



香港中文大學  
The Chinese University of Hong Kong

# *THE CHINESE UNIVERSITY OF HONG KONG*

## SPEAKERS



### Professor Louis Wing Hoi Cheung

Research Associate Professor  
Department of Orthopaedics and Traumatology  
The Chinese University of Hong Kong

#### Biography

Dr. Louis Cheung is a Research Associate Professor in Department of Orthopaedics and Traumatology and Deputy Director of Musculoskeletal Laboratory, The Chinese University of Hong Kong. He also serves as a programme committee member of Biomedical Engineering programme, CUHK. His research interests are biology of osteoporotic fracture healing and applications of biophysical interventions for enhancement of fracture healing. He co-invents low-magnitude high-frequency vibration technology with Prof. KS Leung; has one obtained and two pending patents. Dr. Cheung published 43 SCI peer-reviewed international journal papers and serves as editorial board member, reviewers of several funding bodies and international journal in orthopaedics, like AO Foundation and Orthopaedic Research Society. He is also the invited reviewers of a few international orthopaedics-related journals. Dr. Cheung devotes into knowledge transfer activities as well since 2000 in fall prevention to serve community elderly.

#### Abstract

##### Interactive Engagement with the Community: From Public Education to Academic Research

Tissue regeneration research team of Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong, led by Prof. KS Leung and Louis Cheung, puts effort in the past years on exploring the biology of osteoporotic fracture and enhancement of fracture healing using biophysical interventions. The research team confirms the impaired reparative ability of osteoporotic bones during fractures. This implies difficult clinical management of geriatric fracture patients, including treatment and rehabilitation and hence heavy burden of healthcare budget. The team also spent 6 years to invent a novel biophysical modality, vibration treatment that can effectively accelerate fracture healing by around 30% by enhancing new bone formation and increasing blood circulation.

In view of the escalating aging population in Hong Kong, the research team kicked off to set up a fall prevention team to serve the community in 2000 (<http://www.no-fall.hk>). The team has organized more than 150 educational talks for community elderly in the past decade to spread the message and knowledge on bone health and fall prevention. We also trained the staff in community centers to learn fall prevention in order to provide a better service for elderly. With the funding of medical foundations, a mobile van for fall prevention purpose was set up to serve the elderly in remote areas like Lantau Island. We therefore have a good network with community centers in Hong Kong. In recent years, a comprehensive fragility fracture program is established as well in Shatin district for rehabilitation of geriatric fracture patients, in which physical exercise classes, doctor consultations, medications and vibration treatment are provided. In the meantime, we make use of this opportunity to conduct large-scale clinical trials to evaluate the efficacy of vibration treatment on reducing fall and fracture rates. Overall, this is a good experience of the team to have the model of bench to public education to academic research.



## Professor Vivian Wing Yan Lee

Assistant Dean (student affairs)  
Faculty of Medicine  
Associate Professor  
School of Pharmacy

The Chinese University of Hong Kong

### Biography

Dr. Vivian Lee is currently the Associate Professor of the School and Assistant Dean (Student Affairs) of the Faculty of Medicine. Before her current appointment, she had worked as a hospital clinical pharmacist at Cedars-Sinai Medical Center, in Los Angeles, USA. Dr. Lee received her bachelor of sciences degree in Biochemistry at the University of California, Los Angeles (UCLA) and her doctor of pharmacy degree in the School of Pharmacy, University of Southern California (USC). She had pursued post-doctoral training in Pharmacy Practice residency at the Huntington Memorial Hospital in Pasadena, USA.

Dr. Lee is dedicated for the clinical pharmacy development. She started the first clinical pharmacy clerkship program in Hong Kong as well as the overseas student exchange in clinical pharmacy with USC at CUHK. In addition, she tries to expand the roles of pharmacist through various innovative ways including the launch of the first interactive online drug information platform in Hong Kong-Ask My Pharmacist Online University Led drug Enquiry Platform (AMPOULE), the Paediatric Health: easy Access Resources on Medicines (PHARM) and the community pharmacy outreach program to cope with the demands of pharmaceutical care to improve medication adherence and chronic disease management in elderly patients of Hong Kong.

