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Mushroom Impossible

Kwan Hoi-shan and His Team's Fungi Enterprise

菇菌芳香馥郁，人類早於舊石器時代已採集菇菌進食。宋代《菌譜》記載「芝菌皆氣茁也」，「氣」即孢子，明代李時珍也發現茯苓會長出菌絲。**關海山**教授指，菇菌屬真菌界，這界別與動物、植物、細菌及古細菌各領風騷，它以孢子繁殖，藉菌絲生存。

關教授醉心研究菇菌逾四十載，他是中大生命科學學院研究教授、食物研究中心主任，也是社企Mushroom-X的聯合創辦人。Mushroom-X於去年3月成立，十多位成員皆來自生命科學學院，深信「菇菌可以救地球」，積極研發優質菇菌食材與環保物料，並透過公眾教育宣揚可持續發展理念。

菌絲的神奇力量

菇菌沒有葉綠素，不能透過光合作用製造養分，須透過寄生、腐生或共生方式吸收養分。關教授以腐生性真菌為例，當孢子成熟後會散播開去，在環境條件合適時長出菌絲，而菌絲會釋放酵素分解枯枝、落葉、動物屍體等，以吸收養分並繼續生長。他說：「世上最大的生物並非藍鯨，而是美國俄勒岡州的『奧氏蜜環菌』，其菌絲在地下不斷延伸，共佔地九百六十五公頃，足足有一千三百五十個標準足球場。」

通常我們只進食菇頂，但菇菌的菌絲原來大有用處，可製造生物材料，甚至能取代塑膠和磚頭。團隊會收集廚餘、咖啡渣、豆渣、木碎等物料，再加入培植好的菌絲，菌絲便會吸收當中的營養，長滿整個容器。只要使用不同形狀的容器，再配搭合適的菇菌品種和養分，便會長出質感各異的生物材料——不助燃，可隔熱、減震、完全降解，能用作產品包裝和建築物的隔熱層。

有美國公司嘗試以這種新物料取代磚頭，但有個難題一直未能解決：物料會長出菇頂，影響樓宇結構。為解決問題，他們待菌絲長成磚頭模樣，便置於焗爐以高溫殺死菇菌。不過食物研究中心團隊研發出嶄新方法，既能抑制物料長菇，又同時讓菌絲保持「活」的狀態，物料一旦破裂損壞可自行修復。現時團隊已取得美國臨時專利，日後將物色業界夥伴合作生產。

舌尖上的享受

近年氣候變化導致農業失收，關教授認為菇菌有助紓緩糧荒，且營養豐富，因它含有優質蛋白質，人體容易吸收，其抗氧化成分「麥角硫因」有助預防癌症、認知障礙症和心血管疾病等，更不會因烹煮而流失。當中的益生元更是腸道益菌的食糧，培養益菌能改善腸道環境，守護健康。

中大生物系畢業生、Mushroom-X首位全職成員**吳香如**補充道：「我們習慣品嚐甜、酸、苦、辣，其實菇菌可以帶來第五味——鮮味（umami），可用作天然的調味品刺激味蕾，為味覺退化的老人帶來美食享受，改善胃口。」

關教授的恩師**張樹庭**教授建立了「菇菌種質基因庫」，迄今載有逾一百種菇菌，有助Mushroom-X團隊鑑別和選擇適合本地栽種的品種，以準確的溫度和濕度栽種，提升產量，且監控「從基因到餐桌」的過程，種植的過程絕不用化肥或殺蟲劑，保障食品安全。

累積實戰經驗

Mushroom-X成立以來力拓STEAM教育，即在科學、科技、工程和數學以外加入藝術（Art）元素，他們教授中小學生製作孢子印及菇菌環保種植法，透過創作和校園種植接觸大自然。Mushroom-X聯合創辦人**何穎芝**說：「有些學生在工作坊接觸過菇菌、發現孢子印獨特的紋理後，不禁讚嘆菇菌之美，從而欣賞大自然，我們隨即教導保護環境的重要，這種體驗式學習比依書直說更令學生難忘。」

成員在推動菇菌教育時培養出自信、團隊精神與溝通能力，**黎淑茵**認為這有賴關教授鼓勵她們參與各項創新創業比賽：由去年的「挑戰杯」全國賽香港區選拔賽、中大「校長杯」、南山「創業之星」大賽，直至逾十五萬隊學生參與的「創青春」全國大學生創業大賽，關教授和何穎芝一直為其商業提案、簡報設計、表達技巧等提供指導。憑藉豐富的社區實踐經驗和優秀的解說，參賽項目「菇創未來」最終獲得「創青春」公益創業賽金獎，也是香港代表隊唯一的金獎。



▲ 菇菌由菌絲長成，頂部為食用子實體，底部為用途廣泛的生物材料
Mushrooms grow from mycelium. The upper part is the fruiting body and the rest is used for producing biomaterials



▶ 團隊現積極開發菇粉產品，照顧老齡人口所需
The team is developing mushroom powder products to accommodate the needs of the aged

2017年成立的Mushroom Social Project是社企的雛型，成員在校園推動菇菌教育，翌年幸得中大「可持續知識轉移項目基金」撥款四十萬元，成立社企Mushroom-X。該基金是首個本港由院校設立的社企種子基金，旨在支持中大成員把研究成果轉化為社會效益，以可持續的商業模式營運社企，惠澤社群。

社企創業路漫漫，何穎芝坦言，要自負盈虧同時兼顧社會效益很難，關教授續說：「但我們都會迎向挑戰。」團隊暫時靠STEAM教育收益和其他創業基金支持產品及菇菌技術開發，會繼續建構有效的商業模式，在社區深耕細作，讓菇菌價值和環保生活根植人心。



▲ (前排左起) 關海山教授、何穎芝; (後排左起) 譚嘉穎、鄧凱欣、黎淑茵、吳香如
(Front row, from left) Prof. Kwan Hoi-shan, Beatrice Ho; (Back row, from left) Caity Tam, Yannes Tang, Helen Lai and Crystal Ng



▲ 學員製作菇菌種植包
Learning to make mushroom growing packs

(Source: Mushroom-X)

Mushrooms, a food source that goes back as early as the Palaeolithic Period, are known for their aroma. *Jun Pu (Mushroom Treatise)* published in the Song dynasty records that mushrooms germinate from spores. The Ming naturalist Li Shih-chen found that mycelium grows out of *Poria*. According to Prof. **Kwan Hoi-shan**, mushrooms belong to the fungi kingdom, on the same biological footing as animals, plants, bacteria and archaea. They propagate by spores and survive with mycelium.

