

## Graduate Studies & Research Newsletter

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FEATURES



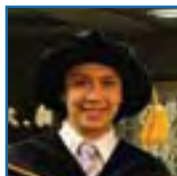
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## CityU projects win huge research grants

In the 2008/09 Research Grants Council's funding exercises, three projects from the College of Science and Engineering have received funding through the Collaborative Research Fund Exercise totalling HK\$16.2 million, and one project from the College of Humanities and Social Sciences has won the largest grant of about HK\$5 million in the Strategic Public Policy Research Funding Scheme.



▲ Prof Michel Van Hove

The Collaborative Research Fund offers Group Research Grants to encourage collaborative research across disciplines and/or across institutions funded by the University Grants Committee. CityU received the highest amount of funding among local universities this year, and its application success rate was also the highest. The funded projects included two on nanomaterials, led by Prof Michel Van Hove, Head, and by Chair Professor Lee Shuit-tong,

from the Department of Physics and Materials Science respectively, and one on the detection and assessment of toxins in seafood and their transfer led by Prof Paul Lam Kwan-sing of the Department of Biology and Chemistry, who is also Vice-President for Student Affairs.

The Strategic Public Policy Research Funding Scheme was launched in 2008/09 to support and promote longer-term public policy research projects. Of the two successful applications this year, the project titled "A Benefit-finding Intervention for Family Caregivers of Persons with Alzheimer's Disease", led by

Prof Cheng Sheung-tak of the Department of Applied Social Studies, received the larger grant.



▲ Prof Lee Shuit-tong

"This is a testimony to the outstanding research abilities of CityU and is surely a boost to collaboration among institutions of higher education in driving research," said Prof Roderick Wong Sue-cheun, Vice-President (Research and Technology).

"CityU researchers are driving special investigations in the fields of science and social sciences that could ultimately yield an array of discoveries or improvements on current and developing technologies, as well as contributing to enhancing health and quality of life," he added.

The two projects on nanomaterials are complementary, sharing the goals of contributing to medical applications, energy development and the environment.

The performance of nanodevices is often dominated by surface properties because of the extremely high surface-to-bulk ratio in a nanostructure, said Prof Van Hove. His project, titled "Studies of Fundamental Properties of Nanosurfaces and Selected Applications", will use a new methodology for designing and tailoring highly-controlled nanoplatforms. The team will

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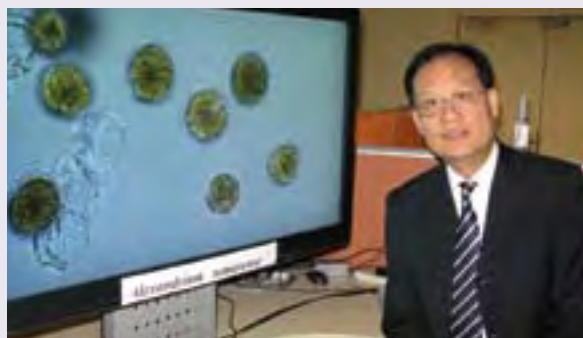


The Editorial Board welcomes articles, photos and ideas. Please send your contributions to Ms Millie Mark  
c/o Chow Yei Ching School of Graduate Studies  
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(continued from page 1)

then measure and explain with theory the functional properties, including determining for the first time the surface structure of the nanoplatforms. The dual longer-term aims are to improve the properties of nanoparticles that enhance their antibacterial activity for combating infections, and to optimize the efficiency of converting solar energy to electricity. The project was awarded HK\$7.4 million, the biggest grant in this year's Collaborative Research Fund Exercise.



▲ Prof Paul Lam Kwan-sing

The other project on nanomaterials, led by Prof Lee, received a grant of HK\$5.6 million. The functions of all nanomaterials are determined by their surface properties, thus the ability to control surface properties in nanostructures is crucial to the development of nanostructure-based devices, said Prof Lee. In the project titled "Study and Engineering of Surface-dependent Properties and Core-shell Composite Structures of Nanomaterials", he and his team will study and manipulate the structure and properties of single nano-objects to gain detailed understanding of their surface-dependent properties and core-shell composite structure and their effects on nanomaterials characteristics. Based on their findings, the team will fabricate a range of nanodevices such as light emitting diodes and laser diodes, field effect transistors, solar cells, memory devices, chemical/biological/biomedical sensors and waveguides for diverse applications.

The project titled "Algal Toxins: Development of Analytical and Bioassay Detection Methods and Assessment of Environmental Transfer in Marine Food Webs" received a grant of HK\$3.2 million. Paralytic shellfish poisoning (PSP) and ciguatera fish poisoning (CFP) are major seafood-toxin

illnesses which are of growing global concern. Methods for the detection of PSP toxins in seafood have been established, but methods for the detection of CFP toxins have not yet been fully developed because these toxins are structurally complex and are difficult and expensive to isolate or synthesise, said Prof

Lam. Through the research project, Prof Lam and his team will establish an instrumental method and bioassays for measuring toxins involved in CFP and develop reference toxin standards. The team will also develop a rapid testing method to detect the toxins, thus contributing to the protection of human health and the environment, as well as minimizing economic loss.

As little is known about the sources, dynamics and fates of PSP and CFP toxins in marine species and food webs, the team will study how the toxins transfer in ecosystems, hoping that this will help minimize the occurrence of toxic fish species.

In the project funded by the Strategic Public Policy Research Funding Scheme, Prof Cheng aims to develop an innovative benefit-finding programme to reduce the stress and promote the well-being of caregivers of family members with Alzheimer's disease. The burden of caring for Alzheimer's patients often results in depression and poor health, thus affecting the effectiveness of the caregivers. Prof Cheng believes that the caregivers will experience less stress and feel more efficacious in carrying out their tasks if they find

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## Projects funded by the Research Grants Council

Projects receiving the Collaborative Research Fund	Investigators from CityU
Studies of Fundamental Properties of Nanosurfaces and Selected Applications	Prof Michel Van Hove Prof Chan Chi-hou Prof David Tong Shuk-yin Prof Zhang Ruiqin
Study and Engineering of Surface-dependent Properties and Core-shell Composite Structures of Nanomaterials	Prof Lee Shuit-tong Prof Igor Bello Prof Lee Chun-sing Dr Ma Duoduo Dr Wong Ning-bew Dr J Antonio Zapien Dr Zhang Ruiqin Dr Zhang Wenjun
Algal Toxins: Development of Analytical and Bioassay Detection Methods and Assessment of Environmental Transfer in Marine Food Webs	Prof Paul Lam Kwan-sing Dr Michael Lam Hon-wah Dr Lam Yun-wah Dr Margaret B Murphy
Project receiving funding from the Strategic Public Policy Research Funding Scheme	
A Benefit-finding Intervention for Family Caregivers of Persons with Alzheimer's Disease	Dr Cheng Sheung-tak Dr Julian Lai Chuk-ling



▲ Prof Cheng Sheung-tak

benefits and meaning in what they do. By promoting a more positive image of caregiving, caregivers will be encouraged to get training, receive help and improve networking in the neighbourhood.

Besides focusing on the primary caregiver, the project will examine, at the global level, the effectiveness and feasibility of cross-generational interventions. "In addition to contributing to the development of caregiving as a formal occupation, development of a manual for the NGOs, on the training of professionals, for example, occupational therapists, social workers and psychologists and the like who help caregivers, the project will have far-reaching implications for long-term policy development in Hong Kong as well as make an impact on the field's thinking as to how caregiver interventions should be conducted," he said. ■

— Shirley Lam

## Leading CityU scientist receives natural science's highest state award

Prof Chen Guanrong, Chair Professor of Electronic Engineering, was conferred the State Natural Science Award (SNSA), Second Class, in recognition of his achievements and contributions in the field of chaos theory.

Prof Chen has been engaged in the research of chaos theory for the past 20 years and is renowned for his discovery of the "Chen System" – a reputed chaos system well known to the international academic community. He is also active in promoting related research among scientists and researchers both at home and abroad.

The SNSA, China's most prestigious award in the field of natural science, recognises academic excellence in basic and applied research in the nation. More than 160 shortlisted projects competed for the award in 2008 and no First Class Award was given this year.

Chaos theory seeks to uncover underlying order within apparently disordered dynamics and data. It is a relatively new discipline, in existence for 40 years or so, but is fast gaining recognition and importance in academic communities. Many scientists rank chaos theory with relativity and quantum mechanics as among the three most important scientific theories of the 20th century.

The award-winning project led by Prof Chen, "Chaos Anti-control and Generalised Lorenz Systems Family – Theory and Applications", belongs to the frontier of interdisciplinary scientific research on chaos theory, control systems and mathematical sciences. Its findings provide new applications and technologies in engineering, physics and biology alike, for example in network security. Based on chaos theory, Prof Chen has developed a methodology for designing secure communication systems. Under his framework, information is transmitted in a chaotic form, thus ensuring the security of data. What's more, the technology is easy to apply, fast and cost-effective.

