

Knowledge Exchange Conference



Representatives of local universities and speakers gather at the opening ceremony. CityU President Professor Way Kuo is third from the right on the front row.

To promote the exchange of knowledge between academia and the community, the eight local universities organized a two-day conference involving the participation of scholars, policy makers, community and industrial leaders, technology transfer professionals, and students from Hong Kong, US, China, Japan, Australia, UK and the Netherlands. The conference, held from 5 to 6 December in the Hong Kong Convention and Exhibition Centre, was sponsored by the University Grants Committee (UGC).

The 2011 Knowledge Exchange Conference (KEC) built on the success of last year's conference, and significant weight was assigned to non-technology-related KE issues. The 2011 conference also featured a series of symposia focusing on the "3+3+4" education reform. Other major themes addressed by the conference were KE impact assessment, knowledge partnerships, and China's 12th Five-Year Plan.

Officiating at the opening ceremony, Professor Tsui Lap-chee, Vice-Chancellor of the University of Hong Kong, acknowledged the far-reaching influences of knowledge transfer. He said in his welcoming remarks that "knowledge changes the ways we do things, and that universities need to work closely with society."

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World-renowned technology transfer professionals and scholars, as well as policy makers, were invited to speak at the event. Among them were Professor Eugene Wong, Professor Emeritus of UC Berkeley, Dr Alan Paa, Vice-Provost for Technology Transfer and Economic Development of Cornell University, Professor Teck Seng Low, Managing Director of A*STAR of Singapore, Professor Warren Bebbington, Deputy Vice-Chancellor of the University of Melbourne, and Dr Stephen Merrill, Executive Director of the Board on Science, Technology and Economic Policy of the US National Academies.

Ten CityU scholars attended various symposia as chairperson, speakers, or discussants, speaking on a wide range of topics including technology transfer, business partnerships, school partnerships, ageing, green building, work-integrated education, and arts and cultural development.

Technology Licensing Team

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Technologies for Licensing Database

Browse our database to find a technology that suits your needs
<http://www6.cityu.edu.hk/kto/Technology-Licensing.html>

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Join CUBIC

CUBIC regularly organizes seminars and gatherings where members can mix and mingle with CityU researchers and industrial leaders. Please scroll to the last page for the membership form.

Record Licensing Income for 2011

Three licensing deals signed in the fourth quarter of 2011 brought in a gross licensing income of US\$2.04 m (about HK\$15.8 m). In one of the deals, a portfolio of patents was exclusively licensed to an IP acquisition company. The other two licensees were an RFID solution provider and a jewelry equipment company, which respectively licensed CityU's RFID library system and pattern recognition technology.

The agreement with the IP firm yielded the biggest revenue yet for a single licensing deal. The success according to Mr David Cheung, Associate Director of KTO, is due in part to the FEEDS strategy the licensing team has adopted since the launch of KTO's five-year Strategic Plan 2010–2015. FEEDS stands for firm institutional commitment, education programmes for staff, enhance IP licensing channels, develop strategic collaboration

and partnership, and spread out to China. FEEDS is expected to open up new avenues for IP licensing and bridge the gap between research and application.

Mr H Y Wong, Associate Vice-President for Knowledge Transfer, said, "The record-breaking licensing income once more affirms the commercial and application potential of CityU's innovations. I would like to take this opportunity to call upon CityU researchers interested in commercializing their IP to seek early protection by lodging invention disclosures with KTO before publicizing their inventions." Upon receipt of an invention disclosure, KTO's technology transfer officers will assess the patentability of the invention. A favourable assessment, supported by positive reviews by external assessors, shall lead to financial assistance in patent application.

Forum on Optical Fibre Technologies

The CityU Business and Industrial Club (CUBIC) of KTO hosted a forum on optical fibre technologies on 12 January, with two renowned experts in the field being invited to present their experience in research and industrial application.

International submarine cable construction — physical, political and technical challenges

By Professor Peter Yu

Professor Peter Yu is Board Director and Senior Technical Advisor to Telemedia Pacific Limited, and Adjunct Professor of CityU's Electronic Engineering department. His first lecture started with a quick survey of international submarine cable networks in Hong Kong and in the Asia-Pacific region. Using a specific submarine cable project in the South China Sea as an example, Professor Yu outlined all the key processes in submarine cable system construction. The complexity of Desk Top Study (ie researches into various databases) for cable route design and protection against all potential physical risks were described. Political complications in license applications in South China Sea with territorial disputes and numerous commercial considerations in crossing oil/gas exploration zones were highlighted. Technical challenges that need to be overcome in marine survey and marine installation together with their corresponding mitigation techniques and technologies were identified. Professor Yu summarized the contents of his first lecture with a short video on the subject.