Professor Kwan has dived into the world of mushroom research for over four decades. He is Research Professor of CUHK's School of Life Sciences, Director of Food Research Centre and co-founder of Mushroom-X founded last March. Firmly believing in much good can be done by mushrooms to the world, the ten-odd Mushroom-X members from the School of Life Sciences have been tireless in developing high-quality edible mushrooms and biomaterials, and sowing the seed of sustainable living in the community.

The Magical Mycelium

Without chlorophyll, mushrooms cannot derive nutrients through photosynthesis. They instead get the necessary nutrients by parasitism, saprophytism or symbiosis. Professor Kwan explained with saprotrophic fungi: After maturation, the spores will disperse and develop into mycelium in suitable conditions. The mycelium will release enzymes to decompose branches, fallen leaves, animal carcasses, etc., to obtain nutrients and grow. He said, 'The largest organism on earth isn't the blue whale but *Armillaria solidipes* in Oregon, US. Its mycelium keeps growing underground and covers an area of 965 hectares, which is equivalent to 1,350 standard football fields.'

The fruiting body of mushrooms usually serve as food, but the mycelium is more versatile. It can be used for making biomaterials, and even to replace plastic and bricks. The team collects composts, coffee grounds, bean dregs and wood chips and mix them with cultivated mycelium, which will grow to fill the entire container after absorbing the nutrients. The mix-and-match of various containers, species and nutrients will cultivate biomaterials in different sizes and textures, which are nonflammable, heat-insulating,

vibration damping and biodegradable, ideal for product packaging and thermal insulation for buildings.

Some US companies attempt to replace bricks with the new material, but would have to put them in an oven to kill the mushrooms with intense heat because fruiting bodies will grow on the mushroom bricks. The Food Research Centre, however, has developed a new technology that suppresses the fungal bricks from further vegetating while keeping the mycelium alive. The material can self-repair once the fungal brick cracks. The team has obtained a provisional US patent and will look for an industry partner for joint production.

Gastronomic Delight

Climate change has led to crop losses. Professor Kwan believes that mushrooms could alleviate food shortage, and provide vital nutrients like high-quality proteins which are easily absorbed by the body. They contain ergothioneine, an antioxidant instrumental in the prevention of cancers, dementia, cardiovascular diseases and, more importantly, it won't be lost in the cooking process. Their prebiotics are the food of probiotics which improve the intestinal environment for better health.

Crystal Ng, CUHK biology graduate and the first full-time staff of Mushroom-X, added, 'We're familiar with the four flavours of sweet, sour, bitter and spicy. Mushrooms give us the fifth: umami. It is a natural seasoning that stimulates our taste buds, and helps improve the appetite of the aged with impaired taste.'

The Mushroom Germplasm Bank, a legacy of Professor Kwan's teacher Prof. **Chang Shu-ting**, has more than a hundred mushroom species. The bank enables the Mushroom-X team to identify and select the ideal species for local planting, and cultivate the species in appropriate temperatures and humidities to enhance production. Food safety is very much ensured by monitoring the production process 'from gene to table' with no chemical fertilizer or pesticide.

Practice Makes Perfect

Mushroom-X adds an 'A' to 'STEM' to make STEAM education (art is added to science, technology, engineering and mathematics). The team has been teaching secondary and primary school students spore print artwork production

and sustainable farming of mushrooms, bringing them closer to nature. Mushroom-X co-founder **Beatrice Ho** said, 'Some students learned to appreciate the beauty of mushrooms and nature from recognizing the uniqueness of spore print. We then let them see the importance of environmental protection. Such experiential learning is more effective than textbook learning.'

Members have developed confidence, team spirit and communication skills in promoting mushrooms. **Helen Lai** attributes it to Professor Kwan's encouraging them to participate in entrepreneurship and innovation competitions. From the 'Challenge Cup' National Competition Hong Kong Regional Final, Vice-Chancellor's Cup of CUHK, Nanshan 'Entrepreneurship Star' Contest to the 'Chuang Qing Chun'—China College Students' Entrepreneurship Competition joined by 150,000 student teams nationwide in 2018, Professor Kwan and Beatrice had offered guidance on business proposals, presentation slide design, delivery skills, etc. With the team's solid practice in the community and excellent presentation, their project 'Mushroom for the NeXt' impressed the judges and won the Gold Award in the 'Chuang Qing Chun' social entrepreneurship category, the only Gold Award won by a Hong Kong team.

Founded in 2017, Mushroom Social Project offering mushroom education on campus is a prototype of the social enterprise. The project received HK\$400,000 from CUHK's Sustainable Knowledge Transfer Fund last year to set up Mushroom-X. The Fund is the first social enterprise seed fund among the local institutions, supporting CUHK practitioners to translate their research discoveries into social enterprises to benefit the community with sustainable business models.