Prof Chen's main research pursuit is in one of the major areas of engineering. While enhancing the quality of basic research, he also applies his research to related areas such as complex networks, information encryption and secure communications, non-linear vibration analysis and control. He has also introduced this frontier scientific subject to the mainland and initiated related research conducted by many younger scientists.

Prof Chen was pleased to receive the award and regarded this as the nation's affirmation of his achievements in scientific research, and expressed his gratitude to CityU for its strong support over the years. He was particularly gratified his success spurred an impetus to the development of this discipline on the mainland.

He added there is great potential in further developing the chaos theory, given that it spans many disciplines, including mathematics, physics, engineering, technology, biology, chemistry and even social sciences. Currently some scientists are doing research on how to use chaos theory to explain the processes behind human thought, memory and other cognitive behaviours. ■

Adapted from *CityU NewsCentre*



▲ Prof Chen Guanrong



# Wind tunnel facility advances wind engineering research at CityU

Wind is a powerful force of nature. The interaction between wind and skyscrapers, glass wall buildings and long bridges that characterize Hong Kong's cityscape has a strong impact on the environment of the city. A wind tunnel facility at CityU, launched in December 2008, promotes better understanding of this interaction. This in turn will help improve urban development planning and the environment, as well as advance research in wind engineering.

In modern cities such as Hong Kong, buildings are not only getting taller and taller, their designs are becoming more innovative. This creates a local topography that affects air movement and ventilation. Taking into consideration the need to attend to wind pressure and wind loading on these buildings and the growing community awareness of air quality, CityU's Department of Building and Construction saw that the demand for wind tunnel facilities in Hong Kong had outstripped the existing capacity. The new facility is the third in Hong Kong for studying wind loading and localised ventilation.

such as expansion, contraction, honey-combs and screens, the facility has a remote controlled turn-table, remote controlled 3-dimension traversing system and a CCTV monitoring system. A blockage-tolerance roof that allows testing of larger models without causing blockage effects, remote control roughness elements, and valves for flow control for very low wind speeds are also incorporated into the facility.



▲ The CityU Wind Tunnel Facility



▲ Mrs Carrie Lam, Secretary for Development (4th from right), Mr Mak Chai-kwong, Permanent Secretary for Development (Works) (3rd from left), Prof Way Kuo, University President (4th from left) and honourable guests officiate at the opening ceremony of the CityU Wind Tunnel Facility.

"The wind tunnel facility at CityU is equipped with advanced, state-of-the-art technology, providing a comprehensive facility to offer flexible solutions for different types of studies such as air ventilation, pollution studies and wind loading evaluation," said Prof Edmund Choi Cheong-chuen of the Department of Building and Construction, and leader of the wind tunnel project.

The wind tunnel is a re-circulating flow tunnel which is 20 metres long, with a testing area about 2 metres high and 2.7 metres wide. The tunnel is driven by a centrifugal compressor with a maximum capacity of 400,000 cubic metres per hour and the maximum wind speed is in excess of 20 metres per second. In addition to standard features in the settling chamber

The facility simulates the environment on a reduced scale, collecting air flow data in different areas of the tested building. It can help test whether a building could withstand extremely strong winds or whether there is adequate ventilation in the built-up areas.

Air ventilation assessments are required for all government building projects. There is no regulation requiring private real estate developers to undertake the wind tunnel tests, but they are encouraged to do so. Prof Choi said the tests can help developers understand the impact of wind loading on buildings, select architectural designs that can improve air flow for better ventilation and enhance land use.

The wind tunnel facility is also useful for studying the interaction between wind and bridges and investigating air pollution and

dispersion problems. The facility can be used to conduct aerodynamic response tests to obtain aerodynamics derivatives for designing bridges. Since Hong Kong does not have a wind tunnel facility large enough for whole bridge studies, bridge section models can be tested at CityU's facility, Prof Choi said.

Prof Choi, who has many years of experience in wind tunnel studies, was involved in the studies for the construction of the Ting Kau bridge before he joined CityU. He believes that CityU's wind tunnel facility will be able to make a contribution to the construction of a system of bridges in the Pearl River Delta region, which is on the drawing board.



▲ Prof Edmund Choi Cheong-chuen

The Department of Building and Construction houses diverse disciplines, including fire engineering, indoor air quality and building service under one roof, said Prof Choi. This contributed to the successful establishment of the wind tunnel facility. “All the disciplines can employ the wind tunnel facility in their research activities in one way or another,” he said.

Prof Choi and his team are using the facility to study how terrain and topography affect wind speed and wind flow, which is important for wind loading and ventilation. “Knowledge of wind engineering is inadequate on a global scale,” said Prof Choi. “We hope to make use of the wind tunnel facility to

conduct more research in the areas in which knowledge is lacking and make a contribution to the wealth of knowledge.”

Prof Choi, who has over 20 years’ experience in wind engineering, has been involved in wind action on buildings since he studied for his PhD in 1970 in which he worked on the Cape D’Aguilar HK project “A 10-storey building specially built for wind loading studies”. In the 1980s, he participated in developing the Wind Loading Code for Hong Kong and he is currently on a committee responsible for revising the code. He focused on typhoon studies when he worked in Hong Kong in the 70’s and the 80’s but he switched to thunderstorm research after he moved to Singapore in the early 90’s as there were no typhoons in Singapore but frequent thunderstorms, and he realized that Singapore needed more understanding about such a phenomenon. The decision made him a pioneer in the field of thunderstorm wind characteristics.

If a student wants to be successful, he should find out how his research interest could help society, spend more time on it and he will succeed, Prof Choi said. “When we do research, we have to take into account of its relevancy to society,” he added. ■

— Shirley Lam

## CityU and CAS join hands to study impact of climate changes

CityU and the Institute of Atmospheric Physics under the Chinese Academy of Sciences (CAS) have established a joint laboratory to undertake research in climatic changes in China and the Asia Pacific region, with particular emphasis on possible droughts in South China. The laboratory is among 13 recognized joint laboratories set up by CAS and institutions in Hong Kong.

Prof Johnny Chan Chung-leung, Chair Professor of the Guy Carpenter Asia-Pacific Climate Impact Centre and the Laboratory for Atmospheric Research of the Department of Physics and Materials Science, will lead the laboratory, which comprises members from the Department and CAS. The collaboration will allow the exchange of research personnel to work on specific projects.

A main focus of study will be possible droughts in the South China region, which has severe implications for the salination of natural underground water. Changes in monsoon patterns can lead to a reduction in rainfall, causing underground water levels to fall and seawater to flow inland. Salt contamination of underground water can have serious consequences for the supply of fresh water for consumption.

By identifying the possible major cause of extreme climatic changes, the joint laboratory will be able to assist regional



▲ Prof Johnny Chan

governments with water resource management. In addition, the joint laboratory and the Hong Kong Observatory could play complementary roles in furthering weather forecasting research in Hong Kong and the region.

CAS decided to set up the joint laboratory with CityU after assessing the research capabilities of 21 established and prospective joint laboratories. CAS has also joined forces with CityU to establish the Nano-organic Photoelectronic Laboratory led by Prof Lee Shuit-tong, Chair Professor of the Department of Physics and Materials Science. ■



## Experts support biomedical engineering at CityU

A team of experts led by Prof Wang Lihong, Gene K Beare Distinguished Professor of the Department of Biomedical Engineering at Washington University in St Louis, visited CityU from 1–3 December 2008 to advise on establishing biomedical engineering-related programmes and research at the University.

The meeting was in response to the plan of Prof Way Kuo, University President, to prepare the University to face challenges and lead changes in the years to come. Biomedical engineering has been identified as the first constellation of disciplines the University needs to explore as part of its future education and research agenda.

In addition to Prof Wang, the expert team comprised Prof Walter H Hsu, Professor of Pharmacology of the Department of Biomedical Sciences, Iowa State University; Prof Zhang Yantian, Programme Director of the Division of Applied Science and Technology, National Institute of Biomedical Imaging and Bioengineering, US National Institutes of Health; and Prof Lo Yuk-lam, Director of the Chinese Manufacturers' Association of Hong Kong and Member of the Research Grants Council of the Hong Kong University Grants Committee. Prof Kuo led senior management in welcoming the committee to CityU, along with Prof Richard Ho Yan-ki, Provost; Prof Roderick Wong Sue-cheun, Vice-President (Research and Technology) and Dean of Graduate Studies; and Prof Paul Lam Kwan-sing, Vice-President (Student Affairs).



▲ A team of biomedical engineering experts visits CityU.

During the three-day visit, the team was briefed on CityU's strengths, strategic goals, the challenges ahead and, in particular, its existing expertise in biomedical-related areas.

