知其歷史及劑量)
Accuracy 準確度	Low 低	High 高

The answer is in the genes: HKUST joins high-powered global team to decode cancer genome

Prof Xue Hong, Director of the Applied Genomics Center at HKUST, is an expert in decoding genomes. She has participated in the International Cancer Genome Consortium (ICGC), the largest and most comprehensive cancer research to date. The Consortium, comprising 200 members from 12 countries and territories, will decode genomes from 25,000 cancer samples related to 50 types and subtypes of cancer with an aim to understanding the genomes for human cancer.

The Hong Kong team of the ICGC, coordinated by HKUST, is responsible for conducting research on brain metastasis. Prof Xue said, "There had been little understanding of the genetic and pathophysiological forces underlying brain metastasis in the past, and the Hong Kong team aspire to advance research in this area. HKUST has established a framework and statistical analysis through participation in the research on haplotype map (HapMap), which will provide a strong basis for us to decode the cancer genome."

Once thought of as a single disease, cancer is now understood to be the result of genetic mutations in cells which disrupt normal functions leading to uncontrollable growth. Because mutations are often specific to a particular type or stage of cancer, systematically mapping the changes that occur in each cancer could provide the foundation for research to identify new therapies, diagnostics and preventive strategies.

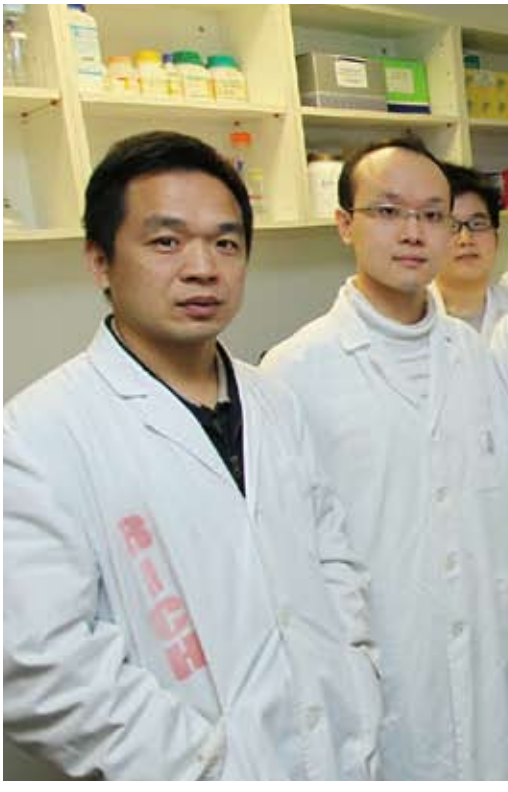
The ICGC has built a huge cancer database which is available on the Internet (http://www.icgc.org) and which can be used immediately by researchers and members of the public around the world to find better ways of preventing, detecting, diagnosing and treating cancer.

Prof Xue had received training and practiced as a medical doctor in China before becoming a scholar in biochemistry and an expert in genomics. "As a medical student, I served as an intern and was assigned to treat a young female patient with congenital kidney failure. Clinical medical practices during those days were unable to improve her condition, and the physicians witnessed her situation deteriorate until she passed away. I was deeply saddened by the experience, which reflected the limitations of clinical medical practice."

She then pursued a PhD in biochemistry and post-doctoral studies in genomes in Canada and the United Kingdom respectively to work towards finding cures and further alleviating the pain of patients through research. "With genomics, people can predict and prevent diseases as early as possible. We can also find out the most effective personalized diagnosis for each cancer patient based on his or her genes. Whereas intelligence, behavior and diseases are affected by genetic factors, they are also influenced by the environment. Gene expression can be altered, and we can control the chances of disease by controlling environmental factors," she said.

Prof Xue joined the Department of Biochemistry at HKUST in 1995 and led HKUST to successfully identify the fifth gene associated with schizophrenia in 2003.

"Schizophrenia is a severe mental disorder and the most common mental disorder in Asia. In the past, the medical field believed that according to the principal of survival of the fittest, gene mutation would undergo negative selection to result in fewer and fewer people having the disease. When we found the fifth gene however, we discovered that this particular gene undergoes positive selection. Our discovery about positive selection was



科大參與國際聯盟破解癌症基因

supported by research conducted by other experts overseas in the ensuing years. Even more interestingly, our recent findings indicate that the gene is 'imprinted', or in other words, its inherence differs from paternal and maternal copies (parent-of-origin dependent)."

科大應用基因組中心主任薛紅是破解基因密碼的專家。她最近參與國際腫瘤基因組聯盟（ICGC），進行歷來最大及最全面的癌症基因研究。聯盟由 12 個國家及地區約 200 名成員組成，目標是研究 50 種癌症、共 25,000 個腫瘤樣本，從而破解人類癌症的基因。

由科大組織的香港團隊，負責研究腦部癌轉移。薛教授表示：「過去，研究人員對腦部癌轉移的基因及病理生理因素所知甚少；香港團隊希望在這方面幫助癌症研究人員進行研究。科大先前就破解人類基因組單體型圖譜的研究，建立了一套研究的框架與統計的方法，對我們破解癌症基因有很大幫助。」

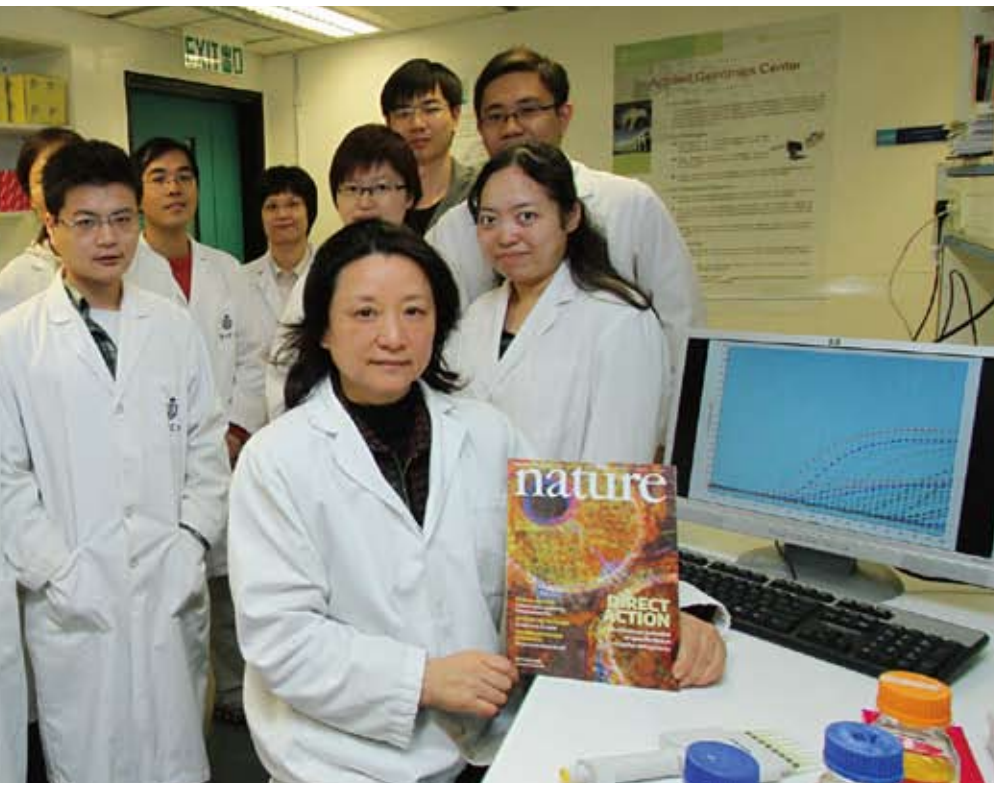
癌症曾經被認為是一種單一的病症，現則被認為是細胞基因突變破壞細胞正常功能、引致無法控制的增長所造成的結果。由於某一種癌症或某一期癌症往往有特定的基因變異，因此有系統地標示出每種癌症的變化，將可提供重要的研究基礎，為新的治療、診斷及預防方法帶來突破。

該聯盟已建立有關癌症的龐大資料庫，並刊登於網站（http://www.icgc.org），可供全球癌症研究人員及公眾人士即時使用，從而更有效地防止、發現、診斷及治療癌症。

薛教授成為破解基因密碼的學者之前，曾在內地接受醫學訓練及行醫。「我唸醫科的時候需要進行實習，被分配醫治一位患有遺傳性腎衰竭的年輕女病人。由於當時的臨床醫學治療未能改善這位病人的病情，醫療人員惟有看著她健康轉壞、最後與世長辭。這個經歷令我印象深刻，也讓我明白臨床醫學的局限。」

為了從病源方面解決病人的困難、及因著對研究的濃厚興趣，她先後遠赴加拿大及英國取得生物化學博士學位及完成遺傳學博士後研究。她說：「透過研究，人類可以預早發現及防止疾病，並根據每位癌症病人的基因制定個人化及更有效的治療方法。遺傳病的發生，是可以及早預防的。雖然智力、行為與疾病都有先天因素，他們同時亦受環境影響；沒有一種疾病是百分百由遺傳決定的。基因表達是可變的，透過控制環境等因素，也可以控制病發的機會。」

薛教授 2003 年帶領科大團隊成功找出與精神分裂症有關的第五個基因。她說：「精神分裂症是最嚴重的精神病，亦是亞洲頭號精神病。以往醫學界認為根據適者生存的理論，認為基因變異會經過負向選擇，即得到某種疾病的人數比例應該越來越少。可是我們發現第五個基因時，卻發現這種基因呈正向選擇。之後外國有越來越多的研究，支持我們對於正向選擇的研究結果。更有興趣的是，最近我們發現這個精神分裂症基因的遺傳方式，對於父源或母源拷貝或複本來說是不同的。」



Prof Xue and the team at HKUST
薛紅教授及科大研究團隊

Celebrating our students' outstanding achievements

In many universities the opportunity for students to engage in top-notch research alongside professors is restricted to postgraduates, most of whom are PhD candidates. The same can be said for the chance to co-write journal papers and to deliver presentations at leading international conferences.

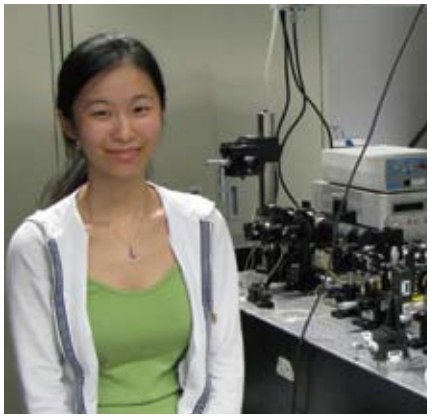
However, as one of Hong Kong's pioneering research universities we attach enormous importance to research. Five years ago we launched the Undergraduate Research Opportunities Program (UROP) to foster a research culture and to enable undergraduate students to benefit from the research excellence of faculty members and the graduate school. Giving undergraduate students the opportunity to participate in research projects with professors exposes them to the joys of research. It also promotes critical thinking early in their careers. Apart from gaining invaluable research experience, students may also acquire credits and stipends. The number of students participating in the program has increased from 70 in 2005 to 250 this year. About 90 professors have been involved.

"I took my friends by surprise when I declined UCLA to come to HKUST three years ago," said John Ho (Electronics and Computer Engineering), an American-born international student who grew up in Silicon Valley. "At HKUST, I have had the opportunity to engage in research with professors since my first year. My friends at UCLA were very jealous of me." After he signed up for UROP the then 18-year-old freshman engaged in research on video compression and encryption with Prof Oscar Au. The project was later recognized as the industry standard in China. John is now heading back to California to pursue his PhD at Stanford University. "The superb research experience at HKUST changed my life. Originally I planned to become an engineer, but now I have decided to pursue an academic career."

John Ho 何思遠

Since her participation in UROP during her first year, **Christina Rui Xu** (Economics) has been highly-regarded by Prof Mike So, who invited her to become his research assistant. Encouraging her to co-write journal articles and give individual presentations at global conferences, Prof So said, "Christina has been invited by Deutsche Bank to give presentations on the prediction of risks in the stock market. She has demonstrated that investment risks are the highest in the 30 minutes following lunch time, after examining investment risks and stock prices at 30-minute intervals. The investment bank invited her to present to its Indian office via video conferencing. For two years in a row, she gave presentations at the International Symposium on Forecasting, where the scholarly audiences were amazed at the outstanding performance of our 'PhD students' — little did they know that Christina was only an undergraduate student!" Christina, the recipient of our first Mr Armin and Mrs Lillian Kitchell Undergraduate Research Award, will be joining the PhD program at Stanford University this year.

Christina Xu 許睿



Liu Yangyang 劉陽暘

Liu Yangyang (Electronic and Computer Engineering), one of the first runners-up of the Undergraduate Research Award, has been conducting research in optics and photonics with Prof Andrew Poon. Prior to this she was awarded the Best Presentation Award by the IEEE Photonics Society (Hong Kong Chapter). The outstanding student recently declined PhD program offers at MIT and Yale University to pursue PhD studies at the University of Colorado at Boulder, whose photonics studies ranks first in the US. Over 50 graduates have been given PhD offers with full scholarships by Stanford University, the University of California, MIT and other prestigious overseas universities this year.

Ho-chung Siu 蕭浩翀

Local talent **Ho-chung Siu** (Mathematics, MPhil) will be heading towards Stanford University with a generous PhD scholarship of US$30,000 per year. Ho-chung has been a fan of HKUST since Form Two at secondary school, when his mathematical talents were first noticed by HKUST's Prof Siu-yuen Cheng in a gifted program hosted by the Education Bureau. Later as a Form Six student, he underwent further training at HKUST and won the Silver Award at the International Mathematics Olympiad before being given early admission to HKUST.

"I have been participating in UROP since my first year of undergraduate studies to explore the Polya Theory. There are many excellent professors at HKUST who have inspired us with their clarity of thinking and their willingness to answer questions after class." Ho-chung, a student from an average family, will pursue PhD studies in the US with a scholarship after five years at HKUST.

Mathematics award

In addition, the Department of Mathematics announced the recipients of the 5th Epsilon Fund Award. The postgraduate recipients are Man-wai Cheung (MPhil) and Ho-chung Siu (MPhil). The undergraduate recipients are Li Penghui, Sun Teng and Wang Lu.

學生獲著名大學研究院錄取 師生同慶

在許多大學裡，只有特別優秀的研究生甚至博士生才有機會與教授一起進行研究、共同撰寫論文或在國際學術會議上進行簡報。

作為本港研究型大學的先驅，科大特別重視研究。為了培養良好的研究風氣，及讓本科生能夠因為大學教授與研究院的研究專長而受惠，科大早於五年前已設立「本科生研究計劃」，讓本科生與資深教授共同研究，領略學術的樂趣、訓練思考。因此，科大的本科生早在一年級時已經可以申請參與研究，除了獲得寶貴的經驗外，更可賺取學分或獲得研究資助，直至成為畢業班的學生為止。計劃推出以來，參與人數不斷上升，由最初 2005 年的 70 多位增加至現時每年 250 多名，參加計劃的教授約 90 名。

生於美國加州、在矽谷長大的國際學生**何思遠**（電子及計算機工程學系）表示：「三年前我毅然放棄入讀 UCLA（加州大學洛杉磯分校）的機會，到香港科技大學升學，令許多朋友感到詫異。結果我在科大唸一年級時已經有機會與教授一起進行研究，令 UCLA 的同學們羨慕不已。」當時何同學只有十八歲，與區子廉教授一同研究錄像壓縮與加密技術，該研究後來成為國內業界標準。何思遠今年本科畢業後，已獲全獎學金直接升讀史丹福大學的博士課程。「我原本打算以工程師作為終身職業，但科大的研究經驗改變了我，我決意向學術界發展。」

來自西安的**許睿**同學（經濟系）則因為在「本科生研究計劃」中有出色的表現而得到蘇家培教授的賞識，成為教授的助理、與教授合撰論文，並在國際學術會議上獨自作簡報。蘇教授稱：「許同學研究股票風險的預測，由每個交易價評估未來三十分鐘的風險，發現午飯之後的三十分鐘投資風險特別高。因為這個研究，她獲跨國機構德意志銀行主動邀請到公司介紹研究成果，並透過視像會議與該銀行的印度分部作簡報。許同學並曾經數度在 International Symposium on Forecasting 等大型學術會議上獨自作簡報，在場人士都讚嘆科大有這麼出色的博士生，殊不知她其實是一位本科生！」許同學憑著研究奪得科大首屆「本科生研究獎」的冠軍，並將升讀史丹福大學的博士課程。

勇奪「本科生研究獎」亞軍的其中一位學生**劉陽暘**（電子及計算機工程學系）自從一年級開始就與研究光學及光子技術的潘永安教授進行研究，並因而奪得科大 IEEE 光電子學會香港分會研究生會最佳簡報獎等獎項。她憑著出色的學業成績與研究成果，獲得美國多家大學錄取，最後放棄入讀麻省理工學院與耶魯大學，到光學研究全美第一的科羅拉多大學波爾德分校修讀博士。

今年科大有 50 多位畢業生獲史丹福大學、加州大學及麻省理工學院等海外著名大學頒發全額獎學金，直接升讀研究院課程。

本地資優生**蕭浩翀**（數學系研究生）獲史丹福大學頒發每年三萬多美元的全額獎學金，修讀博士課程。他早於中二階段已因參加教育局的計劃而接受科大數學系鄭紹遠教授培訓，中六時再經科大數學系培訓，在國際數學奧林匹克中奪得銀獎，同時提早入讀科大。

蕭同學表示：「我在科大唸本科一年級時，已透過本科生研究計劃與教授一同研究波利亞理論。科大有很多能啟發學生的好老師，他們樂於在課堂以外回答我們的問題。」家境一般的他經過科大五年的培養，獲得獎學金赴美升學。

數學獎

另外，科大數學系公布第五屆 Epsilon Fund Award 的得主。研究生得主包括碩士生張汶慧及蕭浩翀；本科生得主為李鵬輝、孫騰及王璐。

The Mr Armin and Mrs Lillian Kitchell Undergraduate Research Award is presented
科大頒發本科生研究獎

HKUST puts on great performance
科大在各大學排名表上揚威

Secretary for Education the Hon Michael Suen (center) and Secretary for Financial Services and the Treasury the Hon KC Chan (2nd from left) applaud HKUST's MBA program for top-10 global ranking with HKUST senior management
教育局局長孫明揚 GBS 太平紳士（中）與財經事務及庫務局局長陳家強教授（左二）及科大高層慶祝工商管理碩士課程晉身全球十大

HKUST has continued to perform well as one of the world's top 50 universities in 2010, according to the latest rankings released in September 2010 by two of the world's top ranking agencies — Quacquarelli Symonds (QS) and Times Higher Education (THE). The former ranked HKUST 40th and the latter 41st.

In Asia, HKUST's ranking has come even closer to the very top — from 4th in 2009 to 2nd this year, according to QS.

Our various Schools have also excelled in their respective disciplines. First and foremost is our EMBA program jointly offered with the Kellogg School of Business of Northwestern University. We continued to be ranked no.1 globally by *Financial Times* in 2010 — an enviable position that we have attained in 2009 after having been ranked among the world's top three since 2005. At the same time, our MBA program has also achieved its best world ranking ever — no. 9.

Our Business School has also been very highly rated in our research performance by another ranking institution — University of Texas at Dallas. We have been ranked no. 3 in the world in terms of both Management Research and Marketing Research.

Our strength in Humanities and Social Science has been affirmed by Shanghai Jiao Tong University's Academic Ranking of World Universities. In 2010, the Division of Social Science retained its 2009 ranking as the best among universities in Greater China and the only university in Hong Kong to be ranked in the top 75 universities in the world. This ranking exercise is based entirely on research performance and academic achievement.

Our School of Humanities and Social Science also shines in the QS Asian Rankings, where our Social Science Division is ranked 13th and Humanities Division 35th.

In the Engineering and Technology category, we have maintained our superiority in 2010 — QS ranks HKUST 26th and THE ranks us 20th. The School of Engineering is becoming a global powerhouse with significant impact. In the first year of the Hong Kong PhD Fellowship Scheme launched by the Research Grants Council, the School has attracted the largest number of PhD students among all the local engineering schools. Meanwhile, to better position itself as a leader in engineering education and faculty development, the School has set up a Center for Engineering Education Innovation.