The path of social enterprising is long and winding. Beatrice reflected on the difficulty in striking a balance between self-financing and social benefits. 'But we will face the challenges with an unbending will,' Professor Kwan added. The team now relies on the profit from STEAM education and other startup funds to support their product and fungal technology development. They will keep perfecting their business model and 'spreading the spores' of mushroom value and sustainable living in the community. 🍄

J. Lau



公營醫療系統負荷超標，是政府的一大棘手問題。中醫學院五年級學生倡議善用中醫專業於基層醫療，分流病人以緩解公共醫療體系的壓力，此議為他們奪得第三屆《策掂——傑出政策人大賽》比賽冠軍。

謝智勇（左一）、周艷秀（中）、梁焯琦（左二）、王淑芬（右二）及陳皓天（右一）以「探討如何借助中醫專業紓緩公共醫療體系的壓力」為題，建議將目前十八間分布港九新界各區的中醫教研中心改為公營，開設中醫院及成立中醫藥管理局，將中醫納入公營醫療系統，為市民提供適切的中醫服務。

由致力推動青年人積極參與公共事務團體「為正策士」舉辦的政策比賽，有別於傳統政策比賽，強調「換位思考」，致勝關鍵在於政策遊說。參賽學生先接受民意調查基本訓練，按參賽的政策範疇，進行電話民調，然後因應所集意見擬訂政策，在網上發表，邀請公眾評論。他們更須面對不同立場、崗位和政治光譜的持份者進行遊說，再反覆修訂出可行和具民意支持的政策建議。比賽的最後階段是要說服由多位政界領袖組成的評判團。

他們花了整整一個學期的時間擬制政策。「大方向是將中醫納入公營系統，長遠發展是成立中醫藥管理局，」陳皓天說。

謝智勇認為：「政策要成功，必須得到民意支持，而且切實可行。」本港的醫療系統由西醫主導，中醫難平分秋色。他們進行電話民調，成功訪問六百三十四人；發現很多市民對中醫的信心水平與對西醫相若，但中醫就診率則偏低，原因是認識不足，以及收費較高。不過，他們卻十分支持加強中醫服務。市民的支持讓他們的方案以四千二百九十九票領先，贏得比賽另設的網上投票「最喜愛政策大獎」。

「我們針對公營醫療系統面對的主要困難——人口老化，中醫和西醫一樣，都應在醫療服務的資源規劃和發展上佔一席位，」王淑芬指出。

老年人口比例上升，對醫療服務的需求遠超線性增長。以2014年為例，六十五歲及以上長者佔整體人口不足一成半，但用於長者之醫療開支則佔整體近半。預計長者人口比例由2018年約兩成上升至2036年的三成時，對醫療服務的龐大需求將使公營醫療系統無法負擔，政府必須開拓新的醫療服務模式。

梁焯琦補充：「中醫納入公營系統，長遠能為政府節省醫療開支。」

「許多人誤以為中醫療效慢，其實不然。中西醫在許多病種療效相若，一些病種中醫療效甚至更好且成本較低。最近流感肆虐造成急症室輪候時間過長，病房使用率超標，可是，早有本港學者研究以荊防敗毒散及銀翹散治療流感，能有效紓緩病情。中醫值得成為更多市民的另一選擇。」

目前政府投放於中醫的資源只佔整體醫療開支不及百分之一，而十八間地區中醫教研中心，須自負盈虧，政府補貼有限，診金也就較高。在財政緊絀下，教研中心聘用約三百六十位中醫師，每年應付的求診人次逾一百二十萬。現時本港約有九千五百名中醫師，人手充裕，政府只需稍增撥資源已能大幅增加服務。

因此這幾位準中醫師建議政府直接管理中醫教研中心，長遠來說，設立公營中醫院及中醫藥管理局，統籌中醫服務。「類似建議早有業界前輩提出。我們不希望建議在贏得比賽後便不了了之，比賽過程我們獲得不少中醫業界人士協助，我們會繼續爭取，期望團結力量，最終能讓建議落實，」謝智勇說。

周艷秀總結參賽經驗：「我們是學生，沒有政治壓力，可以建構更理想的政策模式。比賽期間，大學教授們亦給我們許多幫助，既提高政策的可行性，也有助推廣中醫文化……當初我們沒想到會勝出，當直接面向群眾時，他們的大力支持真是意料之外，加上業界團結支持，令我們深受感動。現行的中醫政策有不足之處，但我們深信在業界齊心支持下，好的政策倡議將影響深遠。所以先改變自己，才能改變社會。比賽讓我們對中醫文化加深認識，中醫學並非固步自封，而是不斷發展進步，猶如有待發掘的『寶藏』。」

The Government should fully incorporate Chinese medicine services into the public healthcare system in order to ease the burden of the overloaded system. Five Year 4 students from CUHK's School of Chinese Medicine suggested making good use of the strengths of Chinese medicine in the provision of primary health care to absorb patients from the overcrowded public hospitals. Their policy proposals won them the Champion of the 3rd 'Caak Dim—Outstanding Policy Maker Challenge'.

Vincent Tse (1st left), Clementine Chow (centre), Theresa Leung (2nd left), Sharon Wong (2nd right) and Rico Chan (1st right), in their policy proposals titled 'How to use Chinese medicine to complement and alleviate the pressure of the public healthcare system', suggested that the 18 community-based Chinese Medicine Centres for Training and Research (CMCTRs) which are providing Chinese medicine outpatient services should receive public funding on a par with that for western medicine services; and in the long run a public-funded Chinese medicine hospital and a dedicated Chinese Medicine Authority for the management of service provision, overall policy planning and development of Chinese medicine should be established.

The policy contest, organized by GeNext which promotes youngsters' active participation in public affairs, emphasizes 'empathetic thinking'. Lobbying is the key to winning the contest. Contestants have to conduct an opinion survey on their chosen policy area, draft suggestions based on the results, and put those online to invite public comments. They then have to lobby face-to-face real-life stakeholders with differing views and of different political persuasions and revise their proposals accordingly. The final part is to persuade a judging panel comprising social and political leaders.