The expert team was impressed with the University's research capabilities in biomedical engineering and believed that CityU is in a good position to develop this field. "The biomedical engineering programmes will benefit Hong Kong, Greater China and the rest of the world," Prof Wang said. "It is essential to apply science and engineering to medicine in order to meet future healthcare challenges." ■

Adapted from *CityU NewsCentre*

## Prof S T Lee wins HLHL Foundation Prize

Prof Lee Shuit-tong, Chair Professor of the Department of Physics and Materials Science, has been awarded the Metallurgy and Materials Technology Prize for Scientific and Technological Progress and with it a cash award of HK\$200,000 by the Ho Leung Ho Lee Foundation (HLHL) in recognition of his outstanding achievements in science and technology, in particular in the fields of super-diamond and related materials, nanomaterials, organic light emitting diodes and display technology, and his contribution to promoting development in these areas on the mainland.



▲ Prof Lee Shuit-tong

"This shows the state's support and affirmation of science and technology," said

Prof Lee, who also added that he was grateful to the University for providing an excellent research environment complete with many outstanding researchers.

Since joining CityU 14 years ago, Prof Lee has dedicated to materials science research and has successfully developed various innovative and energy-saving technologies, such as nanotechnology, nanodiamond and OLED. In the future, he will focus on the application of nanomaterials and technologies to the disciplines of biomedical and energy regeneration, with the objective of addressing energy shortages.

The HLHL Foundation was set up in 1994 by four well-known Hong Kong philanthropists, namely Dr S H Ho, Dr Leung Kau-kui, Dr Ho Tim and Dr Lee Quo-wei, who donated HK\$100 million each. It aims to promote the development of science and technology on the mainland by awarding outstanding scientists. The HLHL Foundation Prizes are currently one of the most significant and influential awards in China. ■

Adapted from *CityU NewsCentre*



# Mathematical conference looks at latest trend in partial differential equations

The International Conference on Partial Differential Equations and Applications, held at CityU from 5–8 December 2008, brought together 52 eminent speakers from the US, UK, France, Italy, Spain, Switzerland, Poland, Romania, India, Japan, the mainland and Hong Kong.

The conference, organized by the Liu Bie Ju Centre for Mathematical Sciences and the Department of Mathematics at CityU, discussed some of the latest trends in the field of partial differential equations. It was also dedicated to Prof Philippe G Ciarlet, Professor Emeritus of Université Pierre et Marie Curie, Paris, and Chair Professor of CityU, on the occasion of his 70th birthday, in recognition of his mathematical achievements and dedication to the mathematics community.

Prof Roderick Wong Sue-cheun, Vice-President (Research and Technology), Dean of Graduate Studies and Director of the Liu Bie Ju Centre, said it was a great pleasure for CityU to have Prof Ciarlet with us. “Prof Ciarlet not only focuses on research and teaching but also helps to run the Liu Bie Ju Centre for Mathematical Sciences and support the publication of the journal *Analysis and Applications*. Because of his connection with the French Academy, he has invited many distinguished scholars to speak in the University’s France-Hong Kong Distinguished Lecture Series,” said Prof Wong.



▲ Prof Roderick Wong delivers the opening address at the conference.

1994 winner of the Fields Medal; Prof Jean-Pierre Bourguignon, Director of the Institut des Hautes Etudes Scientifiques; Prof Liu Tai-ping from Stanford University; and Prof Shi Zhong-ci and Prof Li Ta-t sien from the Chinese Academy of Sciences.

Prof Wong delivered a plenary talk titled “Orthogonal polynomials, Riemann-Hilbert Problems, and Painlevé Transcendents”. Other CityU professors speaking at the conference were Prof Felipe Cucker, Prof Yang Tong, Prof Zhang Qiang and Prof Zhou Ding-xuan, all from the Department of Mathematics.



▲ The conference brought together 52 eminent speakers from all over the world.



▲ From left: Prof Sir John Ball, Prof Philippe Ciarlet, Prof Stuart Antman

Prof Ciarlet joined CityU in 2002 as Chair Professor. Besides focusing on research and teaching, he is Deputy Director of the Liu Bie Ju Centre. His research interests include numerical analysis, computational mechanics and mathematical modelling. He is a Member of seven academies, which include the Academia Europaea, the European Academy of Sciences, the Romanian Academy and the French Academy of Sciences. His awards include the French Legion of Honour, a Grand Prize of the French Academy of Sciences and the Alexander von Humboldt Research Award. In 2007 he was awarded the Shanghai Prize for International Cooperation in Science and Technology. ■

— Shirley Lam



## External grants

Funding Body	Project Title	Principal Investigator	Amount (HK\$)
ITF (Matching Grant for Joint Research)	Inelastic Electron Tunneling Spectroscopy for Ferromagnetic Material Nanometer-Thin Film Junction	Prof Lawrence Wu Chi-man <i>Department of Physics and Materials Science</i>	999,000*
ITF (Tier-3)	Parallel Classical-Colloquial Chinese Alignment Processing and Retrieval Platform	Prof Benjamin T'sou Ka-yin <i>Language Information Sciences Research Centre</i>	1,000,000
	Development of Automatic Biological Cell Manipulation System	Dr Dong Sun <i>Department of Manufacturing Engineering and Engineering Management</i>	999,990
	Silicon-based Nanomaterials for Highly-sensitive Detection of Carcinogenic Chemicals and Food Dyes	Prof Lee Shuit-tong <i>Department of Physics and Materials Science</i>	994,750
ITF (Teaching Company Scheme)	Study on Sealing of Battery Packaging	Prof Robert Li Kwok-yiu <i>Department of Physics and Materials Science</i>	324,400*
ITF (Internship Programme)	Research and Development of Business Intelligence Technologies for Enterprise Security Management System	Prof Jian Ma <i>Department of Information Systems</i>	220,500
	Parallel Classical-Colloquial Chinese Alignment Processing and Retrieval Platform	Prof Benjamin T'sou Ka-yin <i>Language Information Sciences Research Centre</i>	176,983
	Development of Automatic Biological Cell Manipulation System	Dr Dong Sun <i>Department of Manufacturing Engineering and Engineering Management</i>	157,500
	Silicon-based Nanomaterials for Highly-sensitive Detection of Carcinogenic Chemicals and Food Dyes	Prof Lee Shuit-tong <i>Department of Physics and Materials Science</i>	214,200
Hong Kong Applied Science and Technology Research Institute (ASTRI)	Future Multimedia Standards	Dr Po Lai-man <i>Department of Electronic Engineering</i>	1,000,000

\* inclusive of industrial sponsorship

## Upcoming deadlines / activities

Date	Activity	Responsible Party
2-31 March	Application period for the Conference Grant and Research Activities Fund, 1st Round 2009	SGS
3 March	RGC Collaborative Research Fund (CRF) 2009-2010	RO
9 March	ITSP Tier 2 and Tier 3 Projects	RO
31 March	Professional Services Development Assistance Scheme	RO
31 March	Seed Funding Scheme of the Health Care and Promotion Fund (HCPF)	RO
31 March	Postgraduate Forum	SGS
March	Pneumoconiosis Compensation Fund Board (PCFB) Research Fund	RO
13-16 April	International ICT Expo 2009	KTO
14-16 April	3rd PhD Student Workshop 2009	SGS
April	RGC Strategic PPR Scheme	RO
11 May – 8 Jun	Application period for the Conference Grant and Research Activities Fund, 2nd Round 2009	SGS
May	RGC France/Hong Kong Joint Research Scheme	RO
May	RGC Germany/Hong Kong Joint Research Scheme	RO
16 June	Science for the Future : A World-class Summit – “Frontiers in Bioscience : Learning and Memory”	Organizing Committee for the World Academicians Conferences





## CityU ranks highly for engineering research papers

CityU ranks number one in Hong Kong and 45th in the world for engineering research papers, according to *Evaluation Bimonthly*, published by the Higher Education Evaluation and Accreditation Council of Taiwan. The University ranked 147th in the 2008 World University Rankings by the *Times Higher Education Supplement*, maintaining a place among the world's top 200 universities for five consecutive years.



## Installation of the President cum Honorary Awards Ceremony

Prof Way Kuo was formally installed as the fourth president of CityU by the Chancellor, The Hon Donald Tsang Yam-kuen, Chief Executive of the Hong Kong Special Administrative Region, on 11 November 2008. On the same occasion, the Chancellor conferred Honorary Degrees on The Hon Mr Justice Patrick Chan, Permanent Judge of the Court of Final Appeal; Dr Chow Yei-ching, GBS, Chairman and Managing Director of the Chevalier Group of Companies; and Mr Sze Chi-ching, JP, Chairman of Hang Tung Resources Holding, in recognition of their significant contributions to education and the well-being of society.

## CityU to help develop new water quality standards

A team led by Chair Professor Rudolf Wu Shiu-sun of the Department of Biology and Chemistry has been awarded HK\$8.7 million government consultancy project to direct the development of a new set of water quality standards to more effectively protect Hong Kong's marine environment and resources. The project was commissioned by the Environmental Protection Department and will form part of the blueprint on the future management and control of water quality in Hong Kong. The team will review and examine the various uses of different parts of Hong Kong coastal waters and take a risk-assessment approach to determine the most appropriate level of water quality to support each use, so as to ensure that neither over- nor under-protection will occur. Other members of the team are Dr Doris Au Wai-ting, Dr Richard Kong Yuen-chong and Dr Paul Shin Kam-shing, all Associate Professors in the Department.