### Abstract

#### Knowledge Transfer: Commitment to Public and Partnering for Excellence

Drug-related questions are often encountered by people who are on medication or taking health supplements. However, due to various barriers, these questions remain unresolved which lead to possible medication problems. The Outreach Programme organized by the School of Pharmacy showed that more than half (55.3%) of the drug-related problems discovered in the elderly population were associated with lack of knowledge about their medication and their state of disease. Furthermore, sensitive medical issues, such as sexually transmitted diseases, erectile dysfunction, use of contraceptive etc., are not widely discussed among the public. With increasing popularity of self-medication as the first-line treatment for mild diseases, together with the lack of drug knowledge, it is expected that more drug-related questions would arise in the future.

In response to the expected drug information demand, a new online interactive drug enquiry system called AMPOULE (Ask My Pharmacist! - Online University-Led drug Enquiry) (<http://www.ampoule.org.hk>) Platform was established. Through AMPOULE, pharmacists will provide personalized suggestions to drug-related queries, hoping to reduce possible medication problems faced by the general public. We target to enhance communication between pharmacists and the general public through innovative channels. The demand of drug information is expected to rise with more knowledge and well-educated enquires. Enquirers expect fast and efficient professional assistance for their drug-related problems. The traditional pharmacist consultation in the pharmacy may not be sufficient to fulfill enquirers' demands. It is hoped that the public awareness in proper medication use and drug safety can be enhanced by providing proper drug knowledge, thus improving the overall effectiveness of drug treatment. In this presentation, the following objectives will be achieved:

1. Experiences in developing online drug information platform will be shared;
2. Factors affecting success knowledge transfer will be discussed;
3. Address the areas for partnership in knowledge transfer to ensure medication safety.



## Professor Chi Hin Cho

Associate Director  
Professor of Pharmacology (Research)  
School of Biomedical Sciences  
The Chinese University of Hong Kong

### Biography

Professor C.H. Cho was the Chair Professor of Pharmacology from 2000 to 2007 in the University of Hong Kong before he joined the Chinese University of Hong Kong (CUHK) in 2007 as chairman and Professor of Pharmacology.

Currently, he is the Associate Director of the School of Biomedical Sciences, Faculty of Medicine in CUHK. He has been the President of the Gastrointestinal Pharmacology Section of the International Union of Basic and Clinical Pharmacology from 2006-2010 and visiting and honorary professors of Peking University, Fudan University, Zhejiang University, Beijing Capital University of Medical Science, the Fourth Military Medical University, Virginia Tech, University of Maryland and University of California, Irvine.

His current research interests focus on drug development for inflammation and cancers in the gastrointestinal tract. Professor Cho is the editorial board member and associate editor in more than 20 journals in the fields of Gastroenterology and Pharmacology.

He publishes more than 380 peer-reviewed articles in journals and books and is the editor of five books in gastrointestinal ulcer and cancer.

### Abstract

#### A Peptide Targeting Tumor Blood Vessels: From Experimental to Clinical Application

Ligand-mediated diagnosis and targeted therapy would have vital clinical applications in cancer treatment. In this study, an orthotopic model of colorectal cancer was established in the colon of mouse. Using this animal model an in vivo phage library selection was utilized to isolate peptides specifically recognizing the vasculature of colorectal cancer tissues but not the other tissues. A phage (termed TCP-1 phage) was isolated by this manner and it homed to the colorectal cancer tissues by 11- to 90-fold more than other organs. Chemical synthetic peptide (termed TCP-1) displayed by TCP-1 phage inhibited the homing ability of the phage to the tumor mass when co-injected intravenously with the TCP-1 phage into mice with colon cancer. Meanwhile, immunostaining analysis indicated that TCP-1 phage and peptide localized in the vasculature of the colorectal cancer tissue, but not normal tissues. Moreover, TCP-1 peptide bound to blood vessels of surgical tissue samples of human colorectal cancer, in particular in the advanced stages. These findings indicate that TCP-1 binds to a specific site which is localized only in the colonic tumor blood vessels.