They spent a whole term formulating the policy. 'Our major theme is to incorporate Chinese medicine service into the public healthcare system and the long-term end is the incorporation of a Chinese Medicine Authority,' said Rico Chan.

'It has to be supported by the public and implementable,' said Vincent Tse. It is difficult to put Chinese medicine on a par with western medicine in the healthcare system. Results of the telephone survey, which successfully interviewed 634 people, revealed that the confidence level of Hong Kong citizens for Chinese medicine was comparable to that for western medicine. Due to insufficient knowledge and higher fees, however, people tended not to choose Chinese medicine. The respondents were supportive of the strengthening of Chinese medicine services. Support of their proposal earned them the additional 'Most Favourite Policy Award' with 4,299 votes.



'We are actually tackling the greatest challenge to the public healthcare system—an aging population. Both Chinese and western medicines must be given access to resources and development of healthcare services,' Sharon Wong pointed out.

An aging population brings exponential increase in demand for healthcare services. In 2014, for example, less than 15% of the population were aged 65 or above, but this age group used up nearly half of the total healthcare expenditures. It is foreseeable that when the proportion of the elderly population increases from 20% in 2018 to 30% in 2036, the public western medicine healthcare system can no longer cope. The Government must look elsewhere for new forms of care and treatment.

'The incorporation of Chinese medicine services into the public healthcare system would lower healthcare expenditures in the long run,' said Theresa Leung.

She explained, 'Many people have the misconception that Chinese medicine is less effective. In fact, both Chinese and western medicines have more or less equal curative powers for many types of illness. For some types, Chinese medicine works even better with lower costs.'

'The recent epidemic has resulted in long queues and overcrowded wards in public hospitals. Some studies by local researchers found that *Jing Fang Bai Du San* and *Yin Qiao San* are effective in suppressing the symptoms of influenza. Chinese medicine should be a choice open to the public.'

At present, government expenditure on Chinese medicine accounts for less than 1% of the total healthcare expenditures. The 18 CMCTRs are self-financing with little government subsidies and thus have to charge higher fees. Though on a tight budget, the 360 Chinese medicine practitioners working in these clinics are already treating 1.2 million patients annually. There are around 9,500 registered Chinese medicine practitioners in Hong Kong. A little more resources committed by the Government would go a long way to augment services by a large margin.

Hence they suggested the Government to take over the 18 CMCTRs and in the long run establish a public-funded Chinese medicine hospital and a Chinese Medicine Authority. 'In fact similar proposals have been raised before by many senior members of the Chinese medicine industry. We wish to see our proposals being considered even after the contest has ended. During the contest we received a lot of assistance from people in the industry and we will continue our lobbying, with the aim that one day the proposals would be implemented,' said Vincent Tse.

Summarizing their experience of the contest, Clementine Chow said, 'As students without any political pressures, we can construct the most ideal policy model. Many of our professors have helped us during the process, which made our proposals more feasible as well as promoting Chinese medicine' At first we did not imagine we could win. When we faced the public, we were moved by their support and the backing from the Chinese medicine industry. We are aware of the inadequacies of the present policy on Chinese medicine but we believe that good policy proposals can do a lot with the backing of the industry. We have to change ourselves first to bring changes to society. The contest helped us understand Chinese medicine better. It is not a thing of the past but actually moves with the times. It is a treasure trove for us to unearth.'

Adapted by C.F.

卓越學科領域資助中大領導「上帝粒子」香港團隊

CUHK-led Research Team in God Particle Experiment to be Funded as AoE

由物理系朱明中教授(右三)領導的本港跨院校團隊,參與位於瑞士歐洲核子研究中心的ATLAS大型國際粒子對撞實驗組,與一眾頂尖科學家尋找宇宙萬物的基本結構及定律,提升了香港科學界在全球的影響力。團隊獲大學教育資助委員會第八輪卓越學科領域計劃撥款約七千八百萬港元支持,擴展在ATLAS的工作。

香港ATLAS研究團隊成員共十七人,由來自中大、香港大學和香港科技大學的教授、研究員及研究生組成。團隊未來的工作包括為探測器進行升級和數據分析,探尋新物理及理論,發展相關計算科技,並參與內地擬建的電子對撞機的前期研究工作。

A team of particle physics researchers from across local institutions, led by Prof. Chu Ming-chung (3rd right) of the Department of Physics, CUHK, working on a project to study the fundamental structure of matter, has recently been awarded funding in excess of HK\$78 million from the Areas of Excellence (AoE) Scheme under the University Grants Committee. The award will boost the team's involvement in



the ATLAS experiment, based at the European Organization for Nuclear Research (known as CERN).

Comprising 17 professors and researchers from CUHK, the University of Hong Kong and the Hong Kong University of Science and Technology, the team will be leading in some areas of Higgs particle properties measurement and the ATLAS detector upgrade, as well as contributing to the R&D work of the proposed Electron-positron Collider in China.

鄭家純國際會議中心命名

Naming of Henry Cheng International Conference Centre



大學於3月18日舉行「鄭家純國際會議中心」命名典禮,以答謝周大福慈善基金慷慨捐款支持。典禮由基金名譽主席鄭家純博士(右二)、主席鄭家成先生(左二)、中大校董會主席梁乃鵬博士(右一),以及段崇智校長(左一)主禮。

在基金支持下,鄭裕彤樓一及二樓重新裝修成為一個舉辦重大國際學術會議的場所。鄭家純國際會議中心交通便利,設有寬頻和無線網絡,並配備先進的視聽及電腦會議系統。靈活的房間與空間設計為舉辦活動提供極大彈性,包括可容納多達四百六十人的大型演講廳,以及可同時進行會議和分組討論的中小型房間。此外,中心亦提供餐飲場地、學術海報展覽區,並預留地方作為會議秘書處或貴賓室用途。

The naming ceremony of the Henry Cheng International Conference Centre was held on 18 March in appreciation of the generous donation from the Chow Tai Fook Charity Foundation (CTFCF). Officiating guests included Dr. Cheng Kar-shun Henry (2nd right), Honorary Chairman, CTFCF; Mr. Cheng Kar-shing Peter (2nd left), Chairman, CTFCF; Dr. Norman N.P. Leung (1st right), Chairman of the Council, CUHK; and Prof. Rocky S. Tuan, Vice-Chancellor, CUHK.