## Oil sands company funds pump monitoring project

Dr Peter Tse Wai-tat, Associate Professor in the Department of Manufacturing Engineering and Engineering Management, has been commissioned by Syncrude Canada Limited, the world's largest producer of oil from oil sands, to develop a system to monitor the operation and rate of deterioration of its oil sand pumps. The system will have pre-warning alarms to alert maintenance staff when parts should be repaired or replaced before the pumps fail to operate. Dr Tse's three-year project will receive funding of about HK\$1.5 million from the company. Besides funding Dr Tse's development project, the oil company intends to hire qualified graduates from the Department to further support and develop the monitoring system.





### Three professors elected IEEE fellows

Prof Keith Zhang Qitu (1st from left) and Prof Man Kim-fung (2nd from left) of the Department of Electronic Engineering and Prof Gary Feng Gang (3rd from left) of the Department of Manufacturing Engineering and Engineering Management have been elected as Fellows of the Institute of Electrical and Electronics Engineers (IEEE). Prof Zhang was nominated for his outstanding contributions in the area of wireless communications and his distinguished service to IEEE; Prof Man was nominated for his contributions to evolutionary optimization in industrial electronics; and Prof Feng was elected in recognition of his contributions to theory and the application of fuzzy systems and control.



### Researcher wins award from Institute of Metal Research

Dr Tang Yongbing, Research Fellow in the Department of Physics and Materials Science, has been awarded the first Ke Ting Sui Research Fellowship for his outstanding work in the area of materials sciences. The award was established by the Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences. Dr Tang received a start-up funding of RMB500,000 for applied research.

### Professor named Fellow of the Association for Computing Machinery

Chair Professor Deng Xiaotie from the Department of Computer Science has been selected as a Fellow of the Association for Computing Machinery, the world's largest educational and scientific computing society, for his contributions to the interface of algorithmic methodology and game theory. Among the 44 Fellows named, Prof Deng is the only scholar from an Asian university.



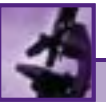
### Biology and Chemistry researcher recognized

Dr Doris Au Wai-ting, Associate Professor of the Department of Biology and Chemistry, has received a Distinguished Lecturer in Toxicology Award from the Toxicology Centre of the University of Saskatchewan. The award is presented to researchers in environmental science, particularly in the field of environmental toxicology or chemistry.

### World Englishes conference held in Hong Kong for the first time

The Department of Chinese, Translation and Linguistics organized the 14th Conference of the International Association for World Englishes, titled "World Englishes and World's Languages: Convergence, Enrichment or Death?", from 3–5 December 2008. Held in Hong Kong for the first time, the conference attracted a number of papers relevant to the Hong Kong and Asian contexts.





# Virtual reality to get more real with improved 3D vision

Committed to the R&D of 3DTV, Dr Peter Tsang Wai-ming, Associate Professor, Department of Electronic Engineering, has developed a novel technique that further empowers the 3DTV technology he invented earlier.



▲ Dr Peter Tsang Wai-ming (left)

To produce multi-view 3D images, video signals from several cameras are integrated and processed to fit into the current video infrastructure. This makes the 3D video images suitable for televised broadcasting and DVD/VCD production.

One of the challenges facing 3DTV is balancing video quality and the amount of data to be transmitted. In general, the higher the data transmission rate, the better the resolution. However, a huge amount of data, if unmatched by high compression efficiency, will present difficulties to the processing, transmission and display of video images.

To solve the problem, Dr Tsang has come up with a new technique that makes high-quality, multi-view 3D video signals compatible with the current video infrastructure. The project is funded by the University's Innovation to Realisation Programme (I2R), and the invention is being filed for patent application in the US. ■

— Eliza Chan, Knowledge Transfer Office

# Anti-phishing technology licensed to local bank

A famous local bank has in principle agreed to license an anti-phishing software tool developed by Dr Liu Wenyin, Assistant Professor of the Department of Computer Science, and his team. The agreement underscores the team's technological accomplishments and their commitment to commercialisation, a process that often sets inventors on a path radically different from that of basic research.

The anti-phishing software tool developed by Dr Liu targets fake websites that dupe internet users into revealing their credit information. Over the past two years, the research team has been working with several leading banks in Hong Kong to refine the software tool for application in online security.

In developing the software tool, Dr Liu had to tackle problems which were mostly engineering in nature, and to address the needs of customers who are not tech-savvy. While most of the problems were technically solvable, they covered a wide range of fields which called for expertise from diverse areas.

"It takes 10 times the effort to turn lab-based research into commercially viable products," said Dr Liu. He advised fellow inventors who wish to commercialise their research results that users' comments must be considered seriously.

Dr Liu is still working on the anti-phishing software project and hopes to turn the software tool into a utility on which the public can rely for verifying the authenticity of websites. ■



Dr Liu Wenyin ▲

— Eliza Chan, Knowledge Transfer Office



# Data security and encryption advances shared with industry

An audience of industry professionals attended a technology transfer forum organized by the Knowledge Transfer Office on 15 January to learn about the latest developments in data security and encryption technology.



▲ Mr Wong Hon-ye

The Knowledge Transfer Office organizes frequent forums to help disseminate mature CityU technologies to local industry for the advancement of Hong Kong and the region, said Mr Wong Hon-ye, Associate Vice-President (Knowledge Transfer). The forum featured three CityU researchers who discussed the existing and potential applications of three diverse security and encryption techniques.

Dr Cheng Lee-ming, Associate Professor, Department of Electronic Engineering, outlined the latest advances in digital watermark chips. Dr Duncan Wong Shek, Assistant Professor in the Department of Computer Science, described his latest software to secure mobile messaging and email without a personal certificate. Dr Wong Kwok-wo, Associate Professor, Department of Electronic Engineering, discussed a chaos-based image encryption method designed for real-time image and video communications.



▲ Dr Duncan Wong Shek

“The rapid advancement of technologies for digital scanners, digital cameras and digital video recorders has created a huge market for digital multimedia content such as digital documents, photos and videos, as well as related services in content storage, retrieval and reproduction,” said Dr Cheng. His digital watermark chip would counter the threat of forgeries of



▲ Dr Cheng Lee-ming (left)



▲ Industry professionals attend the technology transfer forum.

digital documents by generating a strong watermark that can withstand most digital filtering and processing techniques.

Dr Duncan Wong has devised a software tool that allows users to send and receive encrypted SMS messages. “It provides end-to-end protection of your SMS messages, which could be encrypted during transmission and storage,” he explained. Users would be able to shift easily between plain and secure SMS modes according to their needs.

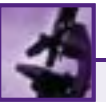
The encryption software could prevent SMS information from being seen or logged during transmission or read by unwanted eyes should a mobile phone or other devices be stolen. SMS-based security is of particular importance to banks, other security-dependent business sectors and law enforcement agencies.

Dr Wong Kwok-wo’s chaos-based encryption method is designed for image and video communications, targeting internet-based applications such as teleconferencing. “Compared with other conventional products, this product is fast, lean, secure and cost-effective,” he said. “Small and light, the encryption tool is applicable to most handheld and portable devices.” ■



▲ Dr Wong Kwok-wo

Adapted from CityU NewsCentre



## Students' technological creations showcased at InnoCarnival

Ingenious technological creations by CityU students were on display at the InnoCarnival organized by the Innovation and Technology Commission at the Hong Kong Science and Technology Parks from 16 to 18 October 2008.

The InnoCarnival, part of the Innovation Festival 2008, attracted about 32,000 visitors. The event provided a venue for young people to experience firsthand technological creations by Hong Kong's innovators, among whom were two teams of CityU students from the School of Creative Media (SCM) and a team of secondary school students who had taken part in robotics workshops organized by the Department of Electronic Engineering.

Marco Po, Kimi Poon, and Samantha Lau, Year 2 SCM students, displayed their edutainment software tool for drawing and vocabulary learning. The tool guides users to draw stroke by stroke on a touch screen. Each stroke must be completed in one go, a feature designed to improve users' motor coordination. The program also allows users to learn simple Japanese and English words.

A team of final-year SCM students displayed "King of the Court" (now renamed King of the Kart), a program they developed to bring the excitement of kart racing to computer gaming. The inventors, Nick Wan, Rock Yip, Chris Yan and Shadow Lam, hope that placing the monitor screen as close as possible to players will create a sense of immediacy not afforded by similar games. Unlike most games, which only accommodate one to

two players, King of the Kart does not pose any restriction on the number of participants at the same time.



▲ Students have a great time learning to drive robots.