In addition, TCP-1 when conjugated with a proapoptotic peptide specifically induced apoptosis in tumor blood vessels in vivo. These data define a novel peptide TCP-1 as an effective agent for imaging detection and drug delivery for colorectal cancers. This peptide and its analogues attract academic and industrial collaborations in the development of drug therapy and diagnosis for gastrointestinal cancers.



## Professor William Kam Fai Wong

Associate Dean (External Affairs)  
Faculty of Engineering  
Professor  
Department of Systems Engineering and Engineering Management  
Associate Director  
Centre for Entrepreneurship  
Director  
Centre for Innovation and Technology

The Chinese University of Hong Kong



### Biography

K.F. Wong obtained his PhD from Edinburgh University, Scotland, in 1987. He has been a post-doctoral researcher in Heriot-Watt University (Scotland), UniSys (Scotland) and ECRC (Germany). At present he is the Associate Dean (External Affairs) of the Faculty of Engineering, a professor in the Department of Systems Engineering and Engineering Management, and the Director of the Centre for Innovation and Technology (CINTEC), of the Chinese University of Hong Kong (CUHK). As the Director of CINTEC, he is responsible for technology transfer and industrial liaison. Academically, his research interest centers on Chinese computing, parallel database and information retrieval. He has published over 200 technical papers in these areas in various international journals and conferences and books. Professionally, he is a fellow of BCS, IET, HKIE and HKITJC. He received the Medal of Honour (MH) from the HKSAR Government in July 1, 2011 for his contribution to the local Hong Kong IT industry. He is currently the President of the Hong Kong IT Joint Council. He also serves as the Chairman, ICT Advisory Committee, HK Scout Association, member of Digital 21 Advisory Committee (2008-2010, 2010-2012), vetting committee member of Innovation Technology Commission's SERAP programme, SMC member of Lam Tai Fai College, SMC member of Tang Sui Kin Victoria Secondary School, board member of HK Internet Registration Company (2008-2009) and chairman of HK IT Sector 59th National Day Celebration Gala Dinner Organization Committee.

### Abstract

#### The Roles of Hong Kong in the National Twelve Five Year Strategic Plan

The Chinese's National Twelve Strategic Plan (abbreviated 12.5) has been announced in the 2011Q2. It defines the directions and missions of the development of China in the coming five years 2011-2015. Innovation and technology are one of the key investment targets. For this, it is the goal of the Chinese Central Government to raise the R&D to GDP ratio from the currently 1.7% to 2.2% in 2015. Hong Kong has three local universities ranked within top 100 in the QS world ranking. They are also within the best in engineering and medical research. In view of this, how can Hong Kong contribute to the implementation of the 12.5 plan. In this talk, the advantages and hence the roles of Hong Kong for this purpose are identified.



## Professor Barley Shuk Yin Mak Chan

Assistant Professor  
Department of Curriculum and Instruction  
Director  
Centre for Enhancing English Learning and Teaching  
The Chinese University of Hong Kong

### Biography

Prof. Mak has been training primary and secondary English language teachers at the undergraduate and postgraduate levels in Hong Kong and overseas for many years. She is the founding Programme Director of the M.A. in English Language Teaching and has been working on a strategic plan to launch an Ed.D in English Language Teaching. Her publications have appeared in internationally referred journals, for example, *Educational Review*, *English Language Teaching Journal*, *Language Testing and System*.

Prof. Mak is the founding Director of the Centre for Enhancing English Learning and Teaching. She has conducted various public-funded research projects (e.g., the Quality Education Fund, the Language Fund, Hong Kong Education City funding). Since 2001, she has secured over HK\$37,000,000 external funding for her research projects (of which over HK\$28,000,000 has been in the capacity as the principal investigator). She is now conducting the New Senior Secondary Curriculum Implementation Study 2011 and the Curriculum Survey on Primary Education 2011 commissioned by the HKSAR Education Bureau.

Barley Mak has served on a number of prominent HKSAR teacher education committees, for example, the Task Force on Language Benchmark Training Arrangements (English) of the Advisory Committee on Teacher Education and Qualifications and various committees for the Chief Executive's Award for Teaching Excellence. She is currently a Member of the Focus Group (English Language) for the Development of Depository of Curriculum-based Learning and Teaching Resources and a Panel Expert of the Refined English Enhancement Scheme.