Professor Peter Yu

Latest technology developments in submarine fibre optic cable system

By Professor Peter Yu

In his second lecture, Professor Yu started with a brief history of technology deployment in submarine cable systems. He

pointed out that until very recently, about a few months ago, that a commercial trial of 100Gbit/sec submarine fibre optic cable system was demonstrated to be successful across the Pacific. A single fibre at this speed can simultaneously support 15 million telephone calls or transfer the contents of 255 DVD disks in a second. Wide technical gaps that need to be bridged in this latest technology advancement

were highlighted. Professor Yu then focused on the six latest technologies operating together that enable long-haul submarine fibre optic cable systems to transmit at a speed of 100Gbit/sec. These include namely: (i) Polarization Multiplexing, (ii) Quadrature Phase Shift Keying, (iii) all Raman Amplification, (iv) 3rd. Generation Forward Error Correction Code with soft decision decoding, (v) Transmission Impairments Equalization in digital domain (instead of in analogue/optical domain) and (vi) Digital Coherent Detection. Looking into the future, Professor Yu concluded his lecture with an introduction to the "3M Technologies", speculated by some to be the main drivers of the next wave technology innovation in fibre optic transmission.

Optical printed circuit boards

By Professor Kin Seng Chiang

The second speaker, Professor Kin Seng Chiang of the Electronic Engineering department, shared his views on the latest development and commercial viability of optical printed circuit boards (PCBs). An optical PCB is an electrical PCB that incorporates optical fibres or optical waveguides to provide chip-to-chip transmission of optical signals. Optical PCBs can overcome the bottle-neck of conventional PCBs in high-speed data transmission, and contribute to miniaturization, higher signal quality, and less interference, among other advantages. Professor Chiang led an Innovation and Technology Fund (ITF) project in which he explored the development of a cost-effective process for mass production of optical PCBs. He also talked in length about the characteristics of fibre- and waveguide-embedded PCBs.



Professor Kin Seng Chiang

CUBIC Shenzhen Tour

On 9 December 2011, a tour to Shenzhen was organized for the Manufacturing Interest Group of the CityU Business and Industrial Club (CUBIC). The group visited the Millimeter Wave and Broadband Wireless Communication Key Laboratory and the Future Networking Centre housed in the the CityU (Shenzhen) Research Institute Building (SRIB), as well as Huawei, a global ICT corporation based in China.

The Millimeter Wave and Broadband Wireless Communication Key Laboratory was set up in 2009 with a RMB21 million yuan funding support

from the Shenzhen government to promote research in green wireless communication technology. The lab is led by Professor Xue Quan, Professor of the Department of Electronic Engineering and Associate Vice-President (Innovation Advancement and China Office). The

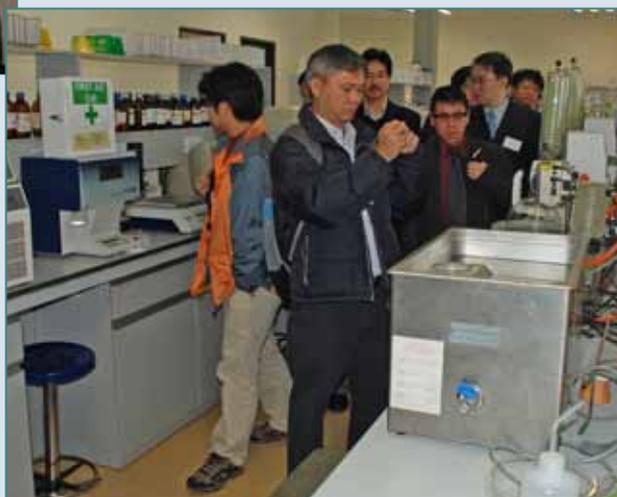


Mr Francis Li, Chairman of CUBIC's Manufacturing Group, presents a souvenir to Mr Tim Chung, Head of Channel Business Department (Enterprise Business Group) of Huawei

Future Networking Centre, under the leadership of Professor Jia Weijia of the Department of Computer Science, engages in the R&D of real-time surveillance software tools, such as its award-winning 3G real-time surveillance cloud service system. Users of mobile phones and flat panel or personal computers can access the video surveillance system via fixed-line networks, WiFi and 3G communication networks.



Participants gather outside the CityU Shenzhen Research Institute Building





IP Training Workshop

The Knowledge Transfer Office (KTO) organized its fourth intellectual property (IP) training workshop on 16 December, attracting about 40 CityU students and staff. The IP workshop series is designed to support KTO's strategic plan for knowledge transfer. The workshop covered topics such as reading and drafting patents, patent search and patent landscaping, research planning, and avoiding infringement.

Most participants were appreciative of the quality of the workshop and its relevance to their field of work. Felix Lam, a freshman enrolled in the Information Engineering programme of the Electronic Engineering department, said, "I would probably be designing products such as mobile applications and software packages in the future, and therefore a good understanding of IP will be essential to my professional development."