As many people at CityU know, robots don't plod on solid ground only. They can also stride on the undulating seabed to perform marine expeditions. Carnival visitors got a chance to operate two robots placed in a water tank. One of the robots was built by CityU students and the other by secondary school students who participated in workshops organized by Dr Robin Bradbeer of the Department of Electronic Engineering. The carnival also featured two commercial robots for underwater environmental monitoring. The teenagers' overwhelming response was definitely an encouraging sign to educators committed to science and technology. ■

— Eliza Chan, Knowledge Transfer Office

## Applied research featured at Shenzhen fair

Some of the best examples of CityU's applied research were featured at the 10th China Hi-Tech Fair, held in Shenzhen from 12–17 October 2008.

Billed as the most influential national exhibition in the field of science and technology, the China Hi-Tech Fair attracted approximately 552,000 visitors and brought in US\$13 billion worth of transactions. People from 40 countries and 90 multinational corporations attended the fair, making it a truly international event.

Among the projects on display were Secure Mobile Messaging developed by Dr Duncan Wong Shek and Mr Xiong Xiaokang of the Department of Computer Science; digital watermarking chip by Dr Cheng Lee-ming; a medaka fish genetically modified by Dr Cheng Shuk-han of the Department of Biology and Chemistry to detect estrogenic pollutants commonly found in our marine ecosystem; and a project headed by Dr Edmund



▲ CityU technological inventions on display in Shenzhen

Cheung Hong-man and Dr Lawrence Li Kwok-yan, of the Department of Manufacturing Engineering and Engineering Management, which aims to further enhance the properties of nanocomposite coatings for wider industrial applications. ■

— Eliza Chan, Knowledge Transfer Office



## CityU participates in campaign to promote science and technology

CityU took part in the “Science in the Public Service” fun fair organized by the government to promote science and technology from 14–16 November 2008 at Victoria Park.

The fun fair was an extravaganza of exhibitions and performances that ranged from police dog demonstrations, lectures, talk shows, and dance and music entertainment. Also at the fun fair were 40 booths mounted by governmental and tertiary institutions where interactive games and workshops on ways to harness advanced technologies were featured.

Three projects conducted by researchers from the Department of Electronic Engineering were on display. They were “Remote Patient Monitoring System for Telemedicine Application” and “Wireless Sensor Network for Energy Management” by Dr Tsang Kim-fung, and “Underwater Systems” by Dr Robin Bradbeer. ■

— Eliza Chan, Knowledge Transfer Office



▲ CityU showcases advanced technologies at the “Science in the Public Service” fun fair.

## Recently granted patents

Dr Sun Dong of the Department of Manufacturing Engineering and Engineering Management and Prof Chiang Kin-seng of the Department of Electronic Engineering have been granted patents recently.

Dr Sun’s patent (US 10/975,404) is for a modular multi-axis motion control and driving system. The patented technology promotes the efficiency of motion control and the driving of servo motors in compact and digitalised ways. The system supports integration and digitalised technology for both motion controller and amplifier, and can work without computer assistance. The system can be applied to a wide variety of motors, such as DC brushless motors, DC motors, linear motors, step motors and AC servos, benefiting various industrial operations that require the use of motors.

Prof Chiang’s patent (China, ZL03137030.6) is for optical fibre. The patented technology improves long-haul optical communications by controlling the refractive index profile of the cladding surrounding the core of an optical fibre, thereby stripping off unwanted modes or rays of light. An optical fibre tempered by the technology offers a large core capable of carrying light rays of a wide range of wavelengths without succumbing to intermodal dispersion and non-linear optical effects, phenomena that deteriorate the signal quality and limit the transmission bandwidth of the fibre. The new fibre design facilitates the application of wavelength division multiplexing, a technology that allows telecommunication companies to expand the capacity of communication networks without overhauling their infrastructure. It can also be employed effectively to deliver high-power laser light for industrial applications. ■

— Eliza Chan, Knowledge Transfer Office

## ITF internship programme revised

The Innovation and Technology Fund (ITF) has revised the terms of its internship programme to increase its appeal to both participating universities and prospective interns.

The internship programme, introduced in 2004, aims to develop human resources in R&D in Hong Kong by subsidising universities to recruit interns to assist in research projects. Universities enrolled in the Innovation and Technology Support Programme (ITSP) or the University-Industry Collaboration Programme’s Matching Grant for Joint Research Scheme (UIM) are eligible to apply for internship subsidies.

A relaxation of recruitment restrictions has significantly expanded the pool of potential interns. Previously, only local graduates with a first degree were qualified for recruitment. Under the new regulations, postgraduate degree holders, including non-local students who graduated from local universities, are also eligible. The monthly stipend for interns is increased from HK\$9,000 to HK\$10,000 for first degree holders, and set at HK\$12,000 for those with a postgraduate degree. The maximum internship period has been expanded from 12 to 24 months, but the minimum employment period of six months remains unchanged. ■

— Eliza Chan, Knowledge Transfer Office



## Four world renowned scientists deliver enlightening lectures

Lectures by four accomplished and eminent scholars in the fields of mathematics, physics, and biology and chemistry enlightened staff, students and the public in October and November 2008.

Prof Jean-Marie Lehn of Collège de France, the 1987 Nobel Laureate in Chemistry, and Chair Professor-at-Large at CityU, delivered a lecture titled “Constitutional Dynamic Chemistry for Bioorganic and Materials Chemistry” on 29 October. The lecture was part of an agreement between the University and the Collège de France to promote academic exchange and collaborative research projects between the two institutions.



▲ Prof Jean-Marie Lehn

Prof Lehn received the Nobel Prize, together with Prof Donald Cram and Mr Charles Pedersen from the US, for their pioneering work in supramolecular chemistry. Their innovative research was the basis for a new field in chemistry and today plays a central role in numerous disciplines, including molecular biology and nanotechnology. Prof Lehn’s lecture focused on supramolecular chemistry and constitutional dynamic chemistry, which he said “opens new perspectives in chemical sciences”.



▲ Prof Jean-Christophe Yoccoz

A week after Prof Lehn’s talk, Prof Jean-Christophe Yoccoz, also from the Collège de France, delivered the fifth lecture in the France-Hong Kong Distinguished Lecture Series co-organized by the Consulate General of France in Hong Kong, the French Academy of Sciences and CityU. The lecture, titled “Random Behaviour of Deterministic Systems”, was held on 5 November as part of the celebrations for CityU’s 25th Anniversary.

Prof Yoccoz has been awarded many distinctions, including the Fields Medal, the Bronze Medal of the Centre National de la Recherche Scientifique, the IBM Prize for Mathematics, the Salem Prize and the Jaffé Grand Prize of the French Academy of Sciences. He is a Member of the French Academy of Sciences, the Brazilian Academy of Sciences and the Academy of Sciences for the Developing World, and a Chevalier de la Légion d’Honneur.

Also forming part of the 25th Anniversary celebrations was the Distinguished Lecture delivered by Prof Sir Michael Berry on 7 November. In the lecture, titled “Hamilton’s Conical Refraction: A Diabolical Singularity in the Physics of Light”, Prof Berry shared his experience of measuring light beams through the refraction of a crystal and explained the different behaviour of light when it travels in different directions, based on the foundation of Hamilton’s theory. During his visit to CityU, Prof

Berry also shared his expert knowledge with staff and students in a colloquium on Tsunami Asymptotics organized by the Department of Mathematics.

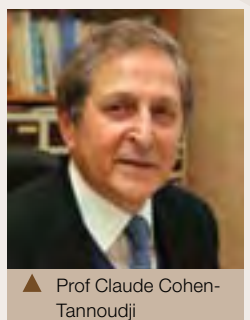
Prof Berry, Melville Wills Professor of Physics (Emeritus) of the Department of Physics at Bristol University, is well-known for his studies on the topological aspects of wave motion in classical and quantum mechanics. He is famous, among other things, for his discovery of a central concept in quantum mechanics and optics, the Berry Phase. Prof Berry is a recipient of many honours and awards, including the Wolf Prize in Physics, and



▲ Prof Sir Michael Berry

belongs to several national academies and royal societies. For instance, he is an elected foreign member of the US National Academy of Sciences, a fellow of the Royal Society of London, and a member of the Royal Society of Sciences of Uppsala, Sweden.

The exchange agreement between CityU and Collège de France brought another Nobel Laureate to the University later in November. Prof Claude Cohen-Tannoudji, 1997 Nobel Laureate in Physics, and Chair Professor-at-Large of CityU, gave six lectures on “Ultracold Quantum Gases” from 17–28 November. The series of lectures continued the review of recent advances



▲ Prof Claude Cohen-Tannoudji

in atomic, molecular and optical physics presented by him at talks held in March and November 2007. The series focused on the new research field of ultracold quantum gases, which began with the observation in 1995 of Bose-Einstein condensation in alkali vapours.