Our School of Science has also seen further improvement this year in the THE rankings compared with 2009 — from 70th to 50th in Life Sciences, and from 62nd to 43rd in Physical Sciences.

根據 2010 年 9 月 Quacquarelli Symonds (QS) 和《泰晤士報高等教育》Times Higher Education (THE) 兩個世界頂尖排名機構的最新排名，科大繼續在世界首 50 家大學中穩佔一席位。科大在這兩個排名榜上分別位列 40 和 41。

科大在亞洲的排名進一步上升——根據 QS 的最新排名，我們的位置由 2009 年的第四升至今年的第二。

我們各學院都有很好的表現。我們與美國西北大學凱洛格商學院合辦的行政人員工商管理碩士課程在 2010 年的《金融時報》世界排名榜上再度高踞榜首，而由 2005 年起我們每年都位列三甲之內。同時，我們的工商管理碩士課程也獲得了史無前例的排名：全球第九位。

同時，另一個排名機構——德薩斯州達拉斯分校——將科大列為世界頂級大學。在管理學研究和市場學研究的質量上，科大均位列世界第三。

我們的人文社會科學學院在上海交通大學世界大學學術排名榜上表現出色。2010 年社會科學學部保持去年的排名，位列大中華地區學府首位，更是本港唯一躋身世界前 75 名的社會科學學部；這個排名榜根據研究表現及學術成就進行評分。

人文社會科學學院在 QS 亞洲大學排名榜上的表現亦令人振奮——社會科學學部排名第 13，而人文學部則排名第 35。

在工程及科技的類別，我們繼續維持優勢——在 QS 和 THE 的世界排名中，我們分別排在第 26 位和第 20 位；工學院已經成為舉足輕重的世界級研發機構。研究資助局推行的香港博士研究生獎學金計劃推出首年中，科大工學院在本港大學工學院中最受國內和外地博士生歡迎。同時，工學院設立了工程教育創新中心，以進一步鞏固工學院在工程教育及教研人員培育方面的領導地位。

理學院在 THE 排名榜上的位置也有可觀的進步。在生命科學的範疇，我們的位置由 2009 年的第 70 位大幅攀升至今年的第 50 位，而在物理科學方面，更由第 62 位攀至第 43 位。

HKUST's faculty win recognition for their outstanding contributions

Once more our faculty have been honored for their excellence in scholarships and contributions. **President Tony F Chan** has been selected

a Fellow of the Society for Industrial and Applied Mathematics (SIAM), one of the world's leading institutions in the field of mathematics. He has been awarded for his "contributions to numerical analysis and image processing, and for service to the mathematical community." He joins some 30 top mathematicians in the Class of 2010, and is one of only two ethnic Chinese to be thus honored this year. President Chan is also the only SIAM Fellow representing a tertiary institution in Hong Kong.

Prof Khaled Ben Letaief, Dean of Engineering, has been honored with the distinguished 2010 Outstanding Electrical and Computer Engineer Award, by Purdue University in the US, for his extraordinary contributions to economic development, prosperity and technological advancement. He has previously received the prestigious 2009 IEEE Marconi Prize Paper Award in Wireless Communications.

Prof Ben Letaief (left) receives the 2010 Outstanding Electrical and Computer Engineer Award from Professor V Ragu Balakrishnan, Head of the School of Electrical and Computer Engineering at Purdue University
李德富教授（左）獲美國普渡大學頒授傑出電機與計算機工程獎，與該大學電機及計算機學系系主任合攝

Prof Charles Ng, Associate Dean of

Engineering and Professor of Civil and Environmental Engineering, has become the first Hong Kong academic to be appointed one of the 12 Board Members of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) for the term from 2010 to 2013. ISSMGE has 86 member societies worldwide representing 18,000 individual members. He has been appointed Chair Professor of Geotechnical Engineering by China's Ministry of Education under the Chang Jiang Scholar Program, an elite scheme co-founded by the Ministry of Education and Hong Kong Li Ka-shing Foundation. Prof Ng, as the Principal Investigator, is also working with academics from other local universities on a 3-year project entitled Green Slope Engineering for Hong Kong, which has been granted a Collaborative Research Fund of HK$5.8 million from the Research Grants Council.

The Geotechnical Group consisting of Prof Ng and five other members (**Prof Wang Gang, Prof Wang Juipin, Prof Wang Yuhsing, Prof Zhang Limin and Prof Zhao Jidong**) from the Department of Civil and Environmental Engineering have maintained their number one ranking for the total number of journal papers published in four prestigious international geotechnical journals in the past 10 years (2001-2010), according to *Web of Science*. The leading journals are *Géotechnique, Journal of Geotechnical and Geoenvironmental Engineering, Canadian Geotechnical Journal* and *Soils and Foundations*. The group has attained an international reputation in physical and numerical modeling and characterization of unsaturated soil behavior, soil-structure interaction problems such as piles and tunnels, landslide studies, and geotechnical risk assessment and management.

Prof Hoi-Sing Kwok, Dr William M W Mong Chair Professor of Electronic and Computer Engineering, has been elected Vice President – Asia, of the Society for Information Display (SID), the only global organization dedicated to the advancement of electronic-display technology. SID has three regional Vice-Presidents in charge of member activities in the Americas, Europe and Asia.

Prof Xiren Cao, Chair Professor in

Electronic and Computer Engineering was conferred the 2009 State Natural Science Awards (SNSA), second class. His project, entitled Optimisation Theory and Methodology for Discrete Event Dynamic Systems, solved a number of long-standing issues in the area of optimization of discrete event dynamic systems (DEDS) in information technology, and developed a unified framework for a few different subjects and approaches in the area.

Prof Chak K Chan, Professor of Chemical

and Biomolecular Engineering and Director of the Institute for the Environment, was conferred the 2009 State Natural Science Award (SNSA), second class. His project, a joint effort with professors from Tsinghua University, was entitled The Characteristics of Emission and Complex Pollution of Atmospheric Particulate Matter and Its Precursors. His work has made significant contributions to predicting climate change.

The SNSA, awarded by China's Ministry of Science and Technology, is China's most prestigious award in the field of natural

Prof Fugee Tsung (left) with the certificates of the three prestigious awards and Dr Lincoln Forbes, President of IIE, at the Industrial Engineering Research Conference in Cancun, Mexico
宗福季教授(左)獲工業工程師學會(IIE)頒授 2010 年度 IIE 院士獎，與 IIE 會長 Lincoln Forbes 博士於墨西哥舉行的工業工程研究學術會議上合攝

科大教授再獲殊榮

sciences to recognize academic excellence in basic and applied research in natural science. In 2009, only one first-class SNSA award and 27 second-class awards were presented from over 120 entries.

Prof Fugee Tsung, Head of Industrial Engineering and Logistics Management, has received the IIE Fellow 2010 Award from the Institute of Industrial Engineers (IIE), the highest honor bestowed by the organization in recognition of his significant contributions in the field of industrial engineering. This makes him one of only five Fellows of the Institute of Industrial Engineers in the Greater China Region. Prof Tsung has also been elected a Fellow of the American Society for Quality (ASQ) and Fellow of Hong Kong Institution of Engineers (HKIE). He was elected Regional Vice President (Asia) of IIE in 2008.

Prof Jack Lau, the first PhD graduate of HKUST and Adjunct Professor of HKUST's Electronic and Computer Engineering Department, co-founded Perception Digital which was listed on the Growth Enterprise Market in December 2009. Prof Lau presented HKUST's President Prof Tony F Chan with a serial number 001 souvenir share certificate after the company was listed. Perception Digital was founded by Prof Lau and two other HKUST professors in 1999 under the University's Entrepreneurship Program. It is now a company with over 240 staff members in Hong Kong and on the Mainland.

Prof Qiu Li, Professor of Electronic and Computer Engineering, has been elected a Fellow of the International Federation of Automatic Control (IFAC) for his outstanding and seminal contributions to robust control theory and to fundamental performance limitations in feedback control systems. Only 17 people in the world were elected IFAC Fellows this year and Prof Qiu is the only one from Hong Kong.

科大教授的學術成就和貢獻深受世界認同。**陳繁昌校長**獲國際重要數學學術組織工業及應用數學學會頒授院士銜，以表揚他對數字分析及影象處理作出貢獻，以及對數學界提供卓越服務。陳校長與 30 多位頂尖數學家一同獲選為 2010 年度院士，亦是兩位獲頒院士的華人之一。陳校長亦是該學會所有院士中唯一來自香港高等學府的學者。

工學院院長**李德富教授**獲美國普渡大學頒授傑出電機與計算機工程獎，獎項表揚校友對經濟發展與科技發展的貢獻。李德富教授較早前因為對無線通訊的貢獻，獲頒 2009 年電機及電子工程學會馬可尼獎。

工學院副院長兼土木及環境工程學系教授**吳宏偉教授**榮獲國際岩土力學及土力工程學會委任為 12 位理事會成員之一，任期由 2010 年至 2013 年，成為擔任這要職的首位香港學者；該學會於全球有 86 個成員國，代表 18,000 位個人成員。他並獲中國教育部選為長江學者(講座教授)，該計劃由教育部與李嘉誠基金會合辦。他並擔任香港斜坡生態工程的項目統籌人，項目由吳教授與其他本地大學學者合作展開，為期三年，獲研究資助局協作研究金資助五百八十萬。

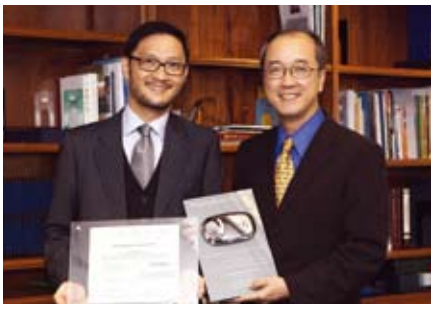
根據 Web of Science 學術資料庫引述，由吳教授與另五位成員（**王剛教授、王瑞斌教授、王幼行教授、張利民教授及趙吉東教授**）組成的土木及環境工程學系岩土工程組過去十年來(2001 年至 2010 年)一直榮登四份國際權威岩土工程學術期刊刊登最多學術論文的榜首。這些期刊包括 Geotechnical、Journal of Geotechnical and Geoenvironmental Engineering、Canadian Geotechnical Journal 及 Soils and Foundations。岩土工程組在物理及數學模擬、非飽和土的特性、土與結構相互作用(例如樁與隧道)、山泥傾瀉研究、岩土工程危機評估與管理等的研究，受到國際稱譽。

電子及計算機工程學系蒙民偉博士及納米技術講座教授**郭海成教授**獲選為世界知名的資訊顯示學會亞洲區副會長。學會是全球唯一致力提高電子顯示技術的組織，共有三名副會長，分掌美洲、歐洲及亞洲區會員活動。

電子及計算機工程學系講座教授**曹希仁教授**獲頒 2009 年國家自然科學獎二等獎。他有關離散事件動態系統的優化理論與方法的研究，為資訊科技範疇多年來難以解決的離散事件動態系統優化難題帶來解決方案，並為範疇內數個題目與做法開發統一的框架。

化學工程及生物分子工程學系教授兼環境研究所所長**陳澤強教授**獲頒 2009 年國家自然科學獎二等獎。他與清華大學的學者就大氣顆粒物及其前體物排放與複合污染特徵的研究，對預測氣候變化有重大貢獻，因而獲得殊榮。國家自然科學獎由國家科學技術部頒發，是國內自然科學基本及應用研究的最高榮譽；科技部在 2009 年逾 120 份申請中，只頒發一個一等獎、及 27 個二等獎。

工業工程及物流管理學系系主任**宗福季教授**獲工業工程師學會(IIE)頒授 2010 年度 IIE 院士獎，即該學會的最高榮譽，成為該會大中華地區五位院士之一。他並獲美國品質學會院士和香港工程師學會院士，及於 2008 年擔任 IIE 亞洲區副會長。



Prof Jack Lau (left) and President Tony F Chan
幻音數碼主席廖家俊教授(左)與陳繁昌校長

科大首位博士畢業生與現職電子及計算機工程兼任教授**廖家俊教授**共同創辦的幻音數碼於 2009 年 12 月在創業板上市，廖教授向科大校長陳繁昌教授贈送編號 001 之紀念版股票。廖教授與另兩位科大教授於 1999 年在科大創業計劃的支持下創辦幻音數碼，公司現於本港及內地有超過 240 名員工。

電子及計算機工程學系的**丘立教授**獲得國際自動控制聯盟(IFAC)頒授院士榮銜，聯盟特別表揚他對強勁控制理論及對反饋控制系統的根本性能局限作出的貢獻。今年，聯盟於全球僅頒授 17 個院士銜，而丘教授是唯一獲頒院士銜的本港學者。

Physics professor awarded Croucher Fellowship
物理學系教授榮膺裘槎基金會優秀科研者

The idea of disguising one's presence has intrigued the writers of fiction. Even Harry Potter has his Cloak of Invisibility, while in the movie The Predator, the alien can disappear from view simply by clicking a button.

But what if it were more than mere fiction? Theoretical physicist Prof Che-ting Chan is mainly interested in simulating and understanding material properties. His research team is conducting research on a variety of advanced materials, including photonic crystals, metamaterials and nanomaterials. He explores theories to assume superb control of waves such as electromagnetic waves and sound waves, such that materials cannot be detected by them and thus become 'invisible'. The team has also designed conceptual devices which can create optical illusions.

"For the longest time, scientists were not able to prove whether the idea of invisibility is theoretically sound. In 2006, a British scientist made the breakthrough invention of an invisible cloak which made use of Maxwell's theory to prove its feasibility. Soon after, Duke University in the US proved by laboratory tests that invisibility could be achieved in a microwave (low frequency) environment.

Since then, research on invisibility has grown rapidly," he said.

Besides, Prof Chan explores another type of invisibility which makes use of an interference unit such that the diffraction caused by an object are exactly compensated by the interference unit. The light waves will then travel through the object as if it is perfectly transparent, and the object becomes invisible. By a simple extension of the theory, the interference unit can change the object's diffraction to result in specific images being projected, so that one object appears like another object. Apples may appear as bananas, and spoons may appear as cups.

Prof Chan was recently awarded the prestigious Senior Research Fellowship by the Croucher Foundation in recognition of his achievements in material science. Along with three other scholars, he was presented the Fellowship by Financial Secretary the Hon John Tsang this year. He is currently the director of William Mong Institute of Nano Science and Technology at HKUST.

Financial Secretary the Hon John Tsang (left) presents the Croucher Foundation Senior Research Fellowship to Prof Che-ting Chan
財政司司長曾俊華(左)頒發「裘槎優秀科研者獎」獎狀給陳子亭教授

隱形是個有趣的概念，遇上敵人追捕時可以隨時變成隱形，是許多科幻電影或卡通片的橋段。哈利波特披上隱形斗篷後，自己看得見別人，別人卻看不到他；電影《鐵血戰士》中，外星怪物按一按手上裝置，就變成隱形。不要以為這只可以在虛擬世界或夢境中發生，現實世界中的物理學家也晝夜思想這個問題，勇奪裘槎基金會優秀科研者獎的科大物理學系講座教授陳子亭，就是「隱形術」的專家。

理論物理學家陳教授主要研究模擬和理解材料的特性，其研究小組現正研究多種先進材料，包括光子晶體、超穎材料和納米材料等。設計材料的宗旨是更有效地控制電磁波及聲波等，在理論研究上取得突破，有可能令材料無法被偵測，因而成為「隱形」。他們並透過理論建設，發現製造光學幻象的方法。

「一直以來，科學界無法證明隱形術是否能夠在理論上成立。2006 年英國科學家發明『隱形斗篷』，利用『麥士維方程』證明其可行性，轟動學術界。其後美國杜克大學透過實驗證明，隱形可以在微波（低頻）環境中實現。此，有關研究突飛猛進。」

陳教授則研究另一種隱形法，透過「干擾器」恰好地「抵消」被物體所折射的光線，令穿過物體的光無異於穿過空氣的光，從而令物體「隱形」。同樣地，干擾器理論上可以改變物件的折射程度，從而投射出特定的影像、造成幻覺。譬如蘋果看起來變成了香蕉，湯匙看起來變成了杯子等等。

陳教授現為科大蒙民偉納米科技研究所所長，最近獲頒「裘槎優秀科研者獎」，以表揚他在材料科學方面的傑出成就。該獎項由裘槎基金會設立，嘉許在科研工作上有卓越表現的學者。今年本港共有四位學者獲得嘉許，由財政司司長曾俊華頒獎。

Prof Wang Wenxiong of Biology awarded First Class Prize by the Ministry of Education

生物系王文雄教授獲國家教育部優秀成果獎一等獎

"Hong Kong is privileged to have a superb environment surrounded by the sea, yet we are not particularly familiar with our natural environment. Actually the sea is really fascinating and mysterious. Students of marine biology have been to all the places along Hong Kong's coastline. It's a difficult and yet extremely satisfying experience," said Prof Wang Wenxiong.

Prof Wang joined HKUST in 1997 and is now the Director of the University's Coastal Marine Lab. Recently awarded the First Prize of the Excellent Achievement Award 2009 (Natural Science) by China's Ministry of Education, he has become one of only two professors in Hong Kong thus honored. Only seven projects in Hong Kong were awarded, among which only two won the First Class Prize. Other awards won by Prof Wang include the Biwako Prize for Ecology from Japan, the National Outstanding Young Scientist Award (overseas) from the National Natural Science Foundation of China, and the First Class Prize of the Guangdong Science and Technology Award.

Prof Wang's award-winning entry was on the trophic transfer and bioavailability of heavy metals in marine ecosystems. His research helps protect marine organisms and ensure food safety. "People in Hong Kong consume a lot of seafood. Consuming seafood contaminated by metals, however, is hazardous to the human body. Mercury can cause male infertility and lead can result in neurotic diseases. It has been known to scientists that mercury and other heavy metals are transferred along the food chain, when small fish are eaten by bigger fish, which are in turn consumed by humans. However, scientists did not have systematic methods to quantify the phenomenon. Our research enables scientists to quantify and assess the role played by heavy metal transfer in the food chain."

His research has changed conventional thinking. "Traditionally, governments assumed that marine animals absorbed heavy metals only through the water and sediments in which they lived and set water quality standards accordingly. However, our research demonstrated that the main route for metal uptake could be the food chain, in which case governments should establish new water quality standards to ensure safety."

Prof Wang (right) was awarded a certificate by Prof Zhou Jing, Deputy Director-General of the Center for Science and Technology Development of China's Ministry of Education
王文雄教授（右）接受國家教育部科技發展中心副主任周靜教授頒發獎勵証書。

Prof Wang and his research
王文雄教授醉心研究工作

「香港四面環海，得天獨厚，然而我們好像對自己身處的自然環境不大熟悉。其實大海既吸引又充滿神祕感，唸海洋生物學的學生可以走遍香港的海域，過程既艱辛又有滿足感，」海洋生物學家、科大生物學系王文雄教授說。

王教授 1997 年加入科大，現為科大海岸海洋實驗室主任。他最近獲國家教育部 2009 年度高等學校科學研究優秀成果獎自然科學獎一等獎，成為首兩位獲一等獎的本港大學教授之一；全港有 7 個項目獲獎，其中只有兩項獲一等獎。他之前曾獲得日本琵琶湖生態學獎、中國國家自然科學基金委員會的國家傑出青年（外籍）基金以及廣東省科技獎一等獎等獎項。

他的得獎項目為海洋生態系統重金屬的食物鏈傳遞和生物可利用性項目，有助保護水生生物及確保食品安全：「香港人有吃海鮮的文化，可是進食被金屬污染的海鮮會對人類造成禍害，譬如水銀毒可引致男性不育，鉛毒可引致神經發育疾病。以往科學家都知道水銀等重金屬，在海洋生態系統中透過大魚吃小魚、人類吃魚的食物鏈，為人類所吸收，卻缺乏系統性的方法將之量化。我們的研究讓科學家首次可對重金屬在海洋生態系統中透過食物鏈傳遞的重要性進行定量評價。」

該研究亦改變了傳統的觀點。「過往各國假定水生動物吸收金屬的唯一途徑是水相暴露，並以此作為制訂水質品質和沉積物的標準。研究卻指出主要的途徑可能是食物鏈傳遞。這樣，各國政府就必須修訂水質標準，以確保安全。」

We are ready for 3-3-4

3-3-4 is one of the most important milestones in Hong Kong's education system. In 2012, which is merely two years away, universities in Hong Kong will move to a four-year undergraduate curriculum. In the upcoming editions of *Genesis*, we will highlight how HKUST is preparing for the change. In this issue we will outline the status of our campus development plan.