### Abstract

#### Building a Young Writer Community: A Knowledge Transfer Writing Project in Hong Kong

The integration of language arts into the English curriculum has been strongly advocated in recent years by the Education Bureau (EDB) in Hong Kong as part of the school curriculum reform. As outlined in *English Language Education: Key Learning Area Curriculum Guide: Primary 1 to Secondary 3 (2002)*, schools are encouraged to use literary or imaginative texts more to promote critical thinking, free expression and creativity.

To support the above curriculum reform, a university-school partnership programme is proposed for nurturing young short story writers in secondary schools in Hong Kong.

Through this partnership programme, English teachers from participating schools are trained by experienced facilitators on how to motivate and guide their students through the process of writing short stories in a positive context. Subsequently, students are encouraged to write collaboratively. Participating teachers are also encouraged to exchange ideas and make enquiries in an on-line forum supported by the Centre for Enhancing English Learning and Teaching (CEELT).

To celebrate students' creative efforts and reinforce their practices in this form of language arts, a short story anthology will be published for each participating school. A short story writing competition will be organised and the outstanding short stories will also be published, and sent to all secondary schools in Hong Kong and via a dedicated e-gallery. This presentation will describe how the project is executed to actualize the knowledge transfer among CUHK and the participating schools. Reflections and experiences of the participating teachers and students as well as sustainability of projects of such kind will also be discussed.



## Professor Gladys Wai Lan Tang

**Chairman**  
Department of Linguistics and Modern Languages  
**Centre Director**  
Centre for Sign Linguistics and Deaf Studies  
Department of Linguistics and Modern Languages  
The Chinese University of Hong Kong



### Biography

Prof. Gladys Tang is the Founding Director of the Centre of Sign Linguistics and Deaf Studies since its establishment in 2003. She also served as Chairperson and Division Head of the Department of Linguistics and Modern Languages until July 2011. She received her PhD in Applied Linguistics from the University of Edinburgh, United Kingdom. Her research interests are language acquisition, in particular signed and spoken language acquisition of deaf children, sign linguistics and deaf education, and applied linguistics. She has published about second language acquisition, second language pedagogy, sign linguistics, signed and spoken language acquisition of deaf children, and deaf education. She is also the anonymous reviewer for books, journals, conference proceedings and distinguished theses. Examples of such venues include *Theoretical Issues of Sign Language Research*, *Bilingualism: Language and Cognition*, *Journal of Deaf Studies and Deaf Education*, *Journal of Contemporary Linguistics, Language and Linguistics*, *Lingua*, *Sign Language and Linguistics*, Cambridge University Press, John Benjamins Press, Lawrence Erlbaum, Mouton de Gruyter, etc.. She is the Asian Liaison of International Association of Sign Linguistics and member of the Advisory Board of the same organization. She is on the editorial board of the journal of *Sign Language Typology*. She has contributed her service to the community by being a member of PEN-International, a consultant for the UNICEF Project on Bilingualism and Biculturalism in Deaf Education in China (2006-2011).

### Abstract

#### **The Jockey Club Sign Bilingualism and Co-enrolment in Deaf Education Programme: From Sign Linguistics to Inclusive Deaf Education**

**Professor Gladys Wai Lan Tang**  
Chairman, Department of Linguistics and Modern Languages; Centre Director, Centre for Sign Linguistics and Deaf Studies, Department of Linguistics and Modern Languages, The Chinese University of Hong Kong

#### **Professor Scholastica Wai Sze Lam**

Research Assistant Professor, Centre for Sign Linguistics and Deaf Studies, Department of Linguistics and Modern Languages, The Chinese University of Hong Kong

#### **Mr. Chris Kun Man Yiu**

Senior Programme Officer, Centre for Sign Linguistics and Deaf Studies, Department of Linguistics and Modern Languages, The Chinese University of Hong Kong

Sign linguistics research aims to identify ways to examine how sign languages is structured as a natural language and how it is acquired by deaf children. To date, a significant research outcome is that early acquisition of sign language supports deaf children in becoming 'sign bilingual' (i.e. proficient in a signed and a spoken language). Such bilingual knowledge in turn facilitates their literacy development in spoken language as well as deaf education. While this understanding is gaining grounds in many parts of the world, its lack is the norm in Asia. As a result, educators and parents of deaf children are still harping on the misconception that the oralist approach (i.e. learning through residual hearing and speech) is the only way to resolve the problem in deaf education.