Prof Cohen-Tannoudji has been Professor of Atomic and Molecular Physics at the Collège de France since 1973. His research into radiative forces on atoms in laser light fields, laser cooling and trapping has had a deep impact on many aspects of physics. He is the recipient of many awards, medals and prizes, including the Gold Medal of the Centre National de la Recherche Scientifique, the Research Award from the Alexander von Humboldt Foundation, and the Harvey Prize in Science and Technology from Technion Israel Institute of Technology. He is a Member of the French Academy of Sciences and a Foreign Member of many academies, including the US National Academy of Sciences and the Russian Academy of Sciences.

The presence of these accomplished scholars enhances the intellectual atmosphere of the University as well as that of Hong Kong and it is a testament to the international standing of CityU. The lectures provided excellent opportunities for staff and students to meet world-renowned scientists and gain a greater understanding of the different fields of science. ■

— Shirley Lam



# Entrance scholarship attracts and motivates good students

CityU enjoys a broad mix of students from the mainland, North America, Europe and the Asia Pacific region. To enhance the international mix, promote academic exchange and attract more outstanding international students to undertake MPhil or PhD studies, the University launched the Chow Yei Ching School of Graduate Studies Entrance Scholarships in the 2008/09 academic year.

Unlike Roman, Cristian is completely new to Hong Kong and Asia. But he also finds it easy to adapt. “The culture shock is not as striking as most of my friends in Romania expected,” he said. “People here are very approachable, nice and helpful.” Within about a month, he has made some good friends at the University, not only from Hong Kong but also from the US, Canada and Europe.



▲ Roman (2nd from right) teams up with his fellow students to play table tennis every week.

Cristian decided to study abroad to broaden his horizons and was attracted to CityU because of its distinguished world ranking.

“CityU has far exceeded my expectation,” he said. “The professors are well-prepared, the University is well-equipped with high-tech facilities, and the learning atmosphere is intense.” Studying in Hong Kong not only enables him to know more about this part of the world, it also makes him “an ambassador of Romania” who introduces his homeland to fellow students.

Cristian graduated from the Academy of Economic Studies in Bucharest with a bachelor’s degree in international affairs.

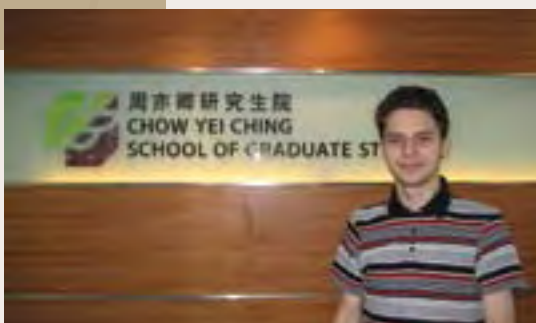
Roman Schlegel, a PhD student in the Department of Computer Science, who comes from Switzerland, and Cristian Blidescu, an MPhil student in the Department of Economics and Finance, from Romania, are the first students granted the scholarships.

“At first I was surprised to learn that I was recommended for the scholarship,” Roman said. “The scholarship is some kind of recognition and it motivates me to work hard to prove that I am worth it.”

The scholarship covers first year hostel and tuition fees. Both Roman and Cristian agree that the scholarship will help motivate international students to apply to CityU, and it is an excellent way to attract good students.

Roman, who graduated with a MSc in Communication Systems from the Swiss Federal Institute of Technology Lausanne, is no newcomer to China although it is the first time he has studied in Hong Kong. He developed an interest in Asia in 2005, when he first went to China to attend a conference in Beijing. He then worked as an intern in a Swiss company in Shanghai for one and a half years. He is not only proficient in Putonghua, he can read some Chinese characters.

Given his previous experience in China, Roman said, “Though there is some cultural difference, I have no problem adapting in Hong Kong.” He added that Hong Kong is a westernized city and the medium of instruction is English.



▲ Cristian Blidescu: I have definitely made the right choice to study at CityU.

He is now focusing on international business under the supervision of Prof Eden Yu Siu-hung, Chair Professor of Economics of the Department of Economics and Finance. In addition, Cristian has enrolled in a Putonghua class.

Roman focuses on network security under the supervision of Dr Duncan Wong Shek, Assistant Professor of the Department of Computer Science. “I like CityU,” Roman said. “It provides a stimulating environment for research where I can discuss and exchange with colleagues from different disciplines.”

Roman said he has seen lots of international students on campus. In less than three months, he has already made friends with people of various nationalities. “It is inspiring and interesting to exchange with people from different nationalities and see their points of view. You can combine different approaches to formulate the best approach,” he said.

He agreed that CityU has successfully created an environment to facilitate exchange and learning. He is also impressed by the high standard of facilities at CityU. The library and computing services centre, which are well equipped, really impress me, he said. ■

— Shirley Lam





## Thirty Chinese judges commence studies at the School of Law

The School of Law held the inauguration of the Master of Laws (LLM) Programme for 30 judges from the mainland on 22 January.

The judges commenced their CityU postgraduate legal education programme under a tripartite arrangement involving the School of Law, the National Judges College of the Supreme People's Court of China and the School of Law of Columbia University, US. It marks a milestone for legal education in Hong Kong and a widening exposure of China's judiciary to international legal knowledge.

The participants are mostly senior judges of the High or Intermediate Courts selected from 17 provinces across China. Officiating at the inauguration were Prof Way Kuo, President of CityU; Prof Wang Guiguo, Dean of the School of Law; Justice Wan Xiang, Vice-President of the Supreme People's Court of China, and Prof Brian Gibson, Dean of International and Comparative Programmes, School of Law of Columbia University.

Prof Kuo said the programme was unprecedented in the annals of Hong Kong education. "We at CityU consider this a rare opportunity to contribute towards the strengthening of the administration of justice on the mainland and it is a clear recognition of our abilities. I believe the programme will be hailed as one of the most imaginative programmes ever launched for the advancement of law and justice worldwide," he said.



▲ Thirty Chinese judges commence their postgraduate legal education programme at CityU.

"CityU is honoured to provide and drive pioneering legal advancement studies for China's judges through our reputable LLM Programme. It paves the way for future collaborations between the School and the judicial authorities in China. I trust the programme will endow the Chinese judges with a deeper understanding of international legal practices and make a huge contribution to the legal system in China," Prof Wang said.

Under the tripartite arrangement, Columbia Law School will help to arrange for the judges to study in the US for one month. ■

Adapted from *CityU NewsCentre*

## President Kuo shares experience with mainland postgraduates

Prof Way Kuo, University President, shared his education and research experience as well as CityU's development plan with about 70 mainland postgraduate students at a tea gathering on 21 November 2008.



▲ Prof Way Kuo encourages students to consider returning to the mainland for career development.

When asked if they should start working or engage in research on graduation, Prof Kuo advised students to gain some work experience first if they did not have a concrete research plan. "There will always be opportunities to return to the academic field as long as you have a good track record at work," he said. "An industrial background will indeed benefit theoretical research, as the two work hand-in-hand."

Prof Kuo encouraged students to consider returning to the mainland for career development. CityU graduates he met in Shanghai were doing very well in their careers, he said. The remuneration packages offered on the mainland might not be comparable with those in Hong Kong at present but there would be more room for future development. "The mainland is making quantum leaps and you may have the opportunity to fully apply your skills," he said. ■

Adapted from *CityU NewsCentre*



# CityU a turning point for Young Woman Scientist Award winner

Prof Che Wenquan of Nanjing University of Science and Technology, a 2004 PhD graduate of CityU, won a China Young Woman Scientists' Award in December 2008, in the fifth round of the annual awards.

The award, jointly established by the All-China Women's Federation, China Association for Science and Technology, Chinese National Commission for UNESCO and L'Oreal (China) Ltd, recognizes female scientists who have made important and innovative contributions to science, and encourages women scientists to engage in natural science research. The award is presented to no more than five female Chinese scientists aged 40 or below every year.

"The award is a great encouragement to me and signifies a new beginning for my professional career," said Prof Che, who emphasizes that she still has a lot to learn and do.

Prof Che joined CityU in 1999 as a research assistant. She undertook PhD studies in electromagnetic and microwave technology under the supervision of Prof Edward Yung Kaining in 2001 and returned to teach at Nanjing University of Science and Technology after she graduated in 2004.

"Pursuing further studies at CityU was an important decision in my life as it marked a turning point in my professional

career," said Prof Che. "I acquired not only a PhD at CityU, but also the ability to work independently, better communication skills and many opportunities for international exposure and collaboration." She is thankful to her professors in the Department of Electronic Engineering who set good examples and taught her how to do good research as well as to be a good person.

Prof Che has happy memories of her time at CityU and describes it as one of the most important periods in her life. "The campus is small but it is well equipped with facilities needed for study, research and living, and is well-supported by professional technicians," she said. Some of her students have enrolled in MPhil studies at CityU. ■

— Shirley Lam



Prof Che Wenquan (right) at the award presentation ceremony.

# PhD student wins Best Paper Award

Tan Youhua, who is pursuing PhD studies under the collaboration scheme between CityU and the University of Science and Technology of China (USTC) in Suzhou, won the Best Paper Award at the 2008 IEEE International Conference on Robotics and Biomimetics (ROBIO), held in Bangkok in February.