With the donation from CTFCF, the University renovated Levels 1 and 2 of Cheng Yu Tung Building to become a well-established venue for hosting academic conferences of international repute. The venue provides a dignified setting and is equipped with broadband and wireless internet access, audio-visual systems, and conferencing and IT equipment. The rooms and areas provide great flexibility for hosting conferences for up to 460 scholars, with venues ranging from a large theatre for keynote speeches to rooms of different sizes for parallel and breakout sessions. Areas for conference catering and academic poster exhibition, together with secretariat room and VIP room set-ups for supporting of events, are also available.

革新香港精神健康服務

Transforming Mental Healthcare Service in Hong Kong

中大副校長張妙清教授(左)與英國倫敦大學國王學院精神、心理及神經科學研究所執行所長Ian Overall教授(右)於3月8日簽署合作協議,加強兩校長期的合作夥伴關係,除開展研究及學術交流項目外,更首次加入精神健康範疇,計劃建立一個採用創新科技以提供精神健康研究及服務的實驗室,期以發展為亞洲領先的精神健康研究中心。

Prof. Fanny M.C. Cheung (left), CUHK Pro-Vice-Chancellor, and Prof. Ian Overall, Executive Dean, Institute of Psychiatry, Psychology and Neuroscience, King's College London, renewed their longstanding partnership on 8 March. Cooperative research and other forms of academic interaction will be launched. For the first time, the field of mental health will be covered by establishing a laboratory that adopts novel technologies into mental health research and services with the goal of becoming a leading research centre for mental health in Asia.





中大(深圳)傳媒春茗

CUHK (SZ) Spring Reception for Media

中大(深圳)於3月15日邀請傳媒友好出席在逸夫國際會議中心舉行的春茗活動，徐揚生校長(左七)及一眾副校長、協理副校長、書院院長及學院院長出席，並暢談大學未來的發展。

CUHK (SZ) invited members of the media to a spring reception with Prof. Xu Yangsheng (7th left), President, the Vice-Presidents, Associate Vice-Presidents, Colleges Masters and Deans, at the Run Run Shaw International Conference Centre on 15 March. Details of the University's future development were discussed.



炎黃子孫的諾貝爾和拉斯克獎得主

Nobel and Lasker Laureates of Chinese Descent

由科羅拉多大學陳光輝教授(左二)、中大沈祖堯教授(右二)和楊綱凱教授(左一)及海內外學者參與撰寫的《炎黃子孫的諾貝爾和拉斯克獎得主：於文學與科學》最近出版，該書以專章形式介紹諾貝爾、拉斯克及沃爾夫數學獎華人得主，包括楊振寧教授及高錕教授，部分版權稅所得更捐予中大。三位教授聯同高教授夫人黃美芸女士(中)於3月19日將該書致贈予中大圖書館，由館長李露絲女士(右一)接收。



Recently published, *Nobel and Lasker Laureates of Chinese Descent: In Literature and Science* celebrates notable luminary scholars of Chinese descent with Nobel laureates, Lasker and Wolf Prize winners, including Prof. Yang Chen-ning and Professor Sir Charles Kao. Prof. Laurence K. Chan (2nd left), University of Colorado; Prof. Joseph J.Y. Sung (2nd right) and Prof. Kenneth Young (1st left), CUHK—among other contributors locally and internationally—accompanied by Lady Gwen Kao (centre), visited the CUHK Library on 19 March to present a gift of the books to Ms. Louise Jones (1st right), University Librarian, who received the donation on behalf of the library. A portion of the royalties derived from the book will be donated to CUHK.

宣布事項 / ANNOUNCEMENTS



校董會人事任命

Council Appointment

邵鵬柱教授獲崇基學院院務委員會再度推選出任大學校董，任期三年，由2019年4月23日起生效。

Prof. Shaw Pang-chui has been re-elected by the Assembly of Fellows of Chung Chi College as a member of the Council for a period of three years with effect from 23 April 2019.

環保電影放映及座談會

Screening of Films on the Environment and Forum

中大賽馬會氣候變化博物館及聯合國可持續發展解決方案網絡香港地區分會於4月13日合辦《塑料王國》及 *Start Small, Start Now* 放映及座談會，詳情如下：

Jointly organized by CUHK's Jockey Club Museum of Climate Change and the Hong Kong Chapter of the United Nations' Sustainable Development Solutions Network, the screening and forum of *Plastic China* and *Start Small, Start Now* will be held on 13 April. Details are as follows:

《塑料王國》 <i>Plastic China</i>	榮獲多項國際電影大獎的紀錄片，由CNEX基金會攝製，揭示中國龐大廢棄塑料處理產業所引致的環境問題(片長86分鐘；普通話) Produced by CNEX Foundation, the multi-award winning documentary reveals the devastating impact of plastic treatment business in China (86 minutes, Putonghua)
<i>Start Small, Start Now</i>	本地環保組織Eco Drive Hong Kong及國際電影製作團隊Photo Escapes聯合攝製，以香港即棄塑料問題為題材(片長18分鐘；英語) Filmed by Photo Escapes together with local environmental group Eco Drive Hong Kong, the documentary looks into plastic problems in Hong Kong (18 minutes, English)
時間 Time / 地點 Venue	2:30 pm – 5:00 pm* 鄭裕彤樓地下1B演講廳 Lecture Theatre 1B, G/F, Cheng Yu Tung Building
報名 Registration	www.mocc.cuhk.edu.hk/screening_forum_2019
查詢 Enquiries	3943 3972