Jenny Hung, another attendee, was particularly impressed with the module on patent landscaping, a tool for identifying technology trends. "Patent landscaping provides important insights into the research and development of technology. IP-related issues are relevant to both my work and studies, and what I learnt in the workshop has heightened my sensitivity towards them," said Hung, a first year student of the Master of Science programme in Organisational and Change Management.

The content and delivery of the workshop were provided by Isis Innovation Limited, a technology transfer company held by the University of Oxford.



Mr Felix Lam

Forum Promotes Hong Kong as IP Trading Hub

The Business of Intellectual Property Asia Forum (BIP) was held on 2 December 2011 in the Hong Kong Convention and Exhibition Centre, attracting an audience of over 550 participants. The event was organized by the Hong Kong Trade Development Council (HKTDC) and the Hong Kong Design Centre, with the support of the Hong Kong Intellectual Property Department.

IP trading can take various forms including copyright trading, franchising of trademarks, design service, and licensing / assignment of patents. BIP Asia aimed to focus attention on

Hong Kong's potential as the region's leading IP trading hub by bringing together business executives, IP professionals, and government officials to discuss current trends in IP trading.

Proximity to China and sound legal and financial infrastructures lend support to Hong Kong's development as a marketplace for both mainland global IP owners and users. IP trading is expected to gain popularity in China as science and technology is given greater priority in its 12th Five-Year programme outlining the nation's development from 2011 to 2015.

Granted Patents

Source radiation

US patent number: 7999624

Principal investigator: Professor Xue Quan

Department of Electronic Engineering

This patent proposes a novel way to produce a radiation source for use in phased antenna arrays, in which the relative phases of signals feeding the antennas are varied for steering the direction of beams transmission. The invention is made up of a series of voltage controlled oscillators, phase shifters, and phase locked loops. By changing the phase of the phase locked loop's reference signals, the signal phase can be altered indirectly. The frequency of the reference signals should then be lower than that of the output signals, and therefore phase shift control can be achieved cheaply and easily. This invention can be used to provide radio frequency signals for a phased antenna array or provide a single radio frequency signal with a highly controllable phase.

Ultra-hard multilayer coating comprising nanocrystalline diamond and nanocrystalline cubic boron nitride

US patent number: 8007910

Principal investigator: Professor Zhang Wenjun

Department of Physics and Materials Science

Professor Zhang has developed an ultra-smooth, ultra-hard coating material in the form of a multilayer coating (MLC) made of nanodiamond (nanoD) and nanocrystalline cubic boron nitride (nano-cBN), the hardest and the second hardest materials in the world respectively. The MLC is a composite material with novel and extreme properties surpassing those of its constituent materials, ie nano-cBN and nanoD. The new coating can protect chemically and mechanically the surfaces of products, and can increase chemical and mechanical resistance and promote heat dissipation. The nanoD layers can be prepared by chemical vapour deposition (CVD) methods whereas the cBN layers can be deposited by either ion-assisted CVD or physical vapour deposition.

Method and apparatus to grade the colours of diamonds

China patent number: 200810086577.3

Principal investigator: Dr Cheung Ho Fai

Department of Physics and Materials Science

Diamonds are graded according to their colours but inspection is so far done manually and hence subjective. The University has developed a novel method and apparatus to measure the colours of diamonds that are scientific and measurable, with reproducible results. The diamond to be tested is illuminated with a white light, which is revolved into its colour components. The colour components are measured and the colour strength of the diamond is computed. The colour intensity of the diamond is evaluated based on the colour components with the help of a suitable mathematical formula.

CityU Business and Industrial Club 城大工商协进会

Membership Application Form 会员申请表



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申请者姓名 (*博士/先生/女士/小姐)

* delete as appropriate 请删去不适用者

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Business Nature 业务性质

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(Mobile 手机)

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Please tick the appropriate box(es) below if you want to obtain the relevant application information for:
如欲申请下列证件/信用卡, 请在适当空格划上刷号。

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- 3) CityU Credit Card (free)
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Please return this form by post to Knowledge Transfer Office, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong
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请将表格寄交香港九龙达之路香港城市大学
知识转移处 或 传真至(852) 2265 8028

I _____ (name of applicant) hereby apply for membership of the CityU Business & Industrial Club (CUBIC). I confirm that the information furnished above is complete and accurate and it can be used by CUBIC for membership related purposes.
本人 _____ (申请人姓名) 欲申请成为城大工商协进会(CUBIC)会员, 谨此确认上述提供之资料正确无误, 并可被用于与 CUBIC 会员事务有关之事宜上。

Signature 签署: _____

Date 日期: _____