The winning paper, titled "A mechanical model of biological cells in microinjection", was co-authored by Tan Youhua and his supervisors, Dr Sun Dong, Associate Professor of the Department of Manufacturing Engineering and Engineering Management, and Prof Huang Wenhao from USTC. The award testifies to the successful collaboration between CityU and USTC in nurturing talent.

Microinjection is an effective technique to introduce foreign materials into a biological cell. Despite great developments in this area of study, the mechanical response of biological cells to injection is not yet fully understood. The paper proposes a mechanical model based on membrane theory. The model uses Mooney-Rivlin material to model the deformation of biomembranes. The relationship between the injection force and the deformation of biological cells is established through quasi-static equilibrium equations. Experiments on zebrafish and medaka embryos demonstrate the effectiveness of the

model in predicting the mechanical properties of cell biomembranes.

The mechanical modelling of cells is part of an ongoing project on automated manipulation of biological cells led by Dr

Sun and Dr Cheng Shuk-han, Associate Professor, Department of Biology and Chemistry. The proposed model, which can help characterize and predict the properties of different cells, can be applied to earlier diagnosis of some disease cells.

Tan Youhua studied at USTC before moving to the USTC-CityU Joint Advanced Research Centre to pursue a doctorate. Dr Sun commended him for his creative thinking and hard work and congratulated him for receiving the award.

The IEEE International Conference on Robotics and Biomimetics is one of the world's largest conferences on advanced robotics and bio-engineering applications. This year, the conference attracted 600 participants from more than 40 countries. ■

— Shirley Lam



▲ Tan Youhua



# Outstanding Research Thesis Awards

Name: Duan Renjun

Department: Mathematics

Thesis: Some Mathematical Theories on the Gas motion under the Influence of External Forcing

Supervisor: Prof Yang Tong

Enrolled: September 2005 – July 2008



“My PhD thesis is about the mathematical study of gas motion under the influence of external forces, especially the Boltzmann equation and the Navier-Stokes equations, which are active research topics with a long history. For different kinds of external force, I tried to understand the qualified properties of solutions such as well-posedness and large-time behaviour.

“I am really excited to receive this award. I would like to express my heartfelt thanks to my supervisor Prof Yang Tong for his continuous encouragement and valuable discussions. His deep insights into mathematics will certainly have a long-term impact on my future career.

“I was lucky to have chosen CityU for pursuing my PhD studies. The University has provided an open and free environment for research. I had many opportunities to exchange with leading academics in the mathematics fields who visited the University. CityU has also provided me with great support to participate in international conferences and workshops. I love CityU.

“I am now a research scientist at the Johann Radon Institute for Computational and Applied Mathematics in Linz, Austria.” ■

Name: Sun Yuzhou

Department: Building and Construction

Thesis: Theoretical and Numerical Studies of Single-walled Carbon Nanotubes Based on the Higher-order Gradient Continuum

Supervisor: Prof Liew Kim-meow

Enrolled: September 2005 – August 2008



“During my PhD studies, I investigated the properties of carbon nanotubes in virtue of the higher-order gradient continuum theory, with which a fine constitutive model can thus be established. I developed a mesh-free computational scheme to implement the numerical simulation of carbon nanotubes based on the established higher-order constitutive relationship. In addition, my study also explored the coupling of the mesh-free method with atomic simulations. The work provides a precise and complete investigation for the mechanical properties of carbon nanotubes.

“The three-year study not only enhanced my academic ability, but also significantly improved my social ability and personal culture. The experience in CityU will be a precious memory in my whole life. I would like to express my heartfelt appreciation to my advisor Prof K M Liew for his valuable academic guidance and continuous motivation. I was lucky to have the opportunity to work under him. I am also very appreciative of the support from the Department of Building and Construction and the Chow Yei Ching School of Graduate Studies. This award and the other honours that CityU has presented me are both recognition of my achievements and encouragement for my future career.

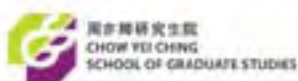
“I am currently a lecturer at Zhongyuan University of Technology on the mainland.” ■

## Postgraduate Forum 2009

# Challenges of Conducting Quality Research

Date: 31 March 2009 (Tuesday) Time: 4:00pm - 5:40pm

Venue: Lecture Theatre (SLT), SCOPE, CityU



For registration and enquiries, please call 2788 9076 or email to [sg@cityu.edu.hk](mailto:sg@cityu.edu.hk).





## 2008 External Awards Recipients

Congratulations to all CityU postgraduate students and graduates who have received prestigious international, regional, and local awards in 2008 from external bodies in recognition of their outstanding academic performance and achievements.

Name Department	Programme	External Award / Outstanding Achievement	Awarding Body
Chan Kit-wing, Frankie Department of Electronic Engineering	PhD	Merit prize at the 3rd IEEE Hong Kong Signal Processing Postgraduate Forum 2008	IEEE Hong Kong Chapter of Signal Processing
Chan Wing-hong Department of Manufacturing Engineering and Engineering Management	PhD	HKES Outstanding Project Award	Hong Kong Ergonomics Society
Chow Pui-ting Department of Building and Construction	PhD	The International Journal of Law in the Built Environment at the 2008 Building Education and Research Conference	International Journal of Law in the Built Environment
Chung Wai-keung, David Department of Manufacturing Engineering and Engineering Management	EngD(EM)	World Summit Award (eBusiness category)	United Nations World Summit on Information Society
Gonzalez Vicente Ruben Department of Asian and International Studies	MPhil	Fully Funded Place at the 2008 WUN Postgraduate Research Summer School - China, Europe and the World	European Union, Worldwide University Network (WUN), Bristol University
Hanlon Robert James Department of Asian and International Studies	PhD	University of Hong Kong Social Science Research Postgraduate Conference - Best Presentation	University of Hong Kong
Lee Choi-hung Department of Manufacturing Engineering and Engineering Management	PhD	Best Paper Award of the 2008 IAENG International Conference on Industrial Engineering (Human Factors and Ergonomics)	International Association of Engineers
Lee Yiu-man Department of Manufacturing Engineering and Engineering Management	EngD(EM)	Business Leader in Quality in 2007	The Chartered Quality Institute
Leung Raymond Department of Manufacturing Engineering and Engineering Management	EngD(EM)	2007 Hong Kong Industrial Award	Trade and Industry Department, Hong Kong Productivity Council
Leung Siu-wai Department of Electronic Engineering	MPhil	Best Innovation & Research (College & Undergraduate) Gold Award at Hong Kong ICT Awards	Hong Kong Information & Communications Technology (HKICT) Awards
Li Tin-ho Department of Electronic Engineering	PhD	Best Innovation & Research (College & Undergraduate) Gold Award at Hong Kong ICT Awards	Hong Kong Information & Communications Technology (HKICT) Awards
Lin Chi-hung Department of Manufacturing Engineering and Engineering Management	EngD(EM)	2007 Hong Kong Industrial Award	Trade and Industry Department, Hong Kong Productivity Council
Lo Yuk-kuen Department of Manufacturing Engineering and Engineering Management	EngD(EM)	2007 Hong Kong Industrial Award	Trade and Industry Department, Hong Kong Productivity Council
Lu Zhouguang Department of Physics and Materials Science	PhD	Fulbright Grant	J. William Fulbright Foreign Scholarship Board



Name Department	Programme	External Award / Outstanding Achievement	Awarding Body
Luk Yi-lai Department of Asian and International Studies	MPhil	Sir Edward Youde Memorial Fellowships for Postgraduate Research Students 2007/08	Sir Edward Youde Memorial Fund Council
Ng Ka-ho Department of Electronic Engineering	MPhil	Second prize at the 3rd IEEE Hong Kong Signal Processing Postgraduate Forum 2008	IEEE Hong Kong Chapter of Signal Processing
Ng Pin Department of Manufacturing Engineering and Engineering Management	EngD(EM)	Best Research Paper and Presentation Award "A concept lattice approach for requirements validation with UML state machine model"	IEEE, 5th ACIS International Conference Software, Engineering Research, Management and Application
Ng Wai-yi Department of Manufacturing Engineering and Engineering Management	PhD	Best Student Paper Award of the 2006 IAENG International Workshop on Industrial Engineering (Session: Human Factors and Ergonomics), Cognitive Design Features on Traffic Signs	Hong Kong Ergonomics Society
So Chung-yin Department of Manufacturing Engineering and Engineering Management	MPhil	Best Student Paper Award of the 2008 IAENG International Conference on Industrial Engineering (Human Factors and Ergonomics)	International Association of Engineers
Sun Yuting Department of Electronic Engineering	MPhil	Hong Kong Association of University Women Postgraduate Scholarship	Hong Kong Association of University Women
Tang Kai-tai Department of Computer Science	MPhil	Certificate of Merit (Social and Spiritual Wellbeing) under the Best Lifestyle in Hong Kong Information and Communications Technology (HKICT) Awards 2007	Office of the Government Chief Information Officer, HKSAR Government
Wang Hanli Department of Computer Science	PhD	Humboldt Research Fellowship for Postdoctoral Researchers for 12 months (begin on 1 May 2009)	American Friends of the Alexander von Humboldt Foundation
Wang Hui Department of Chinese, Translation and Linguistics	PhD	Technology Scholarship PhD and Post-Doc Eurasia-Pacific UNINET	Austrian Exchange Service and Academic Cooperation and Mobility Unit
Wong Lap-mho Department of Physics and Materials Science	PhD	Zhu Kezhen Prize	Hong Kong Meteorological Society
Wong Shek-pui, Peter Department of Building and Construction	PhD	Grand Prize in the HKIS Outstanding Dissertation/Thesis Awards 2007 - Postgraduate Students (PhD Category)	The Hong Kong Institute of Surveyors
Wong Wei-kei Department of Building and Construction	MPhil	Grand Prize in the HKIS Outstanding Dissertation/Thesis Awards 2007 - Postgraduate Students (MPhil Category)	The Hong Kong Institute of Surveyors
Yan Pei, Rose Department of Physics and Materials Science	MPhil	PhD Research Studentship at the University of Cambridge	ArcelorMittal