* 下午一時三十分至二時三十分設「流動賽馬會氣候變化博物館」展覽及茶會，請自備水杯或水樽以享用免費飲品
The 'Mobile Jockey Club MoCC' exhibition and tea reception will be held from 1:30 pm to 2:30 pm. Please bring your own mug or bottle to enjoy a complimentary drink

暑期運動訓練班招生

Summer Sports Programme

體育部將於5至8月開辦多項暑期運動訓練班供教職員及學生參加，另組織四項教職員球拍類比賽，以鼓勵校內同仁培養運動習慣。有關資料已上載至體育部網頁 (www.peu.cuhk.edu.hk/zh-tw/activities/summer-sports-courses)，4月8日上午9時起接受報名，先到先得，額滿即止。如有查詢，請聯絡吳國輝先生(3943 6092)。

To arouse staff and students' interest in physical exercise, the Physical Education Unit will organize summer sports courses from May to August. In addition, four racquet sport tournaments will be organized for staff. Information is now available on the Summer Sports Programme webpage (www.peu.cuhk.edu.hk/en-gb/activities/summer-sports-courses). The enrolment starts from 9 am on 8 April, on a first come first served basis. For enquiries, please contact Mr. Tony Ng at 3943 6092.

公積金計劃投資回報成績

Investment Returns of Staff Superannuation Scheme

基金 Fund	2.2019		1.3.2018 – 28.2.2019	
	未經審核數據 Unaudited	指標回報 Benchmark Return	未經審核數據 Unaudited	指標回報 Benchmark Return
增長 Growth	2.97%	2.54%	-2.53%	-1.78%
平衡 Balanced	2.35%	1.76%	-2.72%	-1.27%
穩定 Stable	0.62%	0.26%	-2.40%	-1.05%
香港股票 HK Equity	3.33%	3.35%	-5.93%	-5.53%
香港指數 HK Index-linked	2.66%	2.71%	-4.05%	-3.83%
A50中國指數 A50 China Tracker	9.80%	9.94%	-10.39%	-8.48%
港元銀行存款 HKD Bank Deposit	0.16%	0.08%	1.68%	0.73%
美元銀行存款 USD Bank Deposit*	0.27%	0.13%	2.91%	1.40%
澳元銀行存款 AUD Bank Deposit*	-2.21%	-2.33%	-6.26%	-7.66%
歐元銀行存款 EUR Bank Deposit*	-0.73%	-0.72%	-6.66%	-6.33%
人民幣銀行存款 RMB Bank Deposit*	0.55%	0.42%	-2.65%	-3.48%

強積金數據請參閱：

www.cuhk.edu.hk/fno/chi/public/payroll_benefits/mpf.html

For MPF Scheme performance, please refer to:

www.cuhk.edu.hk/fno/eng/public/payroll_benefits/mpf.html

* 實際與指標回報已包括有關期間內之匯率變動

Both actual and benchmark returns include foreign currency exchange difference for the month

消化道癌症診斷與治療研討會

Symposium on Latest development on Gastrointestinal Cancer

承蒙羅謝燕雯女士之慷慨捐助，中大香港中西醫結合醫學研究所與香港中西醫結合學會將於4月14日合辦「中西醫協作——消化道癌症診斷與治療的展望」研討會，探討消化道癌症的中西醫治療模式。詳情如下：

With the generous donation from Ms. Lo Tse Yin-man, the University's Hong Kong Institute of Integrative Medicine and Hong Kong Association for Integration of Chinese-Western Medicine will jointly organize the symposium entitled 'Latest Development on Gastrointestinal Cancer: Integrative Approach in Diagnosis and Treatment' on 14 April to explore the practicalities of integrative treatment model of gastrointestinal cancers. Details are as follows:

時間 Time / 地點 Venue	1:30 pm – 5:30 pm 康本國際學術園5號演講廳 LT5, Yasumoto International Academic Park
報名 Registration	https://cloud.itsc.cuhk.edu.hk/webform/view.php?id=6952753
查詢 Enquiries	www.hkiim.cuhk.edu.hk/gccim 麥小姐 Ms. Mak (2873 3967) 馮小姐 Ms. Fung (2873 3500)



數碼時代的經濟師

Pointers for the 21st Century Economist



科技的高速發展，滲透進現代生活的每一個層面，令不少人認為不久將來很多工種必會消失，其中最高危的包括工廠技工、司機和收銀員。

專業人士也好不了哪裏去。現在有些電腦程式已代替了醫生為病人診症；IBM開發的一個人工智能法律研究平台AI Ross，也被愈來愈多的美國律師行採用。其他專業人士如經濟師也將面對同樣科技革命的挑戰。

中大金融學專業應用副教授趙善銘博士，在一篇題為The rise of the tech economist—a scientific upgrade for the economist profession? (*Asia Asset Management Journal*, 2017年12月)的文章中提到近年出現的「科技經濟師」，並歸因為「電子裝置製造出並錄存了大量數據，以及用來分析這些數據的計算工具的長足發展。」

趙博士也留意到大型科技公司如亞馬遜等，聘用愈來愈多唸經濟出身的人，進行數據分析以解決商業問題，這些經濟師的職稱通常是「數據科學家」。

數據分析學也是中大經濟學本科課程的一個專修範圍。中大的經濟學設在社會科學院，令它跟與其他與人類行為及社會現象息息相關的學科更接近，有利學生發展出更廣闊視野，以及數據運用以外的技能。

數碼時代的經濟師，也委實需要數碼時代的本事。趙博士在上述文章中這樣作結：「成功的科技經濟師，除了能把經濟理論應用到不同的商業難題上，也必須能與來自其他界別如銷售、宣傳及資訊科技的專才緊密合作。他更要有編碼及計量經濟學的認識，且與時並進，因為數據管理及分析將會是工作愈來愈重要的一部分。」

立志獻身經濟學的同學們，你們準備好迎接挑戰了沒有？

The rapid development of technology in all facets of modern life has given rise to the prediction that many jobs would disappear in the foreseeable future. Among those tipped to go to the museum basement are factory hands, drivers and cashiers.