"HKUST will grasp the golden opportunities presented by 3-3-4 to introduce education reforms to further enhance the quality of education, and to provide our students with the best prospects. We are working intensely to prepare for the four-year undergraduate system. We will nurture future leaders to meet challenges of the 21st century. We will be introducing a new curriculum and are further expanding campus facilities in addition to strengthening our faculties and support services. We are ready!" said **President Tony F Chan**.

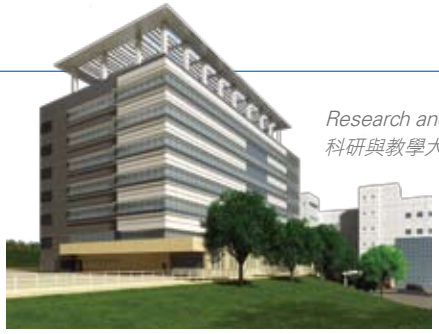
Prof Yuk-shan Wong, Vice-President for Administration and Business said, "The four-year curriculum is essential for nurturing talent with a variety of skills. Since students under the new system will be encouraged to engage in group projects as well as interactive and interdisciplinary studies, our classrooms, libraries, laboratories and student halls will be designed to provide space and shared amenities to facilitate exchange. We aim to provide the best environment with the users' needs in mind."

Blueprint for campus development

Our expansion is already underway. The Lee Shau Kee Foundation has donated HK$400 million to support the development of the new Lee Shau Kee campus. Occupying 10 hectares of land, the new campus represents 15% of the total area of the main campus. The new campus, now under construction, is where the Lee Shau Kee Business Building (over 12,400 sq m) and the Institute for Advanced Study (over 4,500 sq m) will be located.

Lee Shau Kee Business Building

Prof Leonard Cheng, Dean of Business and Management said, "With the new Lee Shau Kee Business Building, the Business School and its six departments can gather together at one single location to engage in social activities and academic exchange. The Building will provide public space to facilitate exchange between students and professors and further enhance collaboration in view of the Undergraduate Research Opportunities Program. Each of the eight floors will reflect a different color and theme. The undergraduate floors, for example, will be



Research and Academic Building
科研與教學大樓

bright, designed with a younger studentship in mind while a subtler color palette will be used on the graduate floors. Catering facilities will be located at the top floor of the building to enable group gatherings. With 2,200 undergraduate students, the Business School will introduce a student-led Business Cohort Community to build unity and enhance personal development through social activities. Our new building is an important step towards achieving this goal."

The Institute for Advanced Study

The Institute is a high-priority development at HKUST. The new building will feature conference / multi-purpose venues, an exhibition gallery, teaching laboratories, reading rooms and rooms for seminars. It will provide a platform for a community of distinguished scholars focused on interdisciplinary studies in science, engineering, business and management, humanities and social science in specifically targeted areas. It will further cement HKUST's position as a global platform for a convergence of leading academics.

Research and Academic Building

A new Research and Academic Building measuring 10,000 sq m will be named after Dr Cheng Yu Tung's name in recognition of a HK$90 million donation from the Chow Tai Fook Cheng Yu Tung Fund. Prof Wong and senior management visited the first-class facilities at the Universities of Oxford, Cambridge and the California Institute of Technology (Caltech) to prepare for the project. "The new building is geared towards interdisciplinary research. The new multi-disciplinary laboratories allow an interdisciplinary research team made up of several professors and up to 20 graduate students to work together," said Prof Wong. "The lab-support areas feature shared facilities, equipment and services and provide shared space to foster an exchange of ideas. Office facilities will be located outside the laboratories, where researchers and graduate students can handle data and write lab reports. Enjoying natural sunlight and a full view of HKUST's seafront, in addition to featuring artistic designs and artifacts, the labs provide an inspirational environment to foster holistic education." The construction of the entire building will cost HK$540 million.

Extension of the Academic Building and Library

- Three floors (LG1, 3 and 4) of the Academic Building will become the Library Extension
- The other two floors (LG5 and7) will be extensions of the existing supermarkets, cafeteria and facilities for student activities

The common misconception of a library as a stuffy building that houses primarily books is firmly dispelled by HKUST's Library. "It helps users learn, conduct research and self-learn in an interactive environment," said **Dr Samson Soong**, the University Librarian. "Under the new four-year system, the curriculum will be oriented towards student needs, exploration and group learning. Our Library will thus cater for these needs by serving as an all-inclusive hub with multiple functions which enables reading and use of multimedia," he added.

The Library Extension, currently under construction, will include a Learning Commons that will take up an entire floor (LG1). This will facilitate individual and group studies. It will be divided into quiet areas and discussion areas, and will include a supporting service area for holding activities. There will be a new entrance leading to the Learning Commons, which will provide extended service hours. The outdoor reading areas will offer a sea view and benches for readers.

Mr Edward Spodick, IT and Services Infrastructure Manager, said, "We have been soliciting comments online and through consultations, and have given careful consideration to all details including materials, color and design. For instance, we use darker colors for computer desks to help users focus on the monitors. Wooden chairs with straight backs are durable and suitable for hours of reading, whereas adjustable chairs cater for people of different heights. We provide the best learning environment from the users' perspectives."

Student halls

Apart from the two new halls on campus which will accommodate 700 students, HKUST will also provide rooms in joint halls at Tseung Kwan O (370 beds) and Wu Kai Sha (920 beds) where our students will interact with those from the Baptist University and the City University. Our new halls feature 'harmonious' designs where every two double rooms share a common bathroom to be managed by the four students. This encourages student interactions.

Environmental standards

"Our new facilities meet the Gold Standard of the Hong Kong Building Environmental Assessment Method (HKBEAM). High standards in terms of insulation, air conditioning efficiency and transportation are observed. Natural sunlight is used and there will be large-scale greening," said **Mr Mike Hudson**, Director of the Facilities Management Office.

The extension of the Academic Building and Library
學術大樓新翼及圖書館擴建部分

科大為迎接「三三四」作好準備

「三三四」是近年本港教育界最熱門的話題，現在距離 2012 年大學實施四年制大約兩年時間，我們將在未來幾期介紹科大為大學四年制進行的籌備工作。今期，我們將首先介紹新的校園發展與設施。

校園建設以用者為本

「科大將把握三三四這個難得的機遇，進行教育改革，進一步提升我們的教學質素，為學生帶來更佳的機會。我們現正積極籌備四年制大學課程，培養未來的領袖，並確保他們能夠迎接二十一世紀的挑戰。無論是課程設計、擴建校園設施等硬件配套，還是增加師資與其他教學支援服務，我們都已作好準備，」科大校長**陳繁昌教授**說。

行政副校長**黃玉山教授**亦表示：「三三四改革是近年重要的突破，因應社會需要，為學生提供更廣更闊的教育。由於新的學習形式更注重合作項目、相互交流與跨學科研究，我們的課室、圖書館、實驗室與宿舍設計都將提供更多促進交流的空間與共享資源，以用者為本，為學生提供最佳的環境。」

校園發展藍圖

科大多年前已經開始籌備擴建校園，以配合四年制課程的需要。大學獲得李兆基基金會捐贈四億港元，用作李兆基校園的發展。校園佔地十公頃，是整個清水灣校園面積的一成半。新校園已動工興建，包括面積達 12,400 多平方米的李兆基商學大樓、及面積達 4,500 多平方米的科大高等研究院。

李兆基商學大樓

商學院院長**鄭國漢教授**稱：「李兆基商學大樓建成後，商學院與屬下六個學系將可聚首一堂，促進社交活動及學術討論。大樓設有公共空間，促進師生交流，學生與教授有更多機會見面作學術討論，同時也配合本科生研究計劃的推廣。大樓合共八層，其室內設計以不同的顏色作主題營造不同的教學氣氛，本科生的樓層設計較為活潑、研究生的則較莊重，樓頂層提供舒適的聚會地點，包括餐廳。現時商學院有本科生 2,200 人，為了配合四年制的發展，我們已經開始建立由學生主導的『商學學生社群』，以富趣味性的社交活動促進學生的個人發展及團體精神，而新的設施將幫助我們達到這個目標。」

高等研究院

高等研究院是科大的重點項目，新的建築物設備完善，設施包括多用途會議室、展覽廳、教學實驗室、閱讀室及研討室等。它將提供跨學科研究的平台，成為科學、工程、商業管理、人文與社會科學等傑出學者的集中地，進一步奠定科大作為滙聚全球頂尖學者的殿堂。

科研與教學大樓

科大將興建面積達 10,000 平方米的科研與教學大樓；大樓的興建得到周大福鄭裕彤基金資助九千萬港元，並將以鄭裕彤博士命名。大樓同樣以「用者為本」為宗旨，而為了籌建全新的科研與學術大樓，科大行政副校長黃玉山教授亦曾與其他管理人員親自率領團隊到牛津、劍橋大學及加州理工學院就頂級教研設施進行考察。黃教授表示：「這座新大樓以鼓勵跨學科研究為主，嶄新的跨學科實驗室容許數名教授與十多位研究生組成的跨學科團隊一同進行實驗；實驗室支援區更透過共享的設備、器材與服務以提供充足的支援，方便進行跨學科研究。大樓將廣設共用空間以促進交流，並在實驗室外提供舒適的辦公室設施供研究人員與研究生使用。他們可以在這裡整理數據、書寫實驗報告，亦可聯同研究員一起到休息間或討論間傾談。從實驗室可盡覽海景及引入自然光線。大樓設計及擺設亦甚富藝術性，讓學者得到大自然、文化與藝術的啟迪，有助推動全人教育。整座教研大樓的建築費用總數，達五億四千萬港元。」

學術大樓新翼及圖書館擴建工程

- 學術大樓新翼其中三層 (LG1-4 層)將成為圖書館新翼
- 另兩 (LG5-7 層) 為現時的超市、飯堂與學生活動範圍的延伸，將作同樣用途。

不少人以為圖書館既嚴肅又沉悶，可是科技大學的圖書館絕對不是一個刻板或只供借書與看書的的地方：「科大圖書館提供一個互動環境，幫助讀者做學問、研究及自學。未來的四年制課程以學生、探索及群體學習為本，因此圖書館將加以配合，變成一個集資訊及多媒體應用等多功能於一身的學習樞紐，」圖書館館長**宋自珍博士**表示。

即將完成擴建工程的科大圖書館將設立全層 (LG1層) 可供學生作個人或小組研習的 Learning Commons，當中劃分寧靜温習和小組討論的區域，並可舉行活動。Learning Commons 將增設新的入口，可以延長開放時間。室外閱讀範圍可飽覽海色，並設有方便讀者戶外閱讀使用的長櫈。

圖書館資訊科技及服務基礎設施主任**史博德先生**表示：「我們一直透過諮詢會及網上途徑徵集意見，從用料、顏色、設計等都作詳細考慮。譬如電腦桌用較深的顏色，讓用者可以專注電腦屏幕。平直木椅比較耐用及適合長時間閱讀，可伸縮的轉椅則適合不同高度的人士，確保能從用者的角度創造最理想的學習環境。」

Two new halls on campus
清水灣校園加建兩座宿舍

學生宿舍

科大除了在清水灣校園加建兩座宿舍 (共 700 個宿位) 外，更將在將軍澳與烏溪沙建設聯合宿舍 (分別為科大提供 370 及 920 個宿位)，讓學生有機會與浸大與城大唸不同學科的學生交流。宿舍採用『和諧式』設計，每間雙人房之間設一個浴室，由四人合作打理，從而鼓勵同學互相照顧與交流。

環保標準

設施管理處主任 **Mike Hudson 先生**表示：「我們新建的建築物符合香港建築環境評估方法 (HKBEAM) 的金標準，無論保温、空調效率還是交通運輸均達致最高的環保要求。我們並盡量使用自然光，及進行大規模綠化。」

Legendary gymnast Dr Li Ning shares his dream at HKUST
與李寧博士對談：成功源自一個夢想

Dr Li Ning, the Prince of Gymnastics, was recently conferred an Honorary Fellowship by HKUST. Dr Li spoke at the university's Distinguished Lecture and shared his views on the opportunities and challenges of Chinese corporations in building global brands. More than 400 HKUST faculty members, students and alumni had the rare opportunity to engage in a dialogue with Dr Li, Chairman and CEO of Li Ning Company Limited.

Dr Li's legendary transition from a world-class athlete to a successful entrepreneur started with a dream. "I witnessed former Soviet gymnasts taking prizes at international championships as a youngster and I longed to stand on the victory podium. Later on when I learned about international sports brands, I dreamt that one day Chinese people would have their own brands. Motivated by the dream and riding China's economic boom, our company has gradually become what it is today." Having succeeded in both the sports and business arenas, Dr Li has set an inspirational example for others to follow.

"We have had to overcome plenty of challenges. Traditionally, sports brands have not been part of our culture or our daily lives in China. We had to create this culture from scratch. If consumers were interested in Li Ning the gymnast only, they would only purchase one or two items and would not go beyond three. Ensuring product quality is thus the key to brand building. European and US brands developed their products and accumulated substantial experience in their home countries long before becoming global. Similarly, Japanese brands faced an uphill struggle to become accepted worldwide. Likewise, Chinese brands need to first spend time and effort on achieving local success before earning respect and building a reputation overseas. There is no such thing as instant success.

"The greatest challenge for Chinese brands to go global lies in our capacity to become truly global in terms of organization, R&D, business development and human resources. It is our dream that Chinese brands become internationally recognized."

The lecture was moderated by Prof Hong Jiewen from HKUST's Marketing Department. Dr Li and the audience engaged in interactive discussions, and the response was very enthusiastic .

Dr Li Ning (left) and HKUST President Tony F Chan
李寧博士(左)與陳繁昌校長

體操王子李寧接受科大頒授榮譽院士當日，應邀出席科大傑出講座，以「中國企業建立國際品牌的機遇與挑戰」為題分享灼見。400 多位科大師生、校友與觀眾在輕鬆的氣氛下，與李寧集團主席與執行董事李博士有一席親切而深入的對話。

從世界級運動員搖身一變成為傑出的企業家，李博士的傳奇源自一個夢想：「少年時候看到前蘇聯體操選手在國際賽奪魁，就希望自己可以站在頒獎台上。後來接觸到國際體育品牌，就希望中國人有一天可以擁有自己的品牌。憑著一個夢想與一股熱情、乘著中國崛起與全球一體化帶來的機會，我們的公司就慢慢走到今天。」李博士在體壇與商場屢創奇蹟，仍然表現謙遜、踏實而充滿熱誠。

「我們在創業的初期遇上一定困難；由於體育品牌並不屬於中國傳統文化或日常生活的一部分，我們必須『從無到有』建立這種文化。我們明白如果消費者只為仰慕李寧的名字而購買產品，就只會買一兩件，不會買多於三件。因此我們必須從產品質素著手，才可建立品牌。歐美品牌也要先在自己的國家經歷數十年的技術改良與經驗累積，才可以在國際市場站穩陣腳；日本品牌成為國際品牌之前，也曾經歷過不被看好的階段。因此中國品牌要打破別人的成見、讓世界覺得可靠，就必須給自己時間，先在本國市場做出成績；好的東西不是一天可以發展過來的。」

「中國企業與品牌要走向國際，面對最大的挑戰是經營能力上的全面國際化；從研發、開拓市場到人才團隊方面，都要達到這個要求。中國品牌得到認同，是我們的夢想。」

講座由科大市場系教授洪潔雯主持，李博士與觀眾以問答形式積極互動，反應熱烈。

Chow Tai Fook Cheng Yu Tung Fund donates $90 million to HKUST

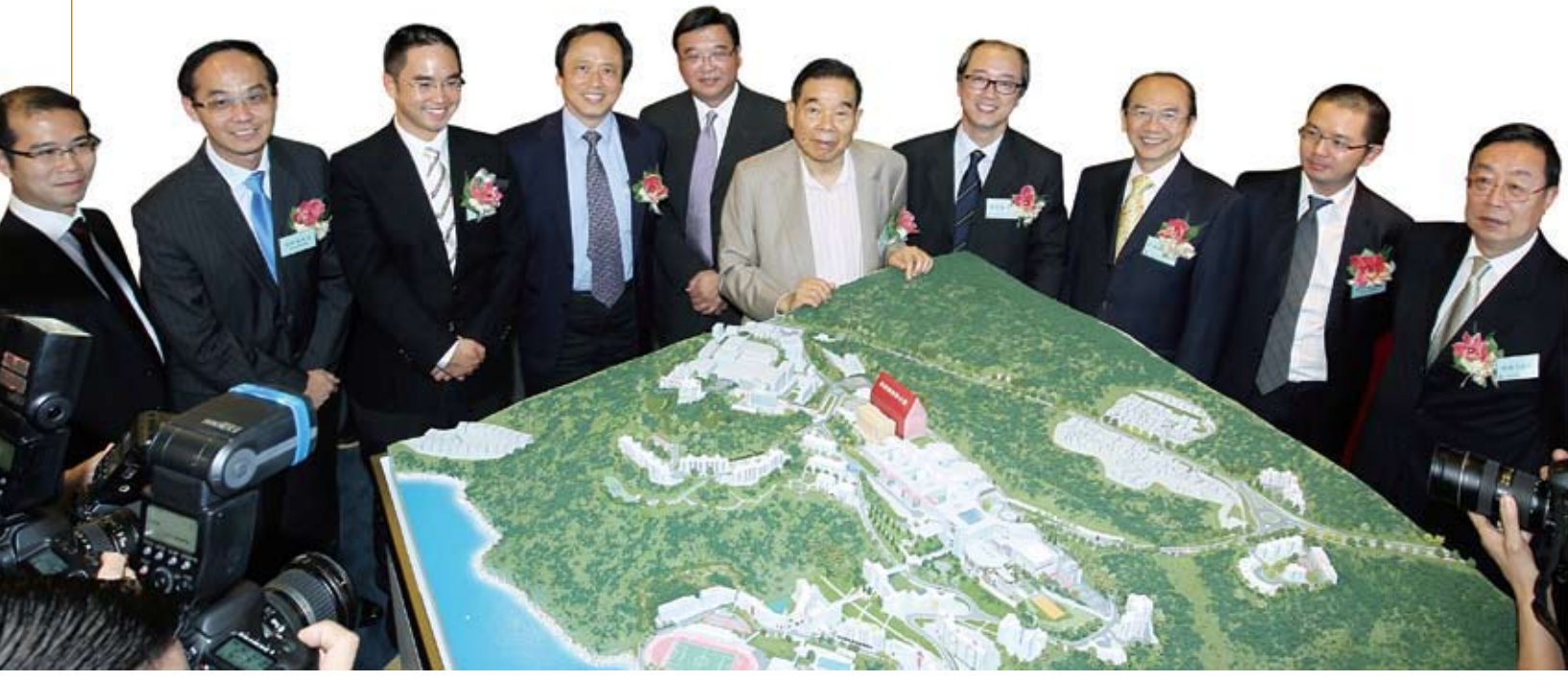
HKUST's achievements in scientific research have been recognized once again with the donation of $90 million from the Chow Tai Fook Cheng Yu Tung Fund. The donation will be used for the construction of a Research and Academic Building named in honor of Dr Cheng Yu Tung in appreciation of his generosity. To ensure that our new building meets the best international standards, the University's management led teams to first-class research facilities in the UK and USA to prepare for the grand project.

HKUST President Prof Tony F Chan expresses his gratitude to Dr Cheng Yu Tung, saying, "Dr Cheng's investment in education will bring enormous benefits to the Mainland and Hong Kong. It will help stake our claim to being a leading international research university."

Dr Cheng Yu Tung, Chairman of the Chow Tai Fook Group said, "The Chow Tai Fook Cheng Yu Tung Fund is collaborating with HKUST because our two organizations share a common mission in seeking innovation and social progress. I hope that through this donation HKUST will provide even better facilities and a peerless learning environment, turning out high-quality graduates who will in turn actively contribute to the community."