# 2008 Congregation: Graduates' Reflections

**Dr Ian Castor Chow, PhD, Department of Chinese, Translation and Linguistics**



I am proud to be a graduate of CityU, an aggressive and ambitious university with international vision. The international conferences and guest lectures organized by my department, the Department of Chinese, Translation and Linguistics, have created an intellectually stimulating atmosphere and offer invaluable opportunities to meet world-renowned scholars. The strong academic background and research experience of the staff have broadened my horizons greatly in the area of computational linguistics.

It is my pleasure to acknowledge those who rendered assistance both spiritually and practically to the completion of my doctoral thesis. Continuous pursuit of knowledge can be exhausting and frustrating, not to mention the failures of hypotheses and unexpected obstacles. The capitalistic reality has always been a great annoyance and burden. I am grateful to my family and the lady behind me. Their understanding, unconditional love, encouragement and support have helped me to achieve this milestone. I am also honoured to have Prof Johnathan Webster as my supervisor and would like to

express my gratitude for his guidance, criticism, time and advice. I am thankful for the financial support from my department and the Chow Yei Ching School of Graduate Studies which enabled me to attend overseas conferences. This is particularly helpful and essential to a research student. I will never forget the time I spent at this wonderful university. ■

**Dr Kong Wai-man, EngD (EM), Department of Manufacturing Engineering and Engineering Management**

The day I received my engineering doctorate at the 2008 Congregation at CityU was a great and important day in my life. I am grateful to God for I have finally completed my thesis. I am thankful to my family, friends, supervisor, Dr C Y Dang, and my industrial advisor, Mr Ezra Lai.

My dream of pursuing graduate studies at CityU has become a reality. CityU offers a high-tech environment and taught me professional knowledge in the fields of manufacturing engineering and engineering management.

The application of a stochastic linear programming model to apparel production planning was the topic of my thesis. Upon my graduation, I'm ready to put this new idea into practice in my company. ■



**Dr Ning Xin, PhD, Department of Building and Construction**



There is no doubt that my three-year PhD journey has been the most valuable experience in my life. The road was bumpy and the journey was full of tears and joy. With guidance from my supervisor, advice from other professors and help from different people, I finally overcame the difficulties and got my PhD. I am proud of being a graduate of CityU and convey my heartfelt thanks to CityU, where world-class academics, first-class facilities and a conducive research environment are provided. When the master of ceremonies announced my name at the Congregation, I knew that it was not the end of my research life, but a new start of another research journey. Armed with the knowledge acquired and the self-confidence developed at CityU, I shall march forward modestly to face new challenges in my life. Thank you CityU! ■

**Mr Tong Kam-pang, MPhil, School of Creative Media**

While I was undertaking postgraduate study at CityU, I got a lot of opportunities to meet people from the creative industry who are teaching and doing research in the School of Creative Media. The professors, who have both academic and industrial/production experience, not only prepare students to enter the field of the creative industry, but introduce innovative ideas to the industry through research. I learnt a great deal from them, taking their examples, and began to develop faith in helping the creative industry.

It was an unforgettable moment when my family and friends came to share my joy at the Congregation. I am sure that every research student at CityU shares the same feeling. For people who wish to pursue postgraduate studies in Hong Kong, CityU is a good choice. ■





### Ms Tsang Wai-man, MPhil, Department of Physics and Materials Science



After two years of MPhil research study, I am glad and very proud of being a graduate of CityU, a university with top research facilities and international vision. The past two years were a difficult but rewarding journey for me. Although I faced many difficulties while conducting my research, the experience did sharpen my critical thinking and problem solving skills.

I would like to express my deepest gratitude to my supervisor, Professor S T Lee, for his invaluable guidance and enthusiastic encouragement throughout my study. Many thanks to the panel members, and research staff in the Department of Physics and Materials Science. Without their guidance, care and unreserved support, I could not have finished my MPhil study successfully. All in all, I cherish my experience at this world-renowned university. ■

### Ms Wang Yining, MPhil, Department of Biology and Chemistry

I am so proud to graduate in the same year the Beijing Olympics took place. It has been a great honour for me to study at CityU during the last two years, because the University provides us with world-class academics, high-class research facilities, and a wonderful research environment. I would like to take this opportunity to thank my supervisor, Prof T C Lau. Without his support and guidance, I could not have achieved this milestone in my life. I will try my best to bring honour to the University through my professionalism in the future. ■



### Mr Wong Ka-ho, MPhil, Department of Public and Social Administration



I have invested six years for university education at CityU – not because I extended my study, but I completed my Associate Degree, Bachelor's Degree, Master Degree and now MPhil here. There are lots of challenges at every stage such as collaborating with classmates, collecting data and writing a dissertation. I would like to thank CityU for giving me the opportunities to face these challenges. I think the research would have been more challenging without the department's support. In addition, I would like to thank my supervisor, Dr Rebecca Kwok, who has given me a lot of advice and has spent time teaching me how to conduct a research study. She taught me how to link my research topic to other aspects which I have never thought about before. ■

### Dr Anson Wong Lai-kuen, PhD, Department of Economics and Finance

17 November 2008 was a great day in my life because this was the day I received my PhD award. Most importantly, I could share my happiness with my family, colleagues and supervisors. The past years of PhD study at CityU were very challenging and demanding as there were a lot of unknown obstacles in the preparation of my thesis. However, I really learnt a lot especially in research and planning. Finally, I want to express my sincere thanks to my supervisor Dr Michael Wong, all the staff in the Department of Economics and Finance, my family members as well as my puppies, FuFu, ChuChu, MuiMui and LuiLui, who brought me a lot of happiness during my difficult study period. Without their support, I could not have accomplished my PhD. In future, I will strive to do my best to bring honour to the University. ■





# Graduate Studies Information Day promotes higher learning

Graduate Studies Information Day, held on 10 January, attracted many prospective students interested in the postgraduate programmes offered by CityU. Visitors attended exhibitions and talks in which programme leaders and professors explained programme details.

Continuing with the theme “Knowledge Hub for Professionals”, this was the third annual Information Day organized by the Chow Yei Ching School of Graduate Studies.



▲ Graduate Studies Information Day attracts flocks of prospective students.

“We have been pleased with the admission results since we began organizing information day. It has proven effective in promoting our programmes to prospective students,” said Prof Roderick Wong Sue-cheun, Vice-President (Research and Technology) and Dean of Graduate Studies. He said more people were interested in attaining a higher qualification either in their own field or in another discipline to increase their competitiveness, and there was strong demand for CityU’s postgraduate programmes.

To cater to the diverse and growing demands for further study, CityU offers some 60 taught postgraduate programmes tailor-made for different professional needs. These, together with research programmes and professional doctorate programmes, will provide more than 3,000 places in the 2009/10 academic year.

Two new taught postgraduate programmes will be launched in the coming year. They are the Master of Social Sciences in Applied Psychology and the Master of Science in Marketing. ■

Adapted from *CityU NewsCentre*



# CUPA team takes part in Sowers Action Charity Marathon



▲ The CUPA team

A team of over 10 CityU Postgraduate Association (CUPA) members participated in a challenging 12-hour charity marathon organized by Sowers Action in October 2008 to raise funds to support and improve the education conditions of children living in remote mountainous areas on the mainland. Participants were required to complete sections 3 to 8 of the Wilson Trail, a total distance of 42 km, within 12 hours. Most of the CUPA team members completed the race in about 10 hours, and more remarkably, Mr Lo Ka-wing, a CUPA executive committee member, completed the 42 km trail in 8 hours and 15 minutes.

CUPA hopes that its success in this event will encourage more of its members to participate in similar charity events in the future and help build a sense of social responsibility among members, as well as help more children in poor and remote areas to get back to school. ■