The prospects for the professionals are not rosy, either. Some of the tasks in medical diagnosis are being done by computers instead of doctors. IBM's AI Ross, a legal research platform powered by AI, has been employed by more and more law firms in the US. It is inevitable that other professionals, economists included, will face a similar technological makeover.

In an article entitled 'The rise of the tech economist—a scientific upgrade for the economist profession?' (*Asia Asset Management Journal*, December 2017), Dr. **Seen-meng Chew**, Associate Professor of Practice in Finance of CUHK, notes the emergence of 'tech economists' in the last decade and attributes it to 'the deluge of data created and recorded by electronic devices, and the advancement of computational tools available to analyse these data.'

He also observes that tech companies like Amazon are employing an increasingly larger number of economists, often under the title of 'data scientist', to perform data analysis and solve business problems.

Data analytics is in fact one area in CUHK's undergraduate programme of economics that students can choose to concentrate on. That the programme is housed in the Faculty of Social Science puts it in proximity to disciplines related to the study of human behaviour and social phenomena. It will nurture a wider perspective and develop relevant skills in addition to numeracy.

This is indeed required of the 21st century economist, as Dr. Chew concludes the abovementioned article: 'one must not only have the intellectual flexibility to apply economic theories to a variety of business issues, but must also be able to work closely with professionals from other fields, including sales, marketing, and IT. Moreover, one needs to acquire or upgrade skills in coding and econometrics, as data management and analysis will become an increasingly important part of the job.'

Ye who are intent on making economics your lifelong pursuit, are you up for the challenge?

T.C.



古風雅韻

Mellifluous Melody



馮通教授的十指在琵琶弦上疾走，技韻傳神。曼妙樂韻宛如他身後群山綿延不盡的霧氣，瀰漫崇基學院禮拜堂偌大的空間。觀眾都屏氣凝神，沉醉於繞樑古曲。

琵琶有二千多年歷史，最早出現於秦朝。其名源於彈撥手法，揮灑向前為「琵」，向後彈撥為「琶」。唐朝以前，所有抱在懷中彈撥的樂器都泛稱「琵琶」。琵琶曲目有文武之分：文曲柔和細膩，寫景抒情；武曲氣勢磅礴，高亢激昂。馮教授於午間心靈綠洲演奏的文曲《平沙落雁》、《青蓮樂府》及《月兒高》，是繁囂生活的一抹清風。

馮教授自十二歲起彈奏琵琶，師從南派泰斗呂培原先生。呂氏是香港中樂界的拓荒者，於1961年成立香港中國國樂團，是香港校際音樂節的發起人之一，也是中大音樂系首位琵琶老師。馮教授曾有幸在2014年於「清雅頌：呂培原琵琶古琴演奏會」與年過八旬的老師合奏《青蓮樂府》。

今次午間心靈綠洲令我印象最深的是《月兒高》，此曲描述海上明月升沉的過程，據聞有很多合奏版本，以琵琶獨奏最考功夫，馮教授按呂氏傳譜獨奏此曲，他的輪指技藝細密分明，漸進對比到位，令人有如置身千層玉宇觀看朦朧變幻之景，讚嘆明月清雅之美。一陣輕快的彈奏過後，樂曲首句緩緩重現，冰輪漸漸西沉，四周回歸幽靜。

琵琶是單旋律樂器，十分着重音色，平日習慣聽流行曲或和弦音樂的觀眾可能略有不慣，但我欣賞琵琶文曲的清幽古雅，其醇厚曲風着實洗滌人心。

Prof. **Fung Tung** opened the recital with his mellow rhythm and flawless technique, gliding his fingertips across the pipa strings. Like the mist lingering over the distant hills behind him, his mellifluous ancient melody filled the spacious Chung Chi College Chapel and held the audience spellbound.

Since its first appearance in the Qin dynasty, pipa has existed for more than 2,000 years. The lute-like instrument takes its name from the direction of plucking: 'pi' and 'pa', which mean plucking away from and towards oneself, respectively. All the string instruments played by being plucked in one's lap were named 'pipa' before the Tang dynasty. Pipa pieces are categorized into *wen* and *wu*. The *wen* style is more lyrical and slower in tempo; the *wu* pieces are more rhythmic and vigorous. The *wen*-style *Wild Geese Descending on a Sandy Beach*, *The Green Lotus* and *The Moon Aloft* played by Professor Fung ushered in a welcome breeze amid the hustle and bustle of modern life.

Professor Fung has been playing pipa since the age of 12, under the tutelage of the southern school grandmaster Mr. **Lui Pui-yuen** who is a pioneer in the Hong Kong Chinese music circle. Mr. Lui founded the Chinese National Music Troupe in 1961. He was one of the forerunners of the Hong Kong Schools Music Festival and the first pipa teacher in CUHK's Department of Music. Professor Fung considered himself extremely fortunate to have played *The Green Lotus* with the octogenarian in 'In Praise of Elegance: Lui Pui-yuen Pipa Guqin Recital' at the University of Hong Kong in 2014.

The Moon Aloft played at the Midday Oasis impressed me the most. The piece describes the oblique ascension and descension of the moon above the sea. Among all the ensemble and recital editions, pipa recital is the most challenging. Professor Fung played the score transcribed by Mr. Lui. His refined tremolo and crescendo were mesmerizing, lifting me to the dreamy sky to appreciate the sublime moon up close. After a vivacious allegro returned the first motif. The moon gradually descended and its surroundings settled into tranquility again.