The eight-storeyed structure will be located at the southern end of the existing Academic Building, and will boast a total floor area of 10,000 square meters. It will provide multi-disciplinary laboratories, undergraduate teaching and research facilities, facilities for hosting exhibitions and international conferences, in addition to a 400-seat multi-purpose lecture hall which will be ideal for teaching and art performances. Prof Yuk-shan Wong, HKUST's Vice-president for Administration and Business, led a team to visit the Universities of Oxford and Cambridge, and the California Institute of Technology (Caltech) and other leading facilities in preparation for the project.

At the Chow Tai Fook Cheng Yu Tung Fund donation presentation ceremony: (from left) Chow Tai Fook Director of Group Branding Department Mr Alan Chan; Chow Tai Fook Group Directors Mr Shiu-kei Wong and Mr Chi-kong Cheng; HKUST Vice-President for Academic Affairs (Acting) Prof Shiu-yuen Cheng; HKUST Vice-President for Administration and Business Prof Yuk-shan Wong; Chow Tai Fook Group Chairman Dr Cheng Yu Tung; HKUST President Tony F Chan; HKUST Council Vice-Chairman Dr Michael Mak; Chow Tai Fook Group Director Mr Chi-hang Cheng; and Senior Advisor to the HKUST President Prof Liu Yingli
出席捐贈儀式：（左起）周大福集團品牌總監陳義邦先生；周大福董事黃紹基先生及鄭志剛先生；科大署理副校長(學術)鄭紹遠教授；科大副校長(行政)黃玉山教授；周大福集團主席鄭裕彤博士；科大校長陳繁昌教授；科大校董會副主席麥海雄醫生；周大福董事鄭志恆先生及科大校長資深顧問劉應力教授。



科大喜獲周大福鄭裕彤基金捐贈九千萬元

科大喜獲周大福鄭裕彤基金捐贈九千萬港元，興建全新的科研與教學大樓。大樓將以鄭裕彤博士命名，鄭博士的捐贈再一次顯示科大在科研與學術方面的成就得到社會領袖的認同。科大行政人員更特別率團前往英美頂級教研設施考察，務求令最新的科研與教學設施達到國際一流的水平。

科大校長陳繁昌教授向周大福鄭裕彤基金的慷慨捐贈表示謝意：「鄭裕彤博士對教育的投資，將為內地和香港帶來極大的裨益，進一步提升科大的教研實力，使科大成為世界一流科研大學，對培養新一代的人才素質作出重大的貢獻。」

周大福集團主席鄭裕彤博士表示：「我們非常重視下一代的教育，故此積極資助中港兩地的教育項目。是次與香港科技大學合作，全因我們有感兩者有著共同的使命，就是力求創新、推動社會進步。我們希望透過為學生提供更優良的學習環境及設施，讓他們盡展所長，待他日長成後回饋社會。」

大樓樓高八層，面積達一萬平方米，座落於現有學術大樓的南端，設有跨學科實驗室、本科生教研設施、用作展覽或國際會議的設施、及有 400 個座位的多用途講堂，可作教學及藝術表演之用。為了籌備這個重要項目，大學副校長黃玉山教授及其他行政人員早前特別率領團隊到牛津、劍橋大學及加州理工學院等頂級教研設施進行考察，務求令科大能以最佳的設施培養一流人才。

Dr Cheng Yu Tung (middle), Council Vice-Chairman Dr Michael Mak (right) and President Tony F Chan
鄭裕彤博士(中)、科大校董會副主席麥海雄醫生(右)及陳繁昌校長。

(From left) Projected image of the exterior of the Research and Academic Building, the multi-function lecture hall and a teaching laboratory
(左起) 模擬大樓外觀、多功能講堂與教學實驗室

CN Innovations Ltd donates $5 million to HKUST to support applied research

中南創發有限公司捐贈五百萬元助科大發展應用研究

HKUST's research and development in nanoscience has received a boost thanks to a generous HK$5 million donation from CN Innovations Ltd (CN Innovations), a member of Chung Nam Corporation Ltd.

HKUST President Tony F Chan said, "We are immensely grateful to CN Innovations for their generous donation. Indeed, CN Innovations is taking the lead among industries to support research and development at local universities and I believe this exemplary initiative will inspire other local industries to contribute to academia for the benefit of Hong Kong and beyond."

Mr Hok-Shan Chong, Chairman of Chungnam Corporation Ltd, said, "Over the years, HKUST professors have helped Chung Nam to extend our technological capabilities in the nano field. This has fuelled our business success. Indeed, Chung Nam is so impressed by the quality of research at HKUST that we have always wanted to support the University to make an even greater contribution to the region."

Chung Nam began as a watch component manufacturer in 1935. As one of the main pillars of the Group, CN Innovations engages primarily on material science applications, including precision engineering or surface treatments, optics, and energy conservation and energy storage.

At the cheque presentation ceremony: (from left) Mr Winston SY Chan, Chief Technology Officer of CN Innovations, President Tony F Chan, and Mr Charles HH Chong, Managing Director of CN Innovations
支票捐贈儀式：（左起）中南創發有限公司技術總監陳少揚先生、科大校長陳繁昌教授及中南創發有限公司總經理莊學熹先生

中南股份有限公司旗下成員中南創發有限公司(中南創發)向科大捐贈五百萬港元，支持科大有關納米及其他範疇的研發項目。

科大校長陳繁昌教授說：「我們對中南創發的慷慨捐贈，深表感謝。事實上，中南創發對本港大學科研活動的支持不遺餘力，是工業界中的表表者。我相信中南創發的支持將會對其他本地企業起著示範作用，共同為香港的未來發展出一分力。」

中南股份有限公司主席莊學山先生說：「多年來，科大的教授一直協助我們進行技術發展，特別在納米技術方面，協助我們的業務取得成功。中南創發非常欣賞科大教授的研究水平，因此，我們一直希望能夠支持科大的發展，進一步為社會作出貢獻。」

中南集團於 1935 年成立，從事鐘錶製造業務。中南創發是中南集團的重要支柱，主要業務為物料應用科技，包括精密工程與外觀處理、光學應用，以及節能與儲能技術。

Honorary Fellowship Presentation Ceremony — trio honored for dual achievement: doing good while doing well

科大頒授榮譽院士 表揚社會貢獻

This year the University honors three outstanding community leaders from three disparate fields and inducts them into the HKUST family.

Dr Li Ning, China's legendary Prince of Gymnastics, is now King of Sports Wear on the Mainland. He is living proof of man's ability to reinvent himself on a grand scale, and of his tireless search for excellence in whatever field of endeavor he chooses to embrace. One of China's most famous sports icons, Dr Li is also a man of compassion for the less fortunate, on and off the field of sport. He has provided financial support to give former athletes access to alternative careers once their sporting lives come to an end. And he is a man of the hour when tragedy struck on a massive scale as in the deadly Sichuan earthquake.

Mr James E Thompson, founding Chairman of Worldwide Group, is a quintessential global citizen who makes life easier for business talents to move across borders to serve in foreign countries and cultures. He facilitates cross-cultural understanding while championing many do-good projects in the community. He is happiest when he shows young people how to harness the opportunities that are out there.

Dr Jack Lau, CEO of Perception Digital, is an HKUST-incubated techno entrepreneur whose company is successfully listed on the Hong Kong Stock Exchange. In fact, he is a fine walking example of what a quality HKUST education can do, quick to see an innovative angle and quick to do good once he has done well.

The season is at its most glorious, when our University honors the chosen few, who never cease to strive and give.

At the Honorary Fellowship Presentation Ceremony: (from left) Mr James E Thompson, Dr Li Ning, Dr Jack Lau, Dr SY Chung, Dr Michael Mak, President Tony F Chan
榮譽院士頒授儀式：（左起）詹康信先生；李寧博士；廖家俊博士；鍾士元博士；麥海雄醫生；陳繁昌校長。

科大每年都在夏季舉行榮譽院士頒獎典禮，今年三位在不同領域取得傑出成就的領袖獲科大頒授榮譽院士。科大歡迎他們加入這個大家庭。三位榮譽院士分別為廖家俊博士、李寧博士及詹康信先生。

昔日的體操王子**李寧博士**，現已搖身一變成為運動服裝之王。他就是一個活生生的例子，證明有遠大志向的人能夠靠自己的力量創造奇蹟，並能夠憑著堅定不移的精神，在各個領域取得卓越的成就。李博士不但是中國體壇最為人熟悉的成功象徵，更熱心公益。他為退役的中國運動員提供援助，幫助他們退役後在其他方面發揮所長。四川大地震後，他亦迅速捐助，為災民帶來及時幫助。

Crown Worldwide Group 的創辦人兼主席**詹康信先生**是環球公民的典範，他幫助商界人才移居到其他國家工作，及適應當地的文化。他並幫助來自不同文化的人士增進認識，及致力發展造福人群的慈善事業。他最感欣慰的，就是能夠鼓勵年輕人把握機會，力爭上游。

幻音數碼主席及行政總裁**廖家俊博士**是科大首位博士畢業生，亦是科大培育的高科技專才及企業家，公司成功在香港創業板上市。他是實踐科大創新教育理念的表表者，不但能把握創業與創新的機會，更能在取得成功的同時，回饋母校與貢獻社會。

我們透過頒授榮譽院士榮銜，表揚不斷求進、積極回饋社會的傑出領袖。

First State Key Laboratory of Molecular Neuroscience at HKUST

The University has launched its first State Key Laboratory — to advance research frontiers in molecular neuroscience.

China's Ministry of Science and Technology (MOST) has approved the establishment of the State Key Laboratory of Molecular Neuroscience, to build on our existing foundation of excellence in this area.

Prof Nancy Ip, Chair Professor of the Division of Life Science at HKUST and Academician of the Chinese Academy of Sciences, has been appointed Director of the Laboratory. She will steer its research strategy, coordinate research projects and oversee its operations.

The groundwork for establishing this Laboratory was laid more than a decade ago through the establishment of our Molecular Neuroscience Center (MNC) in 1999, and with recognition by the University Grants Committee's Area of Excellence (AoE) Scheme in both 2001 and 2007. The AoE scheme, together with support from the Innovation Technology Commission and the Hong Kong Jockey Club Charities Trust helped develop and implement the required framework for the State Key Laboratory.

At the plaque unveiling ceremony are: (from left) Mr Li Ling, Deputy Director General of Education, Science and Technology Department, Liaison Office of the Central People's Government in the HKSAR; Miss Janet Wing Chen Wong, JP, Commissioner for Innovation and Technology, HKSAR Government; Prof Tony F Chan, HKUST President; and Prof Nancy Ip, Director of the State Key Laboratory of Molecular Neuroscience
主持揭幕儀式：（左起）中央人民政府駐香港特別行政區聯絡辦公室教育科技部副部長李凌先生；創新科技署署長王榮珍女士；科大校長陳繁昌教授及分子神經科學國家重點實驗室主任葉玉如教授

The Laboratory's strength lies in its multidisciplinary team of over 20 faculty members from the departments of Biochemistry, Biology and Chemistry — as well as the depth of their collective expertise.

The Laboratory will investigate important fundamental questions relating to the nervous system, such as the development, functionality and plasticity of nerve cells. Knowledge obtained from this basic neuroscience research will help to unravel the mechanisms of various neurological diseases, and promote the discovery and development of drugs to treat these disorders.

"I am both excited and honored by the recognition MOST has accorded to our achievements, especially in light of the dedicated efforts of our team. With the launch of the State Key Laboratory, we will continue to strive towards further breakthroughs in molecular neuroscience for the benefit of mankind," said Prof Ip.

科大首個分子神經科學國家重點實驗室

科大成立了首個國家重點實驗室，致力研究分子神經科學。

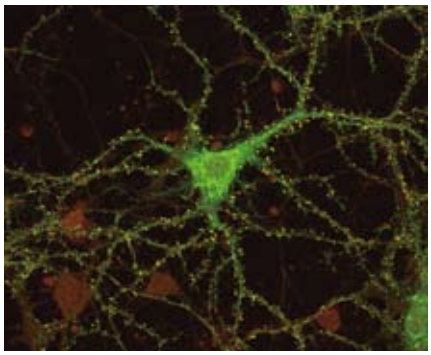
經過嚴謹的遴選，科大獲國家科學技術部批准成立首個國家重點實驗室—「分子神經科學國家重點實驗室」。生命科學部講座教授及中國科學院院士葉玉如教授獲委任為實驗室主任。

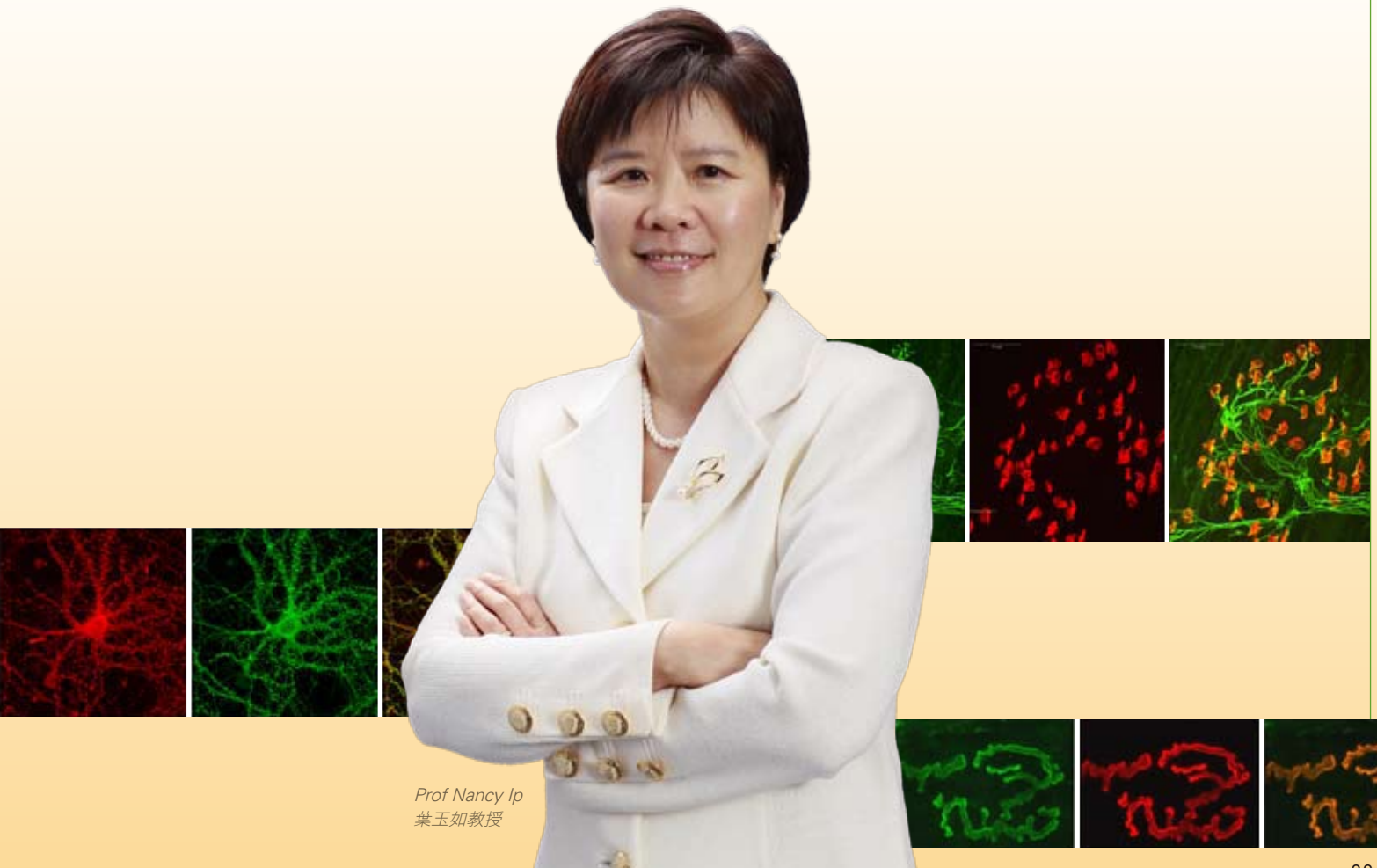
科大 11 年前已致力神經科學方面的研究，於 1999 年成立分子神經科學中心。來自科大的生物化學系、生物學系和化學系的 20 多位專家組成立跨學科的神經科學研究團隊。該團隊的研究於 2001 年獲大學教育資助委員會評為「卓越學科領域」，研究項目為「分子神經科學：基礎研究與新藥開發」。教資會於 2007 年再次肯定了該項目的卓越成果，繼續撥款支持其研發工作。

科大希望透過建設國家重點實驗室，在分子神經科學研究方面發展成為國際級科研中心，提升國家在分子神經科學的基礎研究水平，並促進內地和香港的生物技術科研合作。

分子神經科學國家重點實驗室將致力探索大腦運作的機制，了解神經細胞的發育、功能和可塑性。這方面的研究成果將有助了解各種神經系統疾病的機理，對開發有關藥物治療有積極作用。

葉教授說：「我感到非常榮幸，科大在分子神經科學方面的學術及科研成就獲國家科學技術部的肯定；這是我們科研團隊努力不懈的成果。相信隨著國家重點實驗室的成立，科大將繼續在分子神經科研領域上尋求更大突破，為人類作出貢獻。」





Prof Nancy Ip
葉玉如教授

Building a better future: Construction starts on the HKUST Fok Ying Tung Graduate School Building in Nansha

President Tony F Chan (right) and Mr Ian Fok on the construction site for the HKUST Fok Ying Tung Graduate School Building
陳繁昌校長（右）和霍震寰先生主持香港科技大學霍英東研究院大樓動工儀式

HKUST continues to capitalize on its geographical proximity to Mainland China and its international outlook. In June the Fok Ying Tung Graduate School in Nansha, Guangdong celebrated the commencement of construction of its Main Building.

The Graduate School is a key element in HKUST's collaborations with the Mainland. It is aimed at fostering cooperation among universities and industries in the Pearl River Delta, and enhancing research and development (R&D) and technological enterprises. Since its inauguration in 2007, the School has been operating over 10 research centers and two joint laboratories at facilities at the Nansha IT Park. The research activities managed by 130 staff researchers and led by close to 40 professors fall into four areas: information and communication technology, advanced materials, environment and sustainable development, as well as biomedical and biotechnology.

When the Fok Ying Tung Graduate School Building is complete, it will have a total floor area of 25,000 sq m with laboratories for research and education, teaching facilities, a library, a computer barn and other student amenities.

The School has secured funding for over 50 research projects, including State 973 projects, National Natural Science Foundation of China (NSFC) projects, funding from provincial, municipal and district governments, and Guangdong-Hong Kong cooperative ventures. It is eligible to directly apply for State 863 and NSFC funding, and has been awarded the title of International Science and Technology Cooperation Base by China's Ministry of Science and Technology.

"Our University's development on the Mainland has always been in line with government policies. Through 'The Outline of the Plan for the Reform and Development of the Pearl River Delta' and the 'Guangdong-Hong Kong Cooperation Framework Agreement', China has been boosting the integration between Hong Kong and the Pearl River Delta in education, scientific research and economic development. In particular, Nansha has been named a key hub of cooperation between Guangdong and Hong Kong in technology and education. We believe that our Graduate School in Nansha will soar to new heights," said HKUST President Tony F Chan.

"The Nansha IT Park was established to promote collaboration between academic institutions and industrial enterprises in the Pearl River Delta and to commercialize research. The Fok Ying Tung Graduate School Building will bring us one big step closer to the realization of this vision," said Mr Ian Fok, Chairman of the Board of Directors of the Nansha IT Park.

On the same day the Building Energy Research Center was also officially opened. It will develop indoor energy-saving devices, centralized air-conditioners, air purifiers and LED applications in view of the government's policies on energy-saving. Meanwhile, the Guangzhou Science and Technology and Information Bureau (GZSTIB) presented the School with the status of Guangzhou Digital Life Engineering Technology Research Center where mobile sensors and mobile phones with the ability to monitor heartbeats were developed. In addition, the CAE Molding Solution Alliance donated 150 sets of Computer Aided Engineering (CAE) mold design software to the Center for Polymer Processing and Systems to enhance its R&D, education and training initiatives.