In HK, unique research efforts into various lines of sign linguistics research have paved the way for applying this new-found knowledge to an experimental programme "The Jockey Club Sign Bilingualism and Co-enrolment in Deaf Education Programme (JC-SLCO Programme). The Programme represents an unprecedented attempt in Asia to incorporate natural sign language into an inclusive education setting. It aims to maximally utilize the linguistic resources of both signed and spoken language provided by hearing and Deaf teachers in educating deaf as well as hearing children under the same educational environment following the same syllabus. Most important of all, the Programme will inform the community that the model lives up to the philosophy of inclusive deaf education: both hearing and deaf children have the benefits of being sign bilingual, and hearing children will come to appreciate the special educational needs of deaf children who in turn grow up understanding the values and culture of the majority hearing society. In this paper, we will present how sign linguistics research in HK has led to the establishment of a programme that nurtures successful school partnership between researchers at university, professional teacher trainers at teacher training institutions, parents of deaf and hearing children, government units, deaf organizations and NGOs in the local community.



## Professor Timothy Chi Yui Kwok

Professor  
Department of Medicine & Therapeutics  
Co-Director  
CUHK Jockey Club Centre for Osteoporosis Care and Control  
Deputy Director/Professor  
S H Ho Centre for Gerontology and Geriatrics

The Chinese University of Hong Kong

### Biography

Professor Timothy Kwok had undergraduate medical education and postgraduate training in Geriatric Medicine in the United Kingdom. He joined the Department of Medicine & Therapeutics in the Chinese University of Hong Kong in 1994, and became professor in 2006. He has been director of the Hong Kong Jockey Club Centre for Positive Ageing, a comprehensive care centre for people with dementia, since 2004. He is council member of the Hong Kong Geriatrics Society and President of the Hong Kong osteoporosis foundation. His research interests include dementia, nutrition in old age, osteoporosis and health service models.

### Abstract

#### Innovations in Models of Care for Older People with Dementia

Dementia is a major cause of disability and dependency in old age. While there is as yet no effective remedy or cure for this common condition in old age, there is evidence that psychosocial interventions may slow the cognitive decline in the demented people and relieve the caregiver burden. Cognitive training may also play an important role in prevention of dementia. The implementation of non-pharmacological interventions may therefore have a major impact in reducing the burden of dementia in Hong Kong.

A locally designed cognitive training programme for the non-demented people is effective in improving reasoning and memory in the less-educated. This is important as most older people in Hong Kong have low education level which is a risk factor of dementia. Similarly, an eight-week calligraphy programme was shown to improve orientation and attention in old age home residents.

Cognitive stimulating activities have been shown in randomized trials to be effective in preserving cognitive function in the demented people. A prospective study of demented people attending a dementia specific day care centre in Hong Kong showed stabilization of cognitive decline and significant reduction in family caregiver stress.

Most family caregivers of demented people are under psychological stress because of the constant need for supervision and communication problems. A local psycho-educational programme delivered by social workers via the telephone has been shown to reduce caregiver stress. A similar counselling programme delivered via the internet is being developed.