Pipa is a single melodic instrument, for which nothing is as important as its tone quality. Those who are used to popular music or chordal harmony may find the pipa performance less gripping. But I like the quaint and quiet *wen*-style pipa pieces, which are soul-cleansing enough.

J. Lau



莊太量教授 Prof. Terence Chong

經濟學系副教授

Associate Professor, Department of Economics

劉佐德全球經濟及金融研究所常務所長

Executive Director, Lau Chor Tak Institute of
Global Economics and Finance

新亞書院輔導長

Dean of Students, New Asia College

成為經常就民生議題發表看法的經濟評論員，感覺如何？

九七金融風暴後，我在報章發表文章，談當下經濟形勢，自此不同媒體陸續找上門來。本着服務社會，以所長專業，為大家提供科學、理性、持平的分析及建議，我亦來者不拒，無心插柳下成為經濟評論員。這份「差事」殊不輕鬆，必須緊貼時代脈搏，掌握最新經濟數據，才能隨時回答提問。

撰寫學術論文外，你亦寫網誌，出版普及書，既談經濟，也說生活，何有此舉？

萬宗歸一，生活離不開經濟學原理，而經濟學就是研究人的行為及社會改變。研究人員必須走在前線，以了解社會發展。寫文章出書，一方面是為普羅大眾提供學術書籍以外的經濟知識，另一方面又切合我的「活出精采人生」目標，何樂而不為？

你兼任的公職也不少，如何再抽時間處理這些職務？

自問是勤力的人，從中學開始至唸完博士期間，睡眠時間不多於三小時，現雖已稍增一兩小時，但每日仍然有十七八小時放在工作上。可是，時間畢竟有限，現時一些邀約要推遲至6月才接了。

教授、研究員、經濟評論員、作者、公職人員，各給你怎樣的滿足感？

教書最大滿足感莫過於培養出傑出學生。研究有成，自己是世上第一人知悉該發現，其滿足感難以筆墨形容。我在唸博士時已開始發表論文，一直保持穩定的產量，並獲國際學術界肯定。經濟評論員和作者的角色，提供另一渠道給我指出社會上的不公義；擔任公職則是為了回饋社會。

你曾教年輕人如何籌劃買樓，但香港已連續九年成為全球最難置業的地方，有甚麼新建議？

大學畢業生月薪中位數是萬多元，單靠儲蓄購買動輒七八百萬的房子，當然是遙不可及。先要跳出固有思維，檢視自己的技能及其需求與市場在哪；打工不是唯一出路。人生固然是只在金錢，各有各的價值觀，我要強調的是賺錢和職業是兩回事，在職貧窮原因是錯賣了自己的才能。此外，我建議年輕人不妨放眼大灣區，內地精英來港工作，港青亦可北上。況且，香港市場始終是小，縱有好的創業構思，盈利也有局限。

理財教育應該自哪個階段開始？

孩子唸小三，懂得加減後，便可以開始理財教育，讓他們明白賺錢不易，珍惜財物。以活動形式來灌輸理財知識尤為有效，如給予孩子特定預算籌辦生日會，要是能控制在預算以下，所節省的金錢即有等額的獎勵，以鼓勵他們貨比三家，減省不必要開支，這不是一個學習過程嗎？

How do you feel about being a well-known commentator on economic issues?

Shortly after the 1997 Asian financial crisis, I published an article on the then current economy in a newspaper. Since then, invitations to comment from various media have never stopped. I never said no. It's my wish to serve the community by offering my expertise, analysis and suggestions. It is no easy task, however, as I have to keep up with the times and the most updated economic data.

Apart from academic papers, you write blogs and general books on both economics and everyday life. Why?

Economics can be applied to every aspect of our daily life. It's a discipline that studies the changes in human behaviour and society. Researchers should be at the cutting edge to understand the social development. By writing and publishing, I do not only render economic knowledge to the public, but also fulfill my goal of life, that is, 'live to the full'. So, why not?

You are also active in public service. How do you find time for it?

I work really hard. I slept no more than three hours a day since my secondary school days until obtaining my doctorate degree. Though I sleep a bit more now, I still work 17 to 18 hours a day. But time is never enough. I am fully committed now until June.


Professor, researcher, economic commentator, writer, public service. Do the satisfactions differ?

The greatest satisfaction for a teacher is to nurture outstanding students. A researcher is happiest when he becomes the first one in the world to get to a research finding. I published my first academic paper when I was a doctoral student. My scholarly output has been pretty steady since and I am recognized internationally. The roles of commentator and writer give me a platform to speak out against social injustice. Public service is the means by which I pay back to society.

You once gave your view on how young people could become homeowners. Any amended view with Hong Kong housing still among the world's least affordable?

The median monthly salary of university graduates is HK\$10,000+. It's unrealistic to think of buying a home worth HK\$7-8 million simply by savings. They should think out of the box. Being employed is not the only way out. Young people could re-examine their skills and the market's need for such skills. Money isn't the only thing that matters in life. What I want to say is that getting a job doesn't mean getting rich. The mismatch between skill and market may explain poverty on the job. I also suggest young people to view the Greater Bay Area as an opportunity. The best from the area can come to Hong Kong, and vice versa. The Hong Kong market is after all too small.

What is the right age to start personal financial management?

It could start as early as grade three when children can do simple arithmetic. They should be made aware that making money is not easy and that they should treasure what they earn. Learning through activities has been proved effective. For example, giving a budget to children for organizing a birthday party. If they managed to cut the budget, they will be awarded with a sum matching what they have saved. In this way they would be encouraged to shop around, look for the lowest price and cut unnecessary expenditure. Isn't it a learning process? 

C.F.