The HKUST Fok Ying Tung Graduate School (the part on the right is the model of the building under construction) 科大霍英東研究院全貌（右面部分為興建中的大樓模型）

科大霍英東研究院大樓動工

Management of HKUST, the Nansha IT Park, and Nansha government officials officiate at the Construction Commencement Ceremony
香港科技大學、南沙資訊科技園及南沙區政府的領導主持霍英東研究院大樓動工儀式

科大繼續發揮「背靠內地、面向世界」的優勢，位於廣東南沙的科大霍英東研究院大樓已於六月正式動工，研究院的三個研究中心同時成立。

科大霍英東研究院是科大與內地合作的重要項目，以促進內地、特別是珠三角的大學和產業合作為目標，推動科研發展及其產業化。研究院自 2007 年成立以來，已於南沙資訊科技園設立超過 10 間實驗中心及兩個聯合實驗室，四個主要研究範疇為信息及通訊、先進材料、環境及可持續發展、生物醫療及生物技術；現有研究人員 130 位，近 40 位教授擔任研究項目的負責人。

六月動土的霍英東研究院大樓預計明年年底落成，實用面積將達 25,000 平方米，內設各類研究實驗室、教學設施、圖書館、電腦室及學生活動室等。

研究院已成功獲得國家 973 工程、國家自然科學基金項目、省市政府、粵港合作以及工業、院校合作等 50 項研究基金，獲准直接申請國家 863 及國家自然科學基金，並得到國家科技部頒授「國際科技合作基地」的稱號。

陳繁昌校長表示：「科大在內地的發展方向，一直與國家的規劃緊密配合。近年國家透過『珠江三角洲地區改革發展規劃綱要』和『粵港合作框架協議』加強香港與珠三角在教育、科研與經濟上的融合。廣州南沙更被列為重點合作區，成為連結粵港的科技和教育樞紐。在國家政策的引領下，霍英東研究院必定更上一層樓。」

南沙資訊科技園有限公司董事長霍震寰先生指出：「南沙資訊科技園的成立目的，是推動珠三角的學術機構和工業合作，帶動科研產業化。科大霍英東研究院大樓讓我們跨進一大步。」

研究院的「建築物能源研究中心」亦同時成立，專門研究建築物的節能減耗，包括室內節能、中央空調、空氣淨化、及 LED 應用等，以配合國家重點發展的節能項目。同日，廣州市科技和信息化局向研究院頒發「廣州市數字生活工程技術中心」名銜，該中心研究隨身傳感器、能夠量度心跳的手機等，透過數字科技改善市民的生活。另外，CAE 模具高校產學聯盟向研究院的「高分子成型過程及系統中心」捐贈 150 套計算機輔助工程注塑設計軟件，以供研發 、教育和訓練之用。

UC RUSAL donates US$1.5 million to launch joint project with HKUST

UC RUSAL CEO Mr Oleg Deripaska (left) presents a US$1.5 million cheque to HKUST President Tony F Chan (middle) and Acting Vice-President for Academic Affairs Prof Shiu-yuen Cheng.
俄鋁行政總裁 Oleg Deripaska 先生（左）致送支票予科大校長陳繁昌教授（中）及署理學術副校長鄭紹遠教授。

HKUST and UC RUSAL, the world's largest aluminum producer, launched a five-year joint project with a sponsorship of US$1.5 million from UC RUSAL, the world's largest aluminum producer. The UC RUSAL President's Forum is set up with the collaborative efforts of UC RUSAL and HKUST's Institute for Advanced Study. It will feature some of the world's most renowned speakers including international politicians, businessmen, scholars and scientists who will share their success stories and solutions for global challenges.

Mr Oleg Deripaska, CEO of UC RUSAL, was the first speaker to kick-off the Forum. At the Forum entitled 'The Power of Focus: Turning Opportunity into Success', he shared his personal experience growing up and achieving success during rapid socio-economic reforms in Russia. With perseverance and a strong focus, he has become the leader of a global enterprise with a 76,000 workforce spanning 19 countries. The Forum was chaired by HKUST President Tony F Chan and broadcast globally.

An exchange award and scholarship program will provide undergraduates and postgraduates from Russia and Hong Kong the opportunity to experience each others' higher education system and to undertake important research across a broad spectrum of disciplines.

A research program will be launched to develop a large-scale pre-insulated fiber reinforced aluminum envelope and roof system, using aluminum composite as an energy-saving and environmentally friendly material. "Our research shows that we can produce composite aluminum. A thin, light, insulated and eco-friendly material suitable for the construction industry, it helps to reduce electricity consumption by approximately 20%," said Dr Ben Chan, research associate at HKUST's Department of Civil Engineering.

President Tony F Chan said, "HKUST is the first local university to team up with a Russian industry giant with a project which will foster internationalization of education and development of science.

俄鋁贊助150萬美元與科大開展合作計劃

It will have the active support of our Institute for Advanced Study. The development of an environmentally friendly aluminum-based composite will bring benefits to the construction industry worldwide and to the global environment".

Oleg Deripaska, CEO of UC RUSAL said, "UC RUSAL is very pleased to have HKUST as our partner in our long-term cooperation to enhance communications between young and experienced scientists in Russia and Hong Kong to develop applied science including the search for new uses for aluminum".

科大與全球最大鋁生產商 UC RUSAL（俄鋁）開展為期五年的科研及教育合作計劃，由俄鋁贊助 150 萬美元。俄鋁與科大高等研究院設立俄鋁校長論壇，由來自世界各地的社會領袖、企業家、學者及科學家等著名講者親臨主講，分享成功經驗及應付全球挑戰的策略。

首位主講嘉賓為俄鋁行政總裁歐柏嘉先生 (Oleg Deripaska)，他以「專注的威力 ─化機遇為成就」為題在論壇上分享個人在俄羅斯急劇社會變革中成長及取得成功的秘訣，並憑著堅毅的精神與高度的專注力成為國際企業的行政總裁，管理 19 個國家的業務和 76,000 名員工。論壇由科大校長陳繁昌教授主持，透過互聯網作全球直播，座無虛席。

在俄鋁的支持下，科大並設立交流獎項及獎學金，讓俄羅斯及香港的本科生及研究生體驗兩地的高等教育制度，並進行多個學科的研究。

俄鋁與科大將展開研究計劃，研究以「複合鋁」建築材料開發大型的隔熱圍護結構系統，可達到環保及節能的目標。科大土木及環境工程學系副研究員陳銳斌博士表示：「科大的研究發現，『複合鋁』可以用作又薄又輕的隔熱環保物料，若應用於建築物外牆，可以為大廈冷氣系統節省約兩成電力。」

科大校長陳繁昌教授表示：「科大成為本港首間與俄國頂級企業合作的大學，這計劃能促進教育國際化及科學發展，亦得到科大高等研究院的大力支持。含鋁的建築材料有利保護環境，為保護地球生態帶來貢獻。」

俄鋁行政總裁歐柏嘉先生表示：「俄鋁與科大長期合作，可促進兩地青年與資深科學家交流、發展應用科學及開拓鋁的更多用途。」

Mr Deripaska (left) and President Chan in dialogue on the power of focus at the inaugural UC RUSAL President's Forum

歐柏嘉先生（左）與陳繁昌校長在首個俄鋁校長論壇上暢談專心致志的重要性

A day to remember
難忘的一天

May 6 was a special day. That afternoon, the Grand Ballroom at the Royal Plaza Hotel in Mongkok was abuzz with excitement. It was the day when Oxford University Press organized the Presidents' Forum featuring the Vice Chancellor of Oxford University, Prof Andrew Hamilton and HKUST President, Prof Tony F Chan. They were both invited to speak on what constitutes a world-class university. The joint forum attracted a capacity crowd of secondary principals, teachers, community leaders and education officials. Predictably, the Oxford name worked its magic. But HKUST staff was also adequately represented.

The first to take the podium was Prof Hamilton. He did not disappoint, for he spoke eloquently without notes and held the audience in rapt attention. When he finished, he was roundly applauded. He was a silver-tongued exponent of that special Oxford quality.

Then came our president's turn. HKUST people were understandably squirming with some unease, for Prof Hamilton was a difficult act to follow. Some confessed to feeling downright nervous. But one minute into his speech, Prof Chan had dispelled all such fears, for he spoke movingly, with erudition and sparkling wit.

The President was clearly in his zone. He said that Asian universities must wean themselves from their habit of rote learning and addiction to the recital of facts, and that creativity is the key business of a modern university, for institutions of higher learning have a dual role: as transmitter and creator of knowledge. His speech was interrupted often with loud applause from an appreciative audience. When it was over, Prof Hamilton spontaneously stood up and led the excited crowd in prolonged clapping.

Afterwards, people were heard gushing how proud they were to be Hong Kong citizens that day, that no one could accuse the president of a local university of not being able to hold a candle to the head of the world's foremost university. The intensity and positivity of the audience reaction was a measure of how much the president took everybody in attendance by surprise. More than our recent lofty international rankings, it was proof positive that excellence is no stranger to this 19-year-old university, and definitely no fluke. For those lucky enough to have been there, it was a proud day when a young upstart university stood face to face with the world's revered 900-year-old citadel of learning, and did not blink.

五月六日是難忘的一天。當天下午，旺角帝京酒店的宴會廳洋溢著一片熱鬧氣氛。牛津大學出版社舉辦的大學校長論壇邀請牛津大學校長賀慕敦教授與香港科技大學的校長陳繁昌教授演講，就世界級大學的必要條件發表意見。論壇吸引了中學校長、教師、社會領袖及教育局的官員參加，當然還有科大的教職員。現場座無虛席；牛津這個名字果然充滿吸引力。

賀慕敦校長首先發言，他沒有講稿也能暢所欲言，令觀眾聽得入神。演講結束時，更搏得如雷掌聲；他的確將牛津獨有的神髓表露無遺。

科技大學的陳校長隨後發言，科大同事熱切期待；可是畢竟剛才牛津大學校長的演講實在太精采了，同事不禁有點疑慮。不過校長開始講話不夠一分鐘，科大同事就知道自己之前的憂慮是多餘的。陳校長的演講不但有極強的說服力，更顯示他博學多才、見解精闢獨到。他對世界級大學必要具備的條件瞭如指掌，指出現代教育以激發創意為主，大學不但傳授知識，更應創造知識；亞洲的大學應該減少對資料背誦的要求。陳校長的演講多次被觀眾雷動的掌聲打斷，演講完畢後，賀慕敦校長更即時站起來、帶領全場觀眾熱烈鼓掌。

會後，參加者紛紛表示本地大學絕對可以媲美世界頂級學府的校長，他們對於身為香港市民倍感自豪。陳校長的學養和演辭，贏得在場每位參加者正面的評價，再一次證明只有短短十九年歷史的科技大學能夠成為世界前列，絕非浪得虛名。對於當天參與盛會的人士來說，能夠看見科大－香港－所年青而充滿幹勁的大學在屹立學術殿堂九百多年的牛津大學面前表現毫不遜色，實在令人感到興奮。

Prof Tony F Chan (left) and Prof Andrew Hamilton
陳繁昌教授（左）和賀慕敦教授

Provost Wei Shyy speaks on whole-person development

The nature of flight has fascinated man since time immemorial and HKUST's new Provost, Prof Wei Shyy, is no exception. Like the classic scholar he has a broad range of interests and is fortunate that his passions serve him well in his research. A world-renowned scholar in aerospace, he is also an enthusiastic bird-watcher and photographer and has demonstrated with his multiple interests that solid scholarship, combined with an untamable curiosity, are the keys to mastering sophisticated areas in the universe of knowledge.

For more than a decade, Prof Shyy has captured the fabulous movements of a variety of birds on camera. It is a pastime integral to his academic research, as he studies the nature of flight to help engineers design small, flapping winged aircraft. Most recently, he compiled his own photo album of birds. The pictures speak of a taste for aesthetics, and as the perceptive individual often sees the extraordinary in the commonplace, Prof Shyy found natural wonders on his own doorstep – the photos were mostly taken in his backyard while living in Michigan.

"Birds are tremendously exquisite creatures," he said. "Hummingbirds, sparrows, doves and magpies all have different forms and styles. Some glide and others fly low. Bird-watching is my hobby, but from birds I've learned more about aerospace, and the almost flawless mathematical formulations for aerospace engineering can be similarly awe-inspiring. They both enable me to see a supreme form of beauty in nature and science."

Now an authority on aerospace, Prof Shyy asked similar questions to other kids when he was young. "Birds can fly but why can't I?" Then as an undergraduate student in mechanical engineering in Taiwan in the 1970s, he came across in the library one of the earliest and most authoritative books on flight and aerodynamics and fell in love with the subject. "It was then the height of the energy crisis and I became interested in studying wind turbines for research into alternative sources of power, which prepared me for aerospace."

"While we have no control over when opportunities will present themselves in life, those who stay curious, motivated and concentrated in their efforts will ride on the wave when the time comes," said Prof Shyy. Beyond classroom knowledge, it is these principles of curiosity, motivation and risk-taking which have stood him in good stead and guided him as he meets challenges. "Young people should have an inquisitive mind and be receptive to new things in order to grow and develop into a well rounded person. Academic performance, however important, should not be the only goal. The four years of undergraduate study are a prime time in life. University students enjoy freedom as adults but do not yet have the full responsibilities of adulthood. One should make the best use of all resources and support available to explore as widely as possible," he said.

With seasoned industry and academic experience and as a master of a wide range of knowledge across disciplines, Prof Shyy believes that the schools of science, engineering, business, humanities and social sciences at HKUST offer students unique opportunities for a holistic education that is characterized by both breadth and depth and will equip students with the skills for lifelong learning.

What attracted Prof Shyy to HKUST are its high standards of education and research and its strong potential for further advancement. "During my years in the US, I visited HKUST for academic exchange, and was strongly impressed by the talented minds it has gathered as well as the scenic campus.

** Photos of birds: courtesy of Prof Wei Shyy*

The University has aimed for the highest level of excellence since its inauguration. Despite its relatively short history, it has achieved an international reputation for academic excellence in many areas. It is a privilege to be able to work with our top-notch faculty members and students to enhance education and research in the region.

"We should leverage on our strengths as a young, energetic and compact university. In terms of the forthcoming 3-3-4 education reform, we probably enjoy greater agility than other universities in trying out new ideas thanks to our size. Education in Hong Kong has the highest degree of internationalization in the Greater China area. We are also well-positioned to promote balanced, two-way exchanges between academia in the east and west, and to offer students an education which features diversity."

Not only is Professor Shyy an international leading scientist, scholar and veteran administrator, he has been honored in the US as a distinguished educator.

"I have come to HKUST to work with everybody. I want to contribute to both education and research at the University. Ensuring that HKUST is of strong relevance to Hong Kong and the world is my priority. Fellow faculty members and students can contact me directly, any time. I always reply to emails."

Prof Shyy and his wife have four children who are now adults residing in the US. They work in engineering, computer science, economics and cultural commentary. When the couple moved to Hong Kong, they had to leave behind their beloved dog, a pug, which spent 12 years with them. On his last day in the US the professor took her out for a long walk but he still misses her very much as evidenced by the photos he carries on his mobile phone.

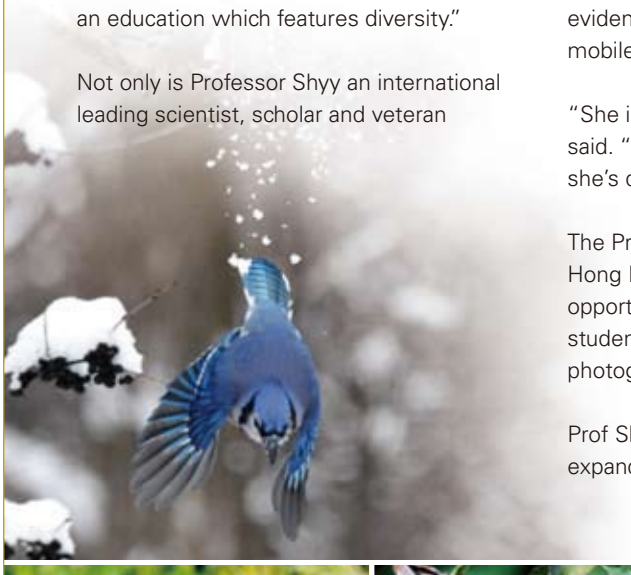
"She is now staying with my son," he said. "My wife and I often find out how she's doing via updates from the children."

The Provost will continue bird-watching in Hong Kong. He said, "Given the opportunities, I won't mind sharing with students the secrets of bird flight and photography."

Prof Shyy is clearly dedicated to expanding minds beyond the classroom.

Prof Wei Shyy

Born and raised in Taiwan, Prof Shyy obtained his BS degree from National Tsing-Hua University in Taiwan. He left for the US at the age of 24 to pursue his MSE and PhD degrees in Aerospace Engineering at the University of Michigan, Ann Arbor. He was a Research Scientist at the General Electric Research and Development Center in New York. In 1988, he joined the faculty of the University of Florida. He had been Chairman of the Department of Aerospace Engineering, Mechanics and Engineering Sciences, and the Department of Mechanical and Aerospace Engineering. He later joined his alma mater, University of Michigan, Ann Arbor, as Clarence L. "Kelly" Johnson Collegiate Professor and Chairman of the Department of Aerospace Engineering. He had led a group to establish the Institute for Future Space Transport, a seven-university consortium funded by the US National Aeronautics and Space Administration (NASA). He was also the principal investigator of the Michigan University/Air-Force Research Laboratory (AFRL) /Boeing Collaborative Center in Aeronautical Sciences, and the principal investigator of a Multidisciplinary University Research Initiative (MURI) project sponsored by the US Department of Defense.



從觀鳥到全人教育——與首席副校長史維教授一席話

眼前的史維教授一派謙謙君子的學者風範，這位高度近乎「頂天立地」的科大新任首席副校長似乎對在天空中飛翔的東西特別感興趣，他不但是航天工程的國際專家，更是觀鳥及鳥類攝影的愛好者。文武雙全的史教授以自己的興趣與才華證明，一位學者如能夠打好學術基礎，並對宇宙萬物抱有好奇心，就能駕馭更艱深的知識領域。

過去十年來，史教授在工餘時間透過鏡頭捕捉各種飛鳥的生動神態，樂在其中；這個嗜好更幫助他作學術研究——他細心觀察鳥類的動作，從而在工程設計上模仿自然界的飛翔動作，設計精細的、能拍打雙翼的飛機。最近他更將心血結集成書，出版的鳥類攝影集從照片、題字到設計均極具心思，顯示他對美感的體會與品味。作為一個有洞察力的人，他能夠在看似平凡的事物裡洞悉箇中奧妙，而最美麗的事物往往遠在天邊、近在眼前；原來攝影集輯錄的大部分照片，就在其美國密歇根寓所的後院取景。

「飛鳥是非常優雅、精緻的動物，蜂鳥、麻雀、鴿子與喜鵲各有不同的形態，時而滑翔、時而低飛，令人嘆為觀止。觀鳥原是我的個人興趣，它亦令我對航天工程有更多發現，兩者是一脈相通的。同樣，航天工程近乎完美的數式讓我再一次瞥見宇宙、科學與大自然之美。」

國際航天專家史教授小時候，與其他小朋友一樣問道：「鳥兒可以在天上飛翔，為何我們不能？」他七十年代在台灣清華大學唸電機工程時，在偶然機會下接觸航天工程：「我在圖書館找到最早期關於飛行與流體力學的權威書籍，旋即為其着迷。當時全球正陷入石油危機，我對研究風力發電機與尋找其他能源產生了濃厚興趣，這些經驗再次為我踏上航天工程的路做好預備。」

「人生的機遇是不可預知的，我們如果時刻保持好奇心與上進心，竭盡所能，就能夠把握機會。」史教授正正憑著求知、求進和樂於冒險的精神，克服學業及事業上各種挑戰。「年青人必須打開心扉及多作探索，勇於接受新事物，才能成長、蛻變成為更全面的人。學業成績固然重要，但它不是唯一的目標。四年大學生活是人生的黃金階段，大學生可享受成人的自由，卻未有成年人的責任，應好好享用各種資源，探索各個領域。」

在業界與學術界均有豐富經驗、成就跨越不同學科的史教授認為，科大的理學、工學、工商管理及人文社會科學學院能為學生提供廣度與深度兼備的學習機會，將來可以終身學習，令他們畢生受用。

科大最吸引史教授的，莫過於我們的教學與科研水平。「在美國多年，我每次到香港科大作學術交流，科大高質素的人才及美麗的校園都為我留下深刻的印象。科大從創校之始已經立志做到最好，在短短二十年間在多個學術領域取得卓越成績，及贏得國際讚譽。我能夠與高質素的師生合作，共同提升教研水平，感到榮幸。」

「作為一所年青有幹勁、規模不大但質素極高的大學，我們可以發揮短小精悍的長處；尤其面對三三四教育改革這個重要的契機，我們比其他大學有更大的靈活性去作不同的嘗試。另外，香港的教育十分國際化，我們具備優越的條件鼓勵中西教育界作雙向的學術交流，提供多元化的教育，培養學生的國際視野。」

史教授不但是享譽國際的科學家、學者與資深行政人員，更在美國獲得傑出教育家的獎譽。

「我來到科技大學，就是希望與大學所有成員一同努力，促進教學與科研，讓科大對香港及全球的教育作出貢獻。師生與教職員可以隨時與我聯絡，我必定會回覆你們的電郵。」

史教授與妻子育有四名子女，都已長大成人，分別是工程、電腦、經濟及文化評論各方面的專才，現居美國。史氏夫婦移居香港，最捨不得的是在美國共處十二年的小狗八哥，臨行那天還多帶她散步，說時不捨之情溢於言表，還展示手機上的狗兒照片。

「狗兒現由兒子飼養，我與妻子不時打聽她的情況，看看她可別來無恙。」至於觀鳥的嗜好，仍然會繼續。史教授說：「有機會的話，我希望與學生分享鳥類飛翔的奧秘、與攝影的竅門。」史教授身體力行，是全人教育的典範。

史維教授

史教授在臺灣清華大學取得理學士，24 歲赴美國密歇根大學 Ann Arbor 分校取得航天工程學的碩士及博士，畢業後在生產汽車以至家電的美國通用電器研發中心擔任研究科學家，1988 年正式踏上教學之路，歷任佛羅里達州大學航天工程、機械及工程科學學系主任，及機械及航天工程學系主任，以及母校密歇根大學 Ann Arbor 分校講座教授及航天工程學系系主任。他並先後帶領團隊成立由七所大學組成的未來太空運輸研究院，曾擔任美國密歇根大學／空軍研究實驗室／波音航天科學合作中心的首席研究員，其後更成為跨學科大學研究計劃的首席研究員。

＊鳥類照片由史維教授拍攝及提供

Thinking with their heads and hearts: engineering students design rehabilitation tools for the needy

"Engineering is often thought of as a discipline which is remote to everyday life. In actual fact however, it is meant to improve our well-being. To help engineering students understand the relevance of their field, I have encouraged them to design rehabilitation tools to help the needy, including elderly people with Alzheimer's and the visually impaired," said Prof Tim Woo from the Department of Electronics and Computer Engineering (ECE).