## Professor Siu Kai Kong

Professor  
School of Life Science  
The Chinese University of Hong Kong



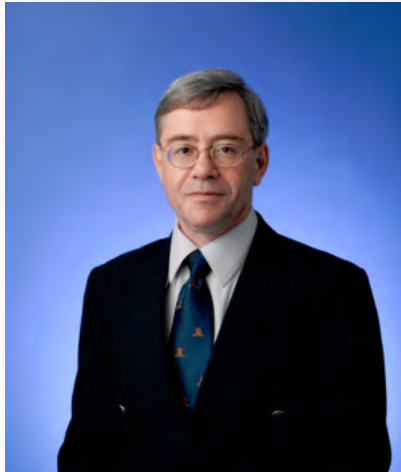
### Biography

Dr. SK Kong received his higher education in Hong Kong and the UK. He is now a professor in the Biochemistry Programme of The School of Life Sciences at The Chinese University of Hong Kong (CUHK). His research interests are to study the cell death process in erythrocytes and cancer cells. SK Kong is also interested in developing biosensors to detect bio-molecules using fluorescence and novel techniques. Apart from teaching and doing scientific research, Dr. Kong also participates in many science-promoting activities and arranges many workshops for secondary school students. Currently, he is a fellow of the Center for Promoting Science Education in the Faculty of Science at the CUHK.

### Abstract

#### Teaching Support for the 3+3+4 Biology in Hong Kong Secondary Schools

Watson and Crick discovered the structure of DNA in 1953. Since then, molecular biology has been developed rapidly and changed our lives in many ways. Another important milestone in biotechnology was the invention of Polymerase Chain Reaction (PCR) by Kary Mullis in 1983 to amplify DNA by chemical reactions. Now, these topics become part of the new senior secondary biology curriculum in Hong Kong. Under this new 334 curriculum, biology teachers in the local secondary schools face two challenges to provide hands-on teaching and learning activities – the lack of hardware and reagent kits supplied at an affordable price. In the light of this, with the support from the Knowledge Transfer Project Fund from CUHK, our team developed some teaching materials to help our students to learn these new technologies better. With the input from secondary school students after running several workshops, we learned how to improve the teaching and learning process, quality of reagent kits and utility of the hardware for PCR. With some more modifications, it is expected that these products will be available in the market at a reasonable price in the near future.



## Professor Hugh Thomas

**Director**  
**Center for Entrepreneurship**  
**Associate Professor**  
**Department of Finance**  
**The Chinese University of Hong Kong**

### Biography

Hugh Thomas is the Director of the Center for Entrepreneurship and an associate professor in the Department of Finance at The Chinese University of Hong Kong. He received his bachelor of arts in history from the University of Alberta, postgraduate diplomas in Chinese language from the Beijing Language and Culture University and history from Nanjing University, an MBA from the Chinese University of Hong Kong and a PhD in International Business and Finance from the Stern School of Business, New York University. He has published numerous articles and cases in banking and finance. He participated in founding China's first business school, the National Center for Industrial Science and Technology Management at Dalian in 1980 and subsequently worked in banking and consulting in Hong Kong for seven years. Prior to joining CUHK, he was an associate professor in the Finance Department of McMaster University in Canada.

### Abstract

#### How Can Student Business Plan Competitions Effectively Stimulate Knowledge Transfer and Entrepreneurship?

The question "How can student business plan competitions effectively stimulate knowledge transfer and entrepreneurship?" is critical to knowledge transfer as practiced in universities in Greater China today. In the history of entrepreneurship education in China, the inauguration of what was to become the China Challenge Cup of Entrepreneurship (the Little Challenge) in Tsinghua University in 1998 is counted as Genesis. Since then, the Chinese Ministry of Education has increasingly come to view entrepreneurship, rather than management

science in established firms, as the key to continued economic growth. China today is a world leader in terms of numbers of formal tertiary classes in entrepreneurship, and the business plan competition is core to their curricula. In Hong Kong, the move towards active knowledge transfer as opposed to pure research is part of a global change in education emphasis. New business plan competitions are initiated every year. But business plan competitions in general and the Little Challenge in particular have many problems. Several successful businesses have come out of these competitions but many of the competitions have trained excellent prize winning teams that have no interest in rolling out their ventures. What makes a good business plan competition and how educators can work effectively with entrepreneurs, service providers, investors and students to build effective knowledge transfer is the subject of this session. As director of the CUHK Center for Entrepreneurship Hugh Thomas designed and has run The Chinese University of Hong Kong's Vice Chancellor's Cup of Student Entrepreneurship and has worked with colleagues to design and run the Hong Kong Social Enterprise Challenge, sponsored by the Hong Kong Government's Home Affairs Bureau. The Center has trained teams who have won awards in, among others, Hong Kong's Young Entrepreneurs Development Council E-Challenge, HSBC Young Entrepreneur Awards, Asia Moot Corp, Texas Venture Labs, and the China Challenge Cup of Entrepreneurship – the top competition in the world in terms of expenditure of human resources.