Prof Woo was referring to the more than 200 ECE students who have entered their rehabilitation tools and other tools in engineering design competitions. In the past few years, the students have won numerous awards locally and abroad.

"Some students found the experience so fruitful that they have decided to become professional designers of rehab tools upon graduation," said Prof Woo.

"There are plenty of high-tech IT products on the market, but there are not enough tools for the needy," said Chun-fai Cheng, whose outstanding academic performance has won him the Academic Achievement Medal. "It is a real pleasure to see the elderly benefit from rehab tools."

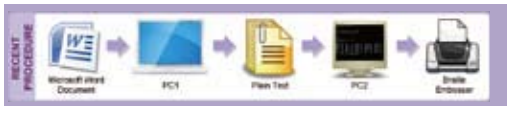
Digital photo frame aims to enhance cognitive power of the elderly
電子相架訓練長者的認知能力

Prof Tim Woo (5th from right) and students 胡錦添教授（右五）及得獎學生

Chun-fai Cheng, Vincent Cheng and John Wong (class of 2009) have answered their calling and become designers of rehab tools. "Before graduation, we decided to present a business proposal to a charity fund detailing our ideas for rehab tools for the elderly. To demonstrate our sincerity, each of us took a slightly different path to ensure a clear division of labor," said Vincent, who chose to spend the first year of his career life in a job which required him to learn about IT production lines on the Mainland. The other two strengthened industry and academic knowledge through their careers and further studies.

After nine months of hard work, the trio had convinced the charity fund to invest in their project. "We were able to endure the hard times because we believed that this was the right way to go. Initially I had doubts whether it was worth the time and effort to develop rehab tools. After discussions with the professors and rehabilitation workers, I learnt that for seniors with Alzheimer's and their family members, minor improvements or simply postponement of deterioration meant a lot. Once I realized this I started working with great determination towards my goal," said Vincent. While still students they designed the E-Cube, a rehab tool inspired by the Rubics Cube and meant to postpone Alzheimer's, and became the champion in the category of Elderly Support Devices in the Hong Kong Youth Technology Design Competition.

Another team consists of Patrick Lee, Matthew Ting and Siu-hung Kwan (class of 2010) who developed an affordable, easy-to-use Braille printer. "Commercial Braille printers cost close to HK$30,000, and most visually impaired people go to social service centers dedicated to them to get their printing done – which usually means a turnaround of seven days. They also require two computers – a Braille computer and a regular computer, in addition to a five-step process which includes turning word files into texts and then to Braille, to get the job done," said Patrick.



The award-winning Braille printer
獲獎的凸字打印機

用心呈獻——工程學生設計復康工具

"Our design simplified the five-step process into a three-step one requiring only one regular computer. Adopted from used dot-matrix printers or inkjet printers, our domestically-adopted printers use recycling concepts and bear a cost of merely HK$1,000." The design won Gold Award and Best Innovation Award at the Amway Pan-Pearl River Delta Region Universities IT Project, and the Merit Award in the 10th International Asia Pacific Information and Communications Technology Alliance (APICTA) Award.

Lance Lam (class of 2007) is another alumnus who has built a career in designing rehab tools. Upon graduation, he worked for an IT company and participated in the design of a rehab tool for dyslexic children. The tool is now a licensed product in the US.

Andy Chan, Gloria Kang and Kiki Chong (class of 2008) designed an Elderly Locator which is inspired by GPS. Elderly people can carry with them receivers of the Elderly Locator, which is meant to be installed in mobile phones as software when fully developed. Family members of the elderly people can identify the locations of the elderly via the phone and computer system anywhere in the world. The elderly can contact their family members by only a click of a button.

"The most crucial condition for designing rehab tools is not our engineering skills, but our hearts to serve the needy. Most of the tools are not technologically sophisticated – it is the ability to use technology to cater for the needs of the needy which means the most. It is also the missing link to be connected," said Prof Woo.

「在不少人的心目中，工程這門學科與生活似乎扯不上關係。然而工程學的本義，原是改善人類的生活。為了幫助工程學生明白他們所學的與生活息息相關，我特別與醫院及老人中心等機構聯繫，鼓勵學生利用自己的專長，針對老人癡呆症與視障人士的需要，設計適合他們使用的醫療輔助及復康工具，」電子及計算機工程學系胡錦添教授說。

胡教授所指的，是 200 多位曾經參加復康工具與其他工具設計、及參加有關比賽的學生。過去數年來，學生在本港及海外贏得的獎項不計其數。

「幫助別人的經驗為同學們帶來很大的滿足感；不少同學畢業後，都加入復康設計的專業，」胡教授說。

以優秀學業成績奪得學業成就獎的鄭振輝同學，就是其中之一。他表示：「市場上已經有許多尖端的科技產品，然而真正能夠幫助有需要人士解決困難的科技發明，卻少之又少。我們於是設計適合長者使用的工具；看著他們使用工具時流露快樂與滿足的神情，自己也感到特別高興。」

鄭振輝 、鄭錦添、黃振勇 2009 年同在科大取得工程學士，畢業前三人已決定一起走上復康工具設計之路。「我們決心要為長者設計復康工具，並向慈善基金遞交建議書，希望他們採納。為了證明我們的誠意，我們在畢業後的第一年兵分三路，各自吸取不同的知識，以便日後分工合作，」同學鄭錦添說。鄭錦添選擇在首年北上工作，從中了解內地科技生產線的運作、與新科技必經的技術孵化和產業化過程。其餘兩位則透過工作和修讀碩士吸收業界與研究經驗。

經過九個月的努力，「三劍俠」終於成功取得慈善基金的信任與財政上的支持。「我們能夠衝破重重困難，是因為我們確實知道這條路是對的。其實最初在科大接觸復康工具時，我曾經懷疑投入的時間與精力是否值得。後來與老師及復康工作者討論之後，方明白到只要能延緩老人痴呆症的病情惡化，或者帶來一點改善，對於患者與家人來說已是非常值得高興的事情。明白到這點以後，我就全力向目標進發，」鄭錦添表示。他們在學期間設計「電子幻方」，其靈感來自扭計骰，有助延緩老人癡呆症，奪得 2008-2009 年全港青少年科技設計比賽長者生活輔助器具設計組別冠軍。

另一隊同樣「有心」的組合，由同於 2010 年畢業的李君栢、丁健民與關兆洪組成，他們希望製作既容易使用又經濟實惠的凸字打印機。李君栢說：「公司製造的專用凸字打印機十分昂貴，每部需港幣三萬多元。大部分視障人仕都倚賴視障人士中心的服務進行打印，前後需時約一個星期；另外，其工序亦甚為複雜，需要兩台電腦，包括一台視障人仕電腦和一台普通電腦、以及五個步驟，方可將文件檔轉換成純文字檔案再轉換成凸字，完成打印。」

「我們的設計則將五個步驟簡化為三個，並且只需使用一台普通電腦。我們將舊式點陣式或噴墨打印機改裝及循環再用，只需一千元就可以製成凸字打印機。」這項設計奪得 2010 泛珠三角安利杯大學生計算機作品比賽金獎及最佳創新獎，並在馬來西亞舉行的第十屆國際亞太區資訊及通訊科技大獎 2010 最佳大專生項目中奪得優勝獎。

2007 年畢業的林智偉亦以設計復康工具為業，他加入科技公司擔任設計工程師，研製為有讀寫障礙的兒童而設的復康工具，幫助語言治療師進行治療工作，該工具已成為美國的註冊產品。

由陳浩霆、江麗欣及莊鳳琪（2008 年畢業）設計的「老友定位」設計意念源自全球定位系統（GPS），長者只需攜帶接收器外出，家人任何時候都可透過固網電話和主機讓知道長者身處的位置。「老友定位」可望發展成為內置於普通手提電話的軟件程式，長者的手提電話就可以具備全球定位及報平安的功能。

「設計復康工具最重要的是『有心』；從技術層面來說，大部分工具並不複雜；同學們卻需要細心為用者設想，找出其需要，加以配合。這個最欠缺的部份，需要由有心的工程同學去填補，」胡教授稱。

Something to chew over: the School of Science launches 'Gwing-gwing Meals'

What is the meaning of 'Gwing-gwing'? According to the latest fads, 'Gwing' is a trendy term used by young people. In ancient times, it meant 'brilliant' and 'white lucent'. HKUST's School of Science launched 'Gwing-gwing meals' which anticipates the bright future of our students. The meals are meant to foster friendly exchange between faculty members and students to strengthen mutual understanding, enhance campus life and meet the needs of our freshmen.

The meal has yet another goal – to foster the spirit of 'not to be served, but to serve'. The School encourages students to help needy communities and build a caring culture. One example is the trip our science students voluntarily organized to visit the victims of the Sichuan earthquake in 2008. In 2009, 40 professors and students embarked on a charity campaign for victims in Sichuan, where they inspired primary students and entertained them with science experiments.

"The Gwing-gwing meals this year will mainly target freshmen. Starting from the next academic year, senior students will give guidance to freshmen," said Prof Tai-kai Ng, Associate Dean of Science. Looking ahead, the School of Science will continue to encourage students to go to the Mainland or abroad for short-term teaching and social service trips.

Pastor Jerry Wong (left) and Wai-Pong Leung
黃克勤牧師（左）與梁煒邦同學

Menternship program

Apart from encouraging students to take part in community services, the School of Science has launched a Menternship program which brings together mentorship and internship. The School invited former government official, Ms Fanny Law, news anchor Mr Oscar Lee, Pastor Jerry Wong and other mentors from different walks of life to help widen the students' perspectives.

Prof Ng says, "Our menternship program is meant to ensure that students learn more and have a stronger sense of participation in the program."

From the mentors

Oscar Lee, news anchor and HKUST alumnus (MBA):

"I hope to share my experience of building a career and solving problems as I, too, was a science student when I was at HKU. When I became a journalist upon graduation, I had to overcome many problems. In the long run however, the exposure helped me grow personally and professionally."

Pastor Jerry Wong, Board Chairman of Happy Tree Social Services, founder of the House of the Rainbow Bridge Orphanage in Cambodia which is home to 95 orphans with AIDS, and caregiver to 400 orphans in Cambodia, China and India:

"I first worked with science students at HKUST when they visited the ghettos in Cambodia early this year. The students took their tasks seriously and responsibly. They had strong organizational skills and were always on time, which made an impression on me. Sharing our thoughts after the event, I learned that science students at HKUST, just like other students, had the passion to serve and to empathize with those having difficult times."

Service trip to Cambodia 柬埔寨之旅

Student sharing

Wai-pong Leung (Chemistry):

"Together with four other mentees, I was invited by my mentor Ms Law for a meal at her home. We chatted for eight long hours about ourselves and our views on current affairs. Later, Ms Fanny Law invited us to attend a youth seminar and a sharing session by King-wai Cheung, the director of the documentary 'KJ'. She explored with us the possibilities of having internships at NGOs and teaching positions in poverty-stricken areas."

"In addition, I joined the team to volunteer and teach children inflicted with AIDS in Cambodia. I was a little scared at first, but the fear quickly vanished as I met the lovely children. I really miss them and their genuine laughter. Despite the fact that they had AIDS and were deserted by their own parents, I witnessed the most beautiful human nature in them. In Hong Kong, we enjoy material pleasures with iPHONE and WiFi but we also have endless competition. It's only when we do away with the Internet and our hectic lifestyles that we can truly appreciate simple joy. I was immensely touched by Pastor Wong who founded the orphanage so that the orphans could pass away with dignity."

Another student says, "We now have a better understanding about the local community and agricultural production. The activities helped raise our concern for grassroots families."

理學院開設「冏冏飯局」

「冏冏飯局」，何解？「冏」字為現時年青人的潮語，古字解作「光明」、「皓白」。科大理學院特別為學生舉辦「冏冏飯局」，寓意同學們前途光明。學院的教職員與學生共膳聊天，在互動的環境中了解同學們的需要及挑戰，幫助他們投入校園生活。

飯局的另一目標是發揮「非以役人、乃役於人」的精神，鼓勵學生扶助弱勢社群，建立關懷文化。四川地震後，學生自發前往探訪災民；去年，他們更在學院的支持下舉辦四川地震災區助學行，40 多位師生到該省小學義務教學，以有趣的實驗及活動教學培養小學生的科學精神。

理學院副院長吳大琪教授說：「今年冏冏飯局主要以新生為對象，由下個學年起，高年級的同學將參與帶領新生，讓整個學院的師生一同參與。」展望未來，理學院將繼續支持學生前往國內及海外有需要的地區，進行短期義教及社會服務工作。

伯樂計劃

除了鼓勵同學參與社會服務外，理學院更透過集職業輔導與實習於一身的伯樂計劃，幫助同學認清自己個人及發展事業的方向。學院邀得前政府官員羅范椒芬女士、新聞主播李臻先生、黃克勤牧師等來自多個界別的人士擔任伯樂導師，擴闊同學的眼界。

理學院副院長吳大琪教授說：「理學院的伯樂計劃讓學生參與實習，更有伯樂導師帶領，為學生提供更佳學習機會及提高參與感。」

導師的話

李臻

（新聞主播、科大工商管理碩士）：

「我以前是港大理學院的學生，畢業後從事新聞工作，開始時面對不少困難，卻可以增加見聞，長遠來說對個人成長及發展都有很大幫助。因此，我希望向理學生分享自己擇業的經歷，以及解決問題的方法。」

黃克勤牧師

（開心樹社會服務公司的主席，在柬埔寨開設「彩虹橋」愛滋病孤兒院收容 95 名孤兒；在柬埔寨、中國、印度養育 400 名孤兒）：

「今年初科大理科學生到柬埔寨探訪貧民區，我首次與同學接觸。科大同學們做事認真、組織能力高、有責任感、而且守時，令我留下深刻印象。大家在活動之後分享感受，我發覺理科學生與其他學生一樣熱情及有心，能夠感受到別人的難處，並從中得到個人成長。」

Kick-off ceremony of the Menternship Program
伯樂計劃啟動儀式

HKUST students play games with children
科大同學指導兒童玩「二人三足」

同學分享

梁煒邦同學

（化學系）：

「我的伯樂是羅范椒芬女士，她招待我們五位學生到她家裡吃飯，一談就是八個小時，從互相介紹到對時事的看法等，各抒己見。之後她再邀請我們參加兩岸三地青年研討會，及與紀實電影《音樂人生》導演張經緯分享經歷。羅太並與我們一同探索到非牟利機構及貧困地區作義務教學等機會。」

「我到柬埔寨義務教導愛滋病童，本來也有點怕，可是這些小孩子實在太天真爛漫了，他們真摯的笑容令我們很想再回去。他們雖然身患頑疾、又遭父母遺棄，我卻在他們的快樂與善良中，看到世界上最美好的。在香港，我們雖然有 iPHONE 與 WiFi，卻老是在競爭。當我不帶備電腦，暫時拋開香港的生活、感受一下，我才明白到簡單的快樂。黃牧師說，在當地開設愛滋病孤兒院是為了讓病童能夠有尊嚴地死去，令我覺得很感動。」

「透過活動，我們進一步認識當地的社會環境、農村生產方式、基層人民的生活，並培養對弱勢社群的關懷，」參加活動的同學說。

HKUST entrepreneur becomes leading LED chip developer

"Science and technology can change the world!" This is the motto of Dr David Guo-wei Xiao, an HKUST alumnus who started his own business with the support of HKUST's Entrepreneurship Program seven years ago. His business in LED chips has now become a leader in Hong Kong and Mainland China.

Dr Xiao graduated from HKUST with a PhD in Electrical and Electronic Engineering in 2002. A year later, he co-founded Advanced Photoelectronic Technology Ltd (APT). There were only two staff members in the beginning, and the start-up made use of the offices and equipment at HKUST's Entrepreneurship Center. "With its culture of entrepreneurship, HKUST provides plenty of resources to faculty members, students and alumni to found their own companies. Its Entrepreneurship Program, Entrepreneurship Center and incubators prepared us for a smooth transition from academic and research and development (R&D) to industrialized enterprises. This enabled us to develop our seedling technologies to achieve mass production."

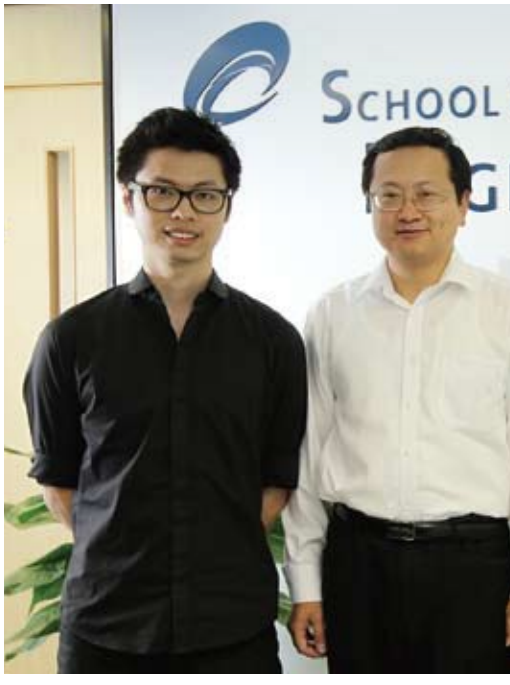
Dr Xiao who was originally from Xian, China said, "I was accepted into the PhD programs of both HKUST and Osaka University in Japan. Since HKUST has outstanding performance in the study of semiconductors, I decided to join HKUST and engage in LED studies. When I graduated from UST in 2002, I was given permanent entry and work permits from Singapore. Nevertheless, I chose to settle down in Hong Kong with my wife, also a PhD graduate from HKUST, and my son through the Quality Migrant Admission Scheme. Among us, the first group of quality migrants, was the pianist Li Yundi!" "There are plenty of talents, resources, funding and a sound system in Hong Kong. This is a good place for developing IT, Dr Xiao added."

APT was founded in 2003. During the most difficult times, the founding management volunteered to work without pay for two months. They were able to raise HK$5 million to launch the company. The company expanded by setting up an assembly line in Nansha, Guangzhou. Today, it has attracted HK$400 million in investments from overseas and the Greater China Area. It is currently expanding its 35,000 sq m factory space and production line in Nansha. With sound knowledge of investment and the market, they continue to invest 80% of their capital on R&D to ensure development of cutting-edge technology.

The LED chips produced by APT can be widely used for indoor illumination and as a light source for LED televisions. As China becomes increasingly environmentally-conscious, eco-friendly LED chips are becoming popular. Chips developed by APT are sought after as they boast qualities comparable to those from Europe and US, but cost 20% less. According to Dr Xiao, they have filled the gap regarding LED high-efficiency and high-illumination chips produced by China. The company has achieved a sales volume of US$15 million and it currently owns 10 patents in China and the US.

APT's team in its first few years was mainly made up of HKUST alumni. Yin-hing Lai, Associate Manager of LED Chip Development, obtained his Bachelor's and Master's degrees at HKUST. Entering the University in 1998, he was introduced by his supervisor Prof Kei-may Lau to Dr Xiao who was then a faculty member. He then joined APT after finishing his Master's thesis on LED chips in 2004. "Having developed the prototype of my LED chip upon graduation, I was eager to have it launched in the market. When APT's assembly line produced the chip in Tai Po in 2006, I experienced the satisfaction of witnessing my 'baby' being born," said Lai who has become a father himself.

Mr Chi-wing Keung, R&D project supervisor, who also spent his undergraduate and postgraduate years at HKUST and was supervised by Prof Kei-may Lau, said, "Traditional light bulbs will be eradicated from the market in a few years, whereas LED lighting and energy-saving lamps will take their place. LED lightings have the advantage of being bright. As long as their costs go down,



校友創業七年成為LED芯片龍頭

they will become popular indoor illuminating devices with energy-saving qualities." In its exploration of new technologies to lower the costs of LED chips, APT has a specific goal to achieve—wherever there is light, there is LED.

Dr Chen Haiying, Director of LED Application Development Department, is also an alumnus of HKUST. Her PhD supervisor at HKUST was Prof Hoi-sing Kwok, a Fellow of IEEE.

The company has re-invested most of its revenues in R&D to enhance competitiveness. Dr Xiao said, "What was high-tech six months ago will become low-tech in half a year." Clearly the company and our alumni share the University's spirit of innovation and pursuit of excellence.

「科技可以改變社會！」科大校友蕭國偉博士憑著這個信念，在科大創業計劃的支持下創立 APT 微晶先進光電科技有限公司，經過七年的奮鬥，其 LED 晶片業務已成為中港兩地的龍頭公司。

蕭國偉 2002 年於科大取得電機及電子工程學博士，翌年在科大「創業計劃」的支持下創辦微晶先進光電科技。初時公司只有兩名員工，在科大創業中心設立辦公室、借用儀器。他說：「科大有創業的文化，為師生及校友提供許多資源，幫助他們創業。學校的『創業計劃』、『創業中心』及有關創業孵化中心幫助我們從搞學術與科研順利過渡到開創產業，將雛型的種子技術加以發展，再進行規模化、工業化的大量生產。」

來自西安的蕭國偉表示：「我 1998 年申請攻讀博士，獲香港科大和日本大阪大學取錄；由於科大在半導體研究表現突出，我就決定來科大，從事半導體技術研究。我 2002 年在科大畢業時，新加坡給我終生出入境與工作簽證；我卻再次選擇了香港，與同於科大博士畢業的太太以及兒子在香港定居，成為第一批來港的優才，與鋼琴家李雲迪同期！」他又說：「香港有人才、完善的制度與資金，因此在這裡發展高科技是非常有作為的。」

2003 年，微晶在香港成立。在最艱難的時期，創始管理人員不但兩個月自願不獲發薪水，還四出籌措經費，終於籌得 500 萬港元作為起動費。公司 2006 年在廣東南沙設立生產線，現投資者來自海外及兩岸三地，投資額超過四億港元，目前在廣東南沙擴建 3 萬 5 千平方米的廠房和生產線。他們有獨到的投資眼光及對市場有透徹的了解，並投入八成資金作為研究發展之用，保證發展的技術走在時代尖端。

微晶研製的 LED 芯片可廣泛應用於室內照明及 LED 電視。隨著內地推動環保，符合環保原則的 LED 芯片越受歡迎。微晶研製的晶片價錢比歐美產品低兩成，從而打開龐大的市場，按蕭博士自己的說法是「填補了內地在大功率高亮度 LED 芯片生產上的空白」。公司今年的銷售額達 1,500 萬美元，現於中美擁有十多項專利。

微晶最初的團隊以科大校友為骨幹，開發部副經理賴燃興是科大從本科到碩士一手培養的專才。賴校友 1998 年入讀科大一年級，在碩士導師劉紀美教授的引薦下認識在科大任職的蕭博士，2004 年完成有關 LED 芯片的碩士畢業論文後就加入微晶。「畢業時我的研究已經有了雛型；2006 年在微晶大埔的生產線看到研究項目能夠投產，就像看著孩子出生一樣，很有滿足感，」已為人父的賴校友表示。

同於科大取得工程學士及碩士、劉紀美教授的另一得意門生、現職芯片開發部項目主管的姜志榮表示：「傳統的電燈膽將於未來幾年被淘汰，代之而起的是符合環保原則的 LED 燈與慳電膽；其中以 LED 燈質量更好，只要能降低成本，必定能成為廣受歡迎的節能室內照明工具。」微晶將繼續研發降低成本的方法，他們有明確的目標——有光的地方，就有 LED。

應用發展總監陳海英博士亦是科技大學的校友，其博士導師為獲電機及電子工程師學會選為院士的郭海成教授。

蕭博士稱，公司將大部分收入投入產品研究，以增加競爭力：「否則半年前的高新科技，半年後已變成低科技。」蕭博士及其公司與其他校友正積極發揮科大精神，力求創新及不斷進步。

(From left) Yin-hing Lai, Dr David Xiao, Chi-wing Keung, Dr Chen Haiying
（左起）賴燃興、蕭國偉博士、姜志榮及陳海英博士

Groundbreaking discovery in DNA nano-structure — good news for modern medicine
DNA納米結構的突破性發現

Experts in chemical and biomolecular engineering at HKUST and the Arizona State University have successfully constructed a DNA tetrahedron which will facilitate mass production of medical drug delivery vehicles and reduce production costs.

The ground-breaking study has been published in the leading journal in the field, the *Journal of American Chemical Society*.

"Whereas scientists are able to construct 2D DNA structures, 3D DNA structures have been a dream until recently," said Dr Bryan Diming Wei, who obtained his PhD at HKUST's Department of Chemical and Biomolecular Engineering in 2009 and became the University's Research Associate before assuming his current role as a Research Fellow at Harvard Medical School.

The joint efforts of the two universities resulted in a DNA tetrahedron folded from one single stranded DNA (ssDNA) molecule. This is believed to be the first example of a discrete single-stranded 3D DNA nanostructure constructed by experiments.

Most DNA nanotechnology structures are built with multiple strands rather than single strand, meaning that they are made up of more than one strand. This complex structure makes it difficult and costly for scientists to assemble, amplify and replicate DNA for purposes such as the mass production of medical drugs.

This latest breakthrough however, involves using nanotechnology and biochemical means in laboratories to artificially synthesize single-stranded DNA which does not necessarily exist in nature, and then 'folding' or 'weaving' it into a 3D tetrahedron. The resulting structure can be easily assembled to lead to better self-assembly yield. It can also be amplified easily to facilitate production of medical drug delivery vehicles in large quantities.

"This is a reliable method that can be used for design and replication of other types of single-strand, 3D DNA nanostructures of considerable complexity," said Prof Mi Yongli in the Department of Chemical and Biomolecular Engineering at HKUST.

科大與美國亞利桑那州立大學的化學工程與生物分子工程學者成功建構 DNA（脫氧核糖核酸）多面體，有助以更簡易及便宜的方法大量製造藥物載體。

這項突破性的研究獲《美國化學學會期刊》刊登，該期刊是業內獲引述最多的刊物之一。

「科學家早已可以建構二維的 DNA 結構，然而建構三維的 DNA 在不久以前還只是夢想。」2009 年在科大化學工程與生物分子工程學系取得博士學位、之後在科大任職副研究員、現職哈佛醫學院研究員的魏迪明博士表示。

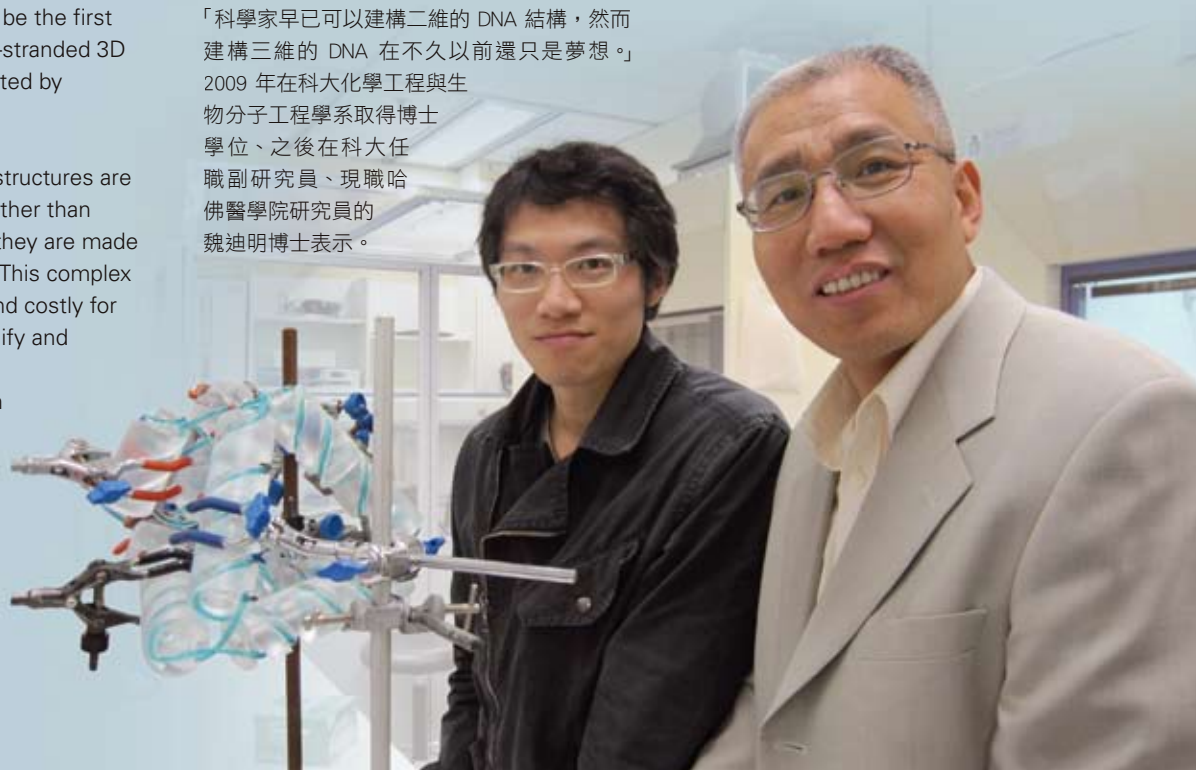
兩家大學合作的結果，是成功將單鏈 DNA 摺疊扭曲成 DNA 多面體，這個 DNA 多面體被認為是首個透過實驗取得、由單鏈 DNA 建構的三維 DNA 納米結構。

大部分 DNA 納米技術結構是由多鏈、而不是由單鏈組成。這個由多鏈組成的複雜結構，令科學家難以將 DNA 組合起來、擴大及複製，以大量製作醫藥；另外，製作成本亦十分昂貴。

科大與美國亞利桑那州立大學的最新發明，則運用納米科技，人工製造單鏈 DNA；這種單鏈 DNA 並不直接來自自然界，而需要在實驗室裡透過生物化學的方法製造。之後，單鏈 DNA 將被摺疊及編織成為三維 DNA。完成後的結構，很容易就可以組合起來，令 DNA 自行組合時可以取得更佳產率。另外，科學家很容易就可以將它擴大，從而大量製作藥物。

科大化學工程與生物分子工程學系的弭永利教授稱：「這個方法十分可靠，可用以製作及複製其他複雜的單鏈三維 DNA 納米結構。」

Dr Bryan Wei (left) and Prof Mi Yongli
魏迪明博士（左）及弭永利教授



HKUST welcomes new Court and Council Members
科大歡迎新任顧問委員會及校董會成員

President Tony F Chan welcomed new Court and Council members with a luncheon and led them to tour around the campus, visiting the Biotechnology Research Institute, the Institute of Nanomaterials and Nanotechnology, and the CLP Power Wind / Wave Tunnel Facility (WWTF), one of the Central Research Facilities at HKUST. Members who were present included Mr Oscar Chow Vee-Tsung, Ms Katherine Hung Siu Lin, Mr Colin Lo Chor-Cheong, Mrs Noelle Lu, Mr David Fong Man-Hung, Mrs Yvette Yeh Fung, The Hon Starry Lee Wai-King and Dr Ronald Lu. They were accompanied by President Chan and Mr Hans Michael Jebsen, a member of the Council.

科大校長陳繁昌教授設宴歡迎新一屆顧問委員會及校董會成員到訪科大，並安排成員在校園遊覽，參觀生物技術研究所、納米材料技術研發所及中電風洞實驗所等。到訪的成員包括周維正先生、洪小蓮女士、盧楚鏘先生、呂郭曉妍女士、方文雄先生、馮葉儀皓女士、李慧琼議員及呂元祥博士，他們在校長與顧問委員捷成漢先生陪同下遊覽校園。

35 staff members given Long Service Award
35位員工獲頒科大長期服務獎

HKUST presented the Long Service Award to staff members to recognize their 20 years of dedicated service. They were pioneers of the university when it officially opened its doors to students 19 years ago.

科大今年透過「長期服務獎」嘉許服務大學 20 年或以上的同事。今年共有 35 位職員獲得新設的長期服務獎，他們都是科大的開荒牛，曾負責籌備大學 19 年前的創校事宜。

Knowledge Transfer at HKUST

For the 2009-2012 triennium, the University Grants Committee (UGC) has allocated earmarked funding to all Hong Kong tertiary institutions to support their Knowledge Transfer (KT) initiative. The UGC sees KT as an important function of universities which significantly affects the international competitiveness of the local higher education sector. HKUST has put forward a forward-looking, innovative, comprehensive, and sustainable institutional KT strategy which makes it the ONLY University to receive a '20% enhanced weight' for the 2009/10 UGC earmarked KT funding of HK$7.37 million. For details of our KT initiatives, please visit http://www.vprg.ust.hk/kt.html.

科大的知識轉移

在 2009 年至 2012 年的三年內，大學教育資助委員會（教資會）已預留撥款予香港高等學府以支持它們的知識轉移計劃。教資會認為知識轉移對本地高等學府的全球競爭力有重要作用。科大提交具前瞻性、創新、全面且可持續的機構性知識轉移策略，使科大成為唯一在 2009/10 年度教資會知識轉移撥款中額外獲得 20% 增撥款項的高等學府。科大在 2009/10 年度獲款總額為 737 萬港元。欲知有關詳情，請瀏覽 http://www.vprg.ust.hk/kt.html.

Obituary

We record with great sadness the passing of two valued members of the HKUST faculty – Prof Ho-Chi Huang, of the Department of Electronic and Computer Engineering, and Prof Derick Wood, Professor Emeritus in the Department of Computer Science and Engineering.

Prof Huang joined HKUST in 1991 as a founding faculty member. A man of integrity, creativity and dedication, he spent over a decade developing the Liquid Crystal on Silicon technology which has now been successfully transferred to industry.

Prof Wood joined HKUST in 1995, and had served his department with great dedication. He was Acting Head of Department for the academic year 2001 to 2002, and was promoted to Chair Professor shortly before his retirement in 2006.

哀悼

科大師生同仁沉痛哀悼兩位不幸辭世的教授。他們分別是電子及計算機工程學系的黃河楫教授及計算機科學及工程學系榮休教授伍德瑞教授。

黃教授於 1991 年加入科大，是創系功臣。他正直堅毅，勇於創新，有使命感。經過十多年的努力，他成功研發 LCOS 技術，該項技術現已轉移至工業界。

伍德瑞教授於 1995 年加入科大，對部門和大學建樹良多。在 2001 至 2002 學年，他擔任署理系主任。2006 年，他獲晉升為講座教授，並於同年榮休。

HKUST community goes green

It's not just hip to be green. It's sustainable too. As the first local university to establish the Institute for the Environment in 1997, and having launched the Division of Environment earlier this year, HKUST is an ardent supporter of green and sustainable initiatives. Our green programs involve all members of the University community, and you are cordially invited to join us!

In September, we turned ocean garbage into an art exhibition entitled 'Inside the Plastic Vortex'. Seen from above, the exhibit takes the form of the Pacific Rim, featuring the Chinese and North American coastlines. A closer look reveals an exhibit composed primarily of ocean garbage including discarded plastic bottles, fishing nets and foam materials which take the form of a three-dimensional map of the Pacific Rim.

The exhibit was co-organized by HKUST's Division of Environment and Institute for the Environment and funded by the ocean clean-up group Project Kaisei. A group of 15 HKUST local and international students took part in the project by collecting garbage from four remote local beaches. Then they helped create the exhibit in the campus car park under the guidance of Mr Sebastian Pascot, a French artist stationed in Hong Kong.

"This has been a memorable experience. The process of collecting plastic garbage sharpened my alertness to the seriousness of ocean pollution. In the future I will do my best to protect the environment," said a student.

Our sustainability efforts have received a further boost with recognition from the government. HKUST has been presented with a Special Grand Award for Cooperative Partnership by the Environmental Protection Department, under its Source Separation of Commercial and Industrial Waste Scheme. We are one of only three institutions in Hong Kong to win this award. We have also been recognized for our performance in waste management. Last year, we collected over 131,000 kg of waste paper, over 3,700 kg of plastic bottles and over 14,000 printer cartridges.

As a research university, HKUST has been working with other key players including non-governmental organizations (NGOs) to spearhead sustainability efforts on the research front. Together with the Climate Group, an international NGO, we launched an LED outdoor lighting pilot program entitled 'LightSavers' on our beautiful seafront.

The pilot test will see Hong Kong team up with 10 other international cities including New York, London and Kolkata as part of the Climate Group's global initiative. The program will assess the potential of LEDs and smart controls to curb greenhouse gas emission and cut energy costs, while making cities brighter and safer at night. Compared with traditional lighting, LED lighting is expected to reduce energy-use by 50% to 70% when paired with smart controls. HKUST is one of the three sites being chosen, and results will be announced next Spring.

Earlier this year, we organized the HKUST Environment Week which was kicked off by President Tony Chan and former Police Commissioner Dick Lee demonstrating low carbon emission cooking.

Our students-in-residence were actively involved in HKUST's first ever Eco-Olympics, which promoted a green lifestyle through an inter-hall competition. Jointly organized by the Institute for the Environment and the HKUST Hang Seng Bank Green Ambassador Program, the friendly competition featured participation in Earth Hour 2010 and HKUST's

Students participate in the HKUST Hang Seng Bank Green Ambassador Program
學生參與科大恆生銀行環保大使計劃

Prof Joseph Kwan (left) and Manager Dr Chi-Moon Li (right), and Vice-President for Administration and Business Prof Yuk-Shan Wong (middle) attend the award presentation ceremony for the Source Separation of Commercial and Industrial Waste Scheme by the Environmental Protection Department
關繼祖教授（左）、李志滿博士（右）及黃玉山副校長出席環保署廢物源頭分類計劃頒獎儀式

The exhibit takes the form of a three-dimensional map of the Pacific Rim, displaying the Chinese coastline on one side, and the North American coastline on the other.
從高處下望，太平洋立體模型上中國及北美洲的海岸線清晰可見 。

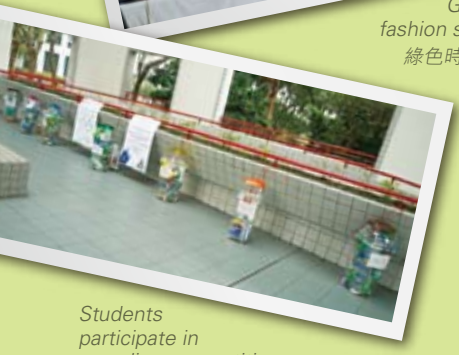
科大擁抱綠色生活

Environment Week, reduction of electricity consumption, recycling, and a competition on green pledges.