## Professor Wallace Ping Hung Chang

Associate Professor  
School of Architecture  
Director  
Urban Place Research Unit  
School of Architecture

The Chinese University of Hong Kong



### Biography

Prof. Wallace Chang is currently Associate Professor, Director of Urban Place Research Unit at the School of Architecture, Chinese University. Graduated from MIT and HKU with studies on urban design and architecture, a theorist and practitioner in architecture, urban design, community education and public art, Chang has an extensive experience in urban conservation, human landscape, sustainable planning, public space and vernacular culture, particularly at the Pearl River Delta (PRD) region. He has realized a wide range of award-winning designs and researches including public toilet, youth hostel, university activities center, residential clubhouse, conservation strategy and district planning projects, etc. Chang initiated a movement of participatory charrettes on sustainable planning and urban conservation in the PRD including Zhongshan (1999), Hong Kong (Tai-O) (2000) and Guangzhou (2002), East Kowloon (2006), Shenzhen (2007). Recently, Chang has been commissioned by the Development Bureau on the Design Guidelines of Public Open Space in Private Developments [POSPD], and now is researching on the Kai Tak River Green Corridor—Community Education Project with the support from Environment Bureau.

### Abstract

#### Green Art and Community Culture - A Reinvention of Urban River

On Sep 30, 2007, the author led a group of research students to rethink one of our community assets in Wong Tai Sin and renamed the Kai Tak Open Nullah as the Kai Tai River. Since then, the evolving process from a shift of perception to an instrumental agenda has hinged on multi-faceted consideration from environmental education, urban planning, ecological protection, to heritage management. Gradually the academic ideas have been transgressing into social acts including exhibitions in shopping malls, speeches in schools, advocacies in the media, and direct communications with the authorities.

These acts were all relevant to bring forth an attention of the significance in civil rights and public initiatives in transforming our immediate built environment. The directives of these experiences are bringing a new dimension for an alternative quality of life in our city including elements of community planning, cultural sustainability, public education and creative spaces. The approach is a knowledge-base design research initiative integrated into the process by engaging different stakeholders in proclaiming an ownership of their environment and sustaining a progressive self-generated program. The idea helps to translate knowledge from academia towards the society and vice versa, reciprocals of social experience.

The Kai Tak River project is still ongoing, and it is supported by the Environment and Conservation Fund to further the ideas of Community Education and Environmental Art. The paper is meant to consolidate the earlier experiences into a theoretical framework upon which a body of knowledge can be built. It will try to embody the direct inceptions, analytical observations and illustrated figures and cases overseas as comparison. The reflective accounts of the process and the provocative proposition to construct a community-building model for the emerging civil society of Hong Kong are to share with the learning communities from primary, secondary to tertiary educational institutions.

## POSTER PRESENTERS



### Professor Daniel Tik Pui Fong

Research Assistant Professor  
Department of Orthopaedics and Traumatology  
The Chinese University of Hong Kong

### Biography

Prof Daniel Fong is currently a Research Assistant Professor and Director of Sport Performance and Biomechanics Laboratory at the Department of Orthopaedics and Traumatology, Faculty of Medicine, The Chinese University of Hong Kong. His research interests include ankle sprain injury, knee biomechanics, sport medicine, slips and falls, biomedical engineering and disabled sport biomechanics. Since 2006, he has gained a total amount of HKD 9.3 million from competitive and industrial research grants, and the major research achievement is the invention of an intelligent sprain-free sport shoe. For this project, he received HKD 5 million from the Innovation and Technology Commission since 2004 and worked out the invention in 2011.

Prof Fong has published 30 journal articles and over 120 conference abstracts. In 2009, he was awarded the "CUHK