The inter-hall competition yielded positive results. Over 600 hall residents joined the HKUST Sustainability Facebook group and took a pledge to adopt a green lifestyle. Over 7,000 cans and plastic bottles were collected, and over $16,000 in electricity costs was saved through reduced consumption.

At HKUST, our lifestyle is green. We will continue to involve all members of the University community and members of the public as we embrace green initiatives. For more, please visit http://green.ust.hk.

Green fashion show
綠色時裝展



Students participate in recycling competitions
宿生比賽收集循環再造的鋁罐和膠瓶

綠色不但是潮流所趨，更是長期持續的趨勢。科大是本港首家設立環境研究所(1997年)的大學，今年年初更成立環境學部；環境保護與可持續發展一向是科大大力支持的項目。我們誠意邀請您，與科大一同加入綠色行列！

今年九月，我們展出名為「塑膠旋渦的困局」大型藝術品一從高處下望，這個立體模型彷彿是太平洋的兩岸，中國與北美洲的輪廓清晰可見；再往近處一看，原來是由被棄置的膠瓶、魚網和發泡膠組成的太平洋立體模型。

展覽由科大環境學部和環境研究所合辦，得到海洋保育組織海星項目的資助。15 名科大本地及海外學生積極參與創作，他們到本港四個較偏遠的海灘執拾廢物，並在科大停車場將廢物重新整合，在駐港法藉藝術家 Sebastian Pascot 先生的指導下完成別具特色、發人深省的環保藝術品。

參與製作的學生說：「這是個畢生難忘的經歷，在收集廢物的過程中，我深深體會到海洋污染的嚴重性。以後，我定會為保護地球環境做好本份。」

科大的可持續發展活動得到認同，我們獲環保署頒發「合作伙伴特大獎」特別獎項，成為獲「廢物源頭分類計劃」獎勵活動嘉許的三家機構之一。科大在廢物管理方面表現卓越，去年回收了超過 131,000 公斤廢紙、超過 3,700 公斤膠樽以及 14,000 多個印表機油墨筒。

強調研究的科大更與其他關注環保的團體合作，促進可持續發展。我們與非政府機構「氣候組織」合辦 LightSavers 試驗計劃，於科大美麗的海旁啟動節能項目。

LightSavers 試驗計劃在全球十多個城市進行，包括香港、紐約、倫敦及加爾各答。它的目的是評估 LED 及智能照明系統在減低二氧化碳排放及節約能源方面的效果，以及在改善道路照明及安全的成效。預計同時使用 LED 及智能照明系統，可節省 50 至 70% 的用電量。科大獲選為全港三個試驗地點之一，結果將於明春公布。

較早前我們舉辦科大環保周，由陳繁昌校長與前警務處長李明逵親自烹調示範低碳排放煮食。

Former Police Commissioner Dick Lee and HKUST President Tony Chan demonstrate low carbon emission cooking at HKUST's Environment Week
前警務處長李明逵和科大陳繁昌校長在科大環保周親自烹調低碳排放的美食

今年春季，科大學生亦承諾奉行環保原則。科大的環境研究所及科大恆生銀行環保大使計劃聯合舉辦舉行首屆環保奧運會，透過舍際比賽推廣綠色生活。奧運會包含數個主要元素，包括參與 2010 年 Earth Hour 及科大環保周、省電行動、收集循環再造的鋁罐和膠瓶、及透過啟動 Facebook 群組鼓勵宿生作出綠色承諾。

環保奧運會取得成績，600 多位宿生在 HKUST Sustainability Facebook 群組作出承諾、遵行綠色生活方式。我們共收集了 7,000 多個鋁罐和膠瓶進行循環再造，並合共節省了 16,000 元的電力。

科大擁抱環保生活，我們將繼續鼓勵大學每一個成員、及社會人士加入我們的綠色行動。欲知更多消息，請瀏覽 http://green.ust.hk 。

Nobel Laureate visits Institute for Advanced Study at HKUST
諾貝爾獎得主再訪科大高研院

The Mechanism Design Theory, referred to by some as the Reverse Game Theory, has a strong influence on economics, political science and law. Prof Eric Maskin, 2007 Nobel Laureate in Economics, awarded for his contributions to mechanism design theory, and professor at the Institute for Advanced Study (Princeton, New Jersey), visited HKUST to share insights on mechanism design theory and its contribution to social and economic lives.

As a visiting member of HKUST's Institute for Advanced Study, Prof Maskin spoke to the university community about elections and strategic voting, and bilateral contracts. He pointed out that the mechanism design theory could be applied to economic and social policies such as helping members of the Copenhagen Climate Summit arrive at a consensus about carbon reduction when rich countries showed reluctance to sacrifice their interests to compensate poorer ones.

被稱為「逆向博奕論」的「機制設計理論」對經濟學、政治學及法律研究有深遠的影響。2007 年憑著機制設計理論成為諾貝爾經濟學獎得主的普林斯頓高等研究院教授馬斯金早前再訪科大，與師生分享其理論在社會民生與經濟上的應用。

現為科大高等研究院訪問教授的馬斯金教授在科大的研討會上就選舉與策略性投票、及雙邊合約與師生進行討論。他表示其理論可以應用於經濟社會政策，譬如哥本哈根氣候會議未能就減低碳排放取得共識，是因為富裕國家不願意放棄自身利益及向貧窮國家賠償，造成僵局；講究公平與理想效果的機制設計理論可大派用場。

Prof Maskin visits the University on a regular basis to meet with HKUST faculty and students. He also meets with secondary school students at the University
馬斯金教授定期訪問科大與師生，並在科大與中學生分享意見

Walking in space: NASA astronaut talks about space missions
美國太空人暢談太空漫遊

Ever wondered what it's like to embark on a space walk? Commander Christopher Cassidy, an astronaut with the US National Aeronautics and Space Administration (NASA), shared his experience and his photographs with an audience of more than 300 people at the University's Distinguished Lecture recently.

"Watching the sunrise and sunset, enjoying the view of the horizon and reflections of the sun on the sea from space is simply fascinating. It helps us realize that we are just a small part of a small planet in the huge universe," said Commander Cassidy who has performed three space walks totaling over 18 hours since 2009.

Commander Cassidy has gained a BS in Mathematics and an MS in Ocean Engineering before being selected by NASA for training to become an astronaut. He said, "The greatest challenge associated with the space mission is to meet tight timelines and to accomplish the missions with accuracy and promptness."

在星空裡漫遊，究竟有多令人神往？美國太空總署的太空人卡西迪早前特地到科大主持傑出講座，向師生講述精彩刺激的太空旅程；在場三百多位觀眾沉醉於卡西迪精彩的講解、與引人入勝的太空照片之中。

「在太空觀看日出日落、水平線的美麗景色、及太陽照在海面上的景緻，實在令人讚嘆。這個經驗讓我深深地感受到，我們只是浩瀚的宇宙裡一個小行星上最微小的部分。」卡西迪中校自 2009 年起曾參加三次共超過 18 個小時的太空漫步。

卡西迪先後於美國獲得理學士及海洋工程學碩士，隨後獲美國太空總署挑選參加培訓成為太空人。他表示：「執行太空任務最大的挑戰是與時間競賽，我們必須快而準地完成任務。」

Chinese Academy of Engineering President Xu Kuangdi speaks at HKUST
中國工程院院長徐匡迪教授在科大演講

Prof Xu Kuangdi, President of the Chinese Academy of Engineering and former Mayor of Shanghai, gave a Distinguished Lecture at HKUST on Addressing Climate Change: Developing a Low-Carbon Economy in China.

Prof Xu said China should develop renewable energy. Architectural designs should be improved and smart technologies should be developed. China should commit to carbon reduction and people should also adopt low-carbon and energy-saving lifestyles, he said. He pointed out that China is in a period of rapid growth which has resulted in high carbon emission. On the other hand, China's average per capita emission is still significantly lower than that of other developed countries.

A renowned expert in metallurgy, Prof Xu became a Fellow of the Chinese Academy of Engineering in 1995 and its President in 2002. His talk at HKUST attracted a full-house including the Secretary for Environment the Hon Edward Yau.

曾任上海市市長的中國工程院院長徐匡迪教授，應科大高等研究院的邀請主持傑出學人講座，講解「轉變經濟發展方式，建設低碳社會」的契機。

徐教授認為，中國要建設低碳社會就必須發展再生能源、改良建築設計及發展智能技術。人們要培養低碳節能的生活方式，讓中國承擔減排的責任。中國現正處於高速發展期，二氧化碳排放較多。然而，中國的人均排放量仍然遠低於發達國家。

徐匡迪教授為鋼鐵冶金專家，1995 年當選為中國工程院院士，2002 年任中國工程院院長。徐教授在科大舉行的講座座無虛席，環境局邱騰華局長亦專程出席。

Men need to go "Back to Classics, Back to Nature", says leading artist and scholar
國畫大師范曾提倡「返回古典，返回自然」

"Men need to return to the classics and to nature: this has been the gist of Asian and Western philosophies in the past five centuries," according to Prof Fan Zeng, one of the most influential artists and scholars in Chinese painting and studies. Delivering HKUST's Distinguished Lecture on "Back to Classics, Back to Nature," he elaborated on authenticity, benevolence and aesthetics— the quintessential qualities of art, literature and philosophy.

Prof Fan said that in the post-industrialized world, men have become arrogant. Materialism manipulates people and men have veered further and further from the state of Utopia. Human beings need to integrate with the divine and preserve a state of being of harmony with Nature, he said. They should also respect and revere nature and abide to natural laws. Prof Fan has taught at the China Art Academy, Nankai University, Renmin University and other institutions.

Prof Liu Zaifu, a renowned writer and scholar and former Head of the Academy of Chinese Literature, also spoke at the lecture. "We should return to and embrace the beauty of the universe, where men were innocent and uncalculating. We should be people-oriented and return to our superior human nature."

「人類要回歸古典、回歸自然，這是過去五百年來東西哲學思想最簡約的概括。」被喻為全球最具影響力的國畫及國學大師范曾教授以「返回古典，返回自然」為題，在科大傑出學人講座探討藝術、文學及哲學的真、善、美。

范教授說，在後工業化時代人類妄自尊大；物質主義操控人類，令人類距離講信修睦的大同世界越來越遠。人類要返回中國哲人強調天人合一的境界，要敬畏大自然及順從宇宙規律。范教授先後於中國藝術研究院、南開大學、及人民大學等學府任教。

著名文學家及曾任中國文學研究所所長的劉再復教授稱：「我們要回歸宇宙之美，回到單純而沒有計算的狀態、以人為本，讓優秀的人性復歸。」

Prof Fan Zeng 范曾教授

Prof Liu Zaifu 劉再復教授

Prof Shing-Tung Yau talks about the history of mathematics education
丘成桐教授從歷史角度分析數學教育

Fields Medalist and one of the world's most influential mathematicians, Prof Shing-Tung Yau, was invited by our Institute for Advanced Study to speak at the Distinguished Lecture and Discussion Forum. The Forum, entitled 'A Comparative Study on the Training of Talents in Mathematics in China and Japan from 1868 (the Meiji Restoration in Japan) to the Second World War', was moderated by President Tony Chan who is also a mathematician.

Currently the William Casper Graustein Professor of Mathematics at Harvard University, Prof Yau compared the ways mathematical talent was nurtured during different periods in history. Whereas there were many outstanding mathematicians in Europe in the 18th and 19th centuries, in the East the field of mathematics was extraordinarily quiet during the same period. Towards the end of the 19th century, mathematics in China lagged behind Japan which had undergone the Meiji reforms. His historical analysis shed light on education and research in science and mathematics in the world today.

Prof Shing-Tung Yau (right) and President Tony Chan
丘成桐教授(右)與陳繁昌校長

最具影響力的數學家之一、菲爾茲獎得主丘成桐教授應科大高等研究院之邀，在科大傑出學人講座及公開論壇中主講。論壇以「從清末與日本明治維新到二次大戰前後數學人才培養之比較」為題，由數學家、科大校長陳繁昌教授主持。

丘教授現任哈佛大學 William Casper Graustein 講座教授，他在論壇上講述十八、十九世紀歐洲數學人才輩出，東方社會在數學方面卻異常沉寂；到了十九世紀末，中國的數學落後於明治維新後的日本。他探究箇中原因，就歷代培養數學人才的方法進行比較，對今日的數理科研與教育界亦帶來啟發。

Three mathematics giants share their passion
三位數學大師分享對數學的熱愛

The HKUST community once again had the opportunity to gain insights from the top minds in mathematics as Prof Jean Bourgain, this year's Shaw Laureate in Mathematical Sciences and a professor at the Institute for Advanced Study at Princeton, spoke at the University. He attracted a full-house to his talk on pseudo-randomness and arithmetic combinatorics, filling a 400-seat lecture theater with HKUST members and local secondary students.

Following the lecture Prof Bourgain was joined by Sir Michael Atiyah, Honorary Professor at Edinburgh University and winner of the Abel Prize and the Fields Medal, as well as HKUST President Tony F Chan, who is also a Chair Professor in the Department of Mathematics. They discussed the essence of mathematics and their passion for Mathematics in the 'Dialogue with Mathematics Giants'.

(From left) President Tony F Chan, Sir Michael Atiyah, Prof Jean Bourgain and moderator Prof Allen Moy
(左起)陳繁昌校長、阿蒂亞爵士、布爾甘教授以及主持人 Allen Moy 教授

科大師生經常有機會向學術界巨人取經，新鮮出爐的邵逸夫數學科學獎得主兼 現任美國普林斯頓高等研究院教授辛康・布爾甘教授最近應邀到科大演講。他以「偽隨機過程與算術組合」為題發表演說。講座吸引了四百多位科大師生及中學生參加，全場滿座。

演講完畢後，布爾甘教授聯同兩位數學大師——阿貝爾獎及菲爾茲獎得主、愛丁堡大學榮譽教授邁克・阿蒂亞爵士以及科大校長兼數學系講座教授陳繁昌教授進行「三位數學大師對談」，分享對數學的熱愛。

The Father of China's Real Estate teaches on our EMBA program
中國地產教父王石任教EMBA課程

Prof Wang Shi (right) presented appointment letter by President Tony F Chan
陳繁昌校長（左）頒贈聘書予王石教授

Prof Wang Shi, founder of the Vanke Group and Chairman of the Board of Directors of China Vanke Co Ltd, was appointed Adjunct Professor in the School of Business and Management at HKUST to teach the HKUST EMBA for Chinese Executives program.

Often known as the Godfather of China's real estate industry, Prof Wang has won countless accolades. He was rated among the 25 Most Influential Business Leaders in China by *Fortune* magazine, and has been honored as one of 30 Outstanding Figures in 30 Years of Reform and Opening in China, and 30 Economic Icons in 30 Years. He was also voted a 10-Year Business Leader in CCTV's Economic Icons 2009. In addition to these accolades he has achieved numerous successes in his personal life – as a person with great courage, he has conquered summits on seven continents, and has scaled Mount Everest twice.

At the HKUST EMBA Seminar entitled 'Realizing the Power of Dreams', Prof Wang shared his experiences on Mount Everest, in the Arctic and the Antarctic. These adventures have sharpened his awareness towards environmental issues which he and his corporation have been addressing. As he pointed out, entrepreneurs should embody the spirit of adventure and perseverance in addition to fulfilling social responsibility.

科大商學院向來聘請有學術成就與豐富商界經驗的人才擔任教授，讓學員認識營商之道。萬科地產創辦人及萬科集團董事會主席王石先生應科大的邀請成為商學院兼任教授，任教科大商學院 EMBA 中英雙語課程。

有中國地產教父之稱的王教授獲獎無數，曾入選《財富》中國最具影響力的 25 位商界領袖排行榜，榮獲中國改革開放 30 年 30 名傑出人物及 30 名經濟人物，與 2009 年度經濟人物評選之十年商業領袖。除了在事業上屢創高峰，他勇於接受挑戰，兩次成功攀登珠穆朗瑪峰，並曾攀登七大洲的最高峰。

另外，王教授以「實現夢想的力量」為題在科大 EMBA 講座演講，分享商界經驗、及挑戰珠峰與徒步南北極的體驗，這些經驗令他更關注全球暖化問題，並在個人及企業層面致力宣揚環保。正如他所言，企業家需要有冒險精神和毅力，更需對社會負責。

Former police chief speaks on successful leadership
前警隊一哥分享領袖秘笈

The School of Science at HKUST invited Mr Dick Lee Ming-Kwai, former Commissioner of Police, to speak on Leadership at the Knowledge infinity Seminar Series. The seminar was well attended by hundreds of faculty members, students and community members.

Mr Lee says, "The police force is responsible for ensuring security and maintaining social stability. The most important quality of the police chief is integrity. As the former head of the police force, I had to build an efficient police force, be a good role model, delegate efficiently and appropriately, and learn continuously and diligently. Most importantly, I had to be considerate and compassionate towards the needs of my colleagues and their family members. Leaders need to be good listeners and communicators and be open to different opinions. Once decisions are made however, we have to follow through."

Mr Lee said half-jokingly that he first joined the police force in order to play basketball with other cops. Before long, his hard work and righteous character made him a respectable member of the police force, and he soon developed a strong sense of mission and determination to be a good cop. During his over 30 years of service, he found handling Korean protestants during the World Trade Organization Ministerial Conference in 2005 one of the most memorable and challenging experiences. The police force, with long-term planning and sound strategies in crisis management, handled the event with great efficiency and won recognition from around the world.

科大理學院邀請前警務處處長李明達先生在「知識無限講座」分享領袖秘笈，數百名師生及社會人士參加。

李明達表示：「警隊負責維持治安、保障社會穩定；作為警隊領袖，最重要是有誠信。領袖必須『建團隊』、『立榜樣』、『會分工』、『勤學習』，並且要居高懷仁，關懷下屬及其家人的需要。領袖需要聽取意見、重視溝通；然而大方向一經決定，就不能朝令夕改。」

李氏笑言，他當年完成大學後加入警隊，全因熱愛籃球運動，渴望加入警隊的籃球隊。之後他因為勤奮正直而得到賞識，對除暴安良的工作亦特別有使命感。他服務警隊三十多年以來，其中一次難忘的經歷是 2005 年處理世貿會議期間的韓農示威。當時警隊經過長期部署及憑著周密的危機處理策略成功處理事件，港警的表現更得到全球讚揚。

Information Day 2010
本科生入學資訊日2010

HKUST organized an Information Day in September for secondary students to learn more about the dynamic campus life of our undergraduate studies.
科大今年九月邀請中學生參加本科生入學資訊日，讓他們對科大多姿多彩的校園生活有進一步的認識。

HKUST welcomes new students
科大歡迎新學生

HKUST officially welcomed all new students to the University on 1 September. President Tony F Chan, together with our management team and Mr Johnny Ho, President of the Students' Union, warmly welcomed students to the campus. Following a spectacular lion dance, President Chan and Mr Ho wrote a Chinese couplet using Moxi, the Chinese calligraphy software developed by a PhD graduate of HKUST. The couplet, which read 'Integrating into HKUST, Facing the World', demonstrates the essence of the HKUST spirit.

科大九月一日舉行開學禮，陳繁昌校長與大學管理團隊，連同學生會會長何俊賢同學，歡迎新同學加入科大這個大家庭。當日除了舞獅表演外，陳校長與何同學更使用由科大博士畢業生研發的「墨戲」毛筆書寫軟件，寫出「融入科大、面向世界」的字句，勉勵同學發揮科大精神。

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《同創－科大通訊》由香港科技大學大學發展與公共事務處編印出版，派發予大學成員及各界友好。本刊報導大學的最新動態和發展。文章或照片歡迎轉載，惟請註明出處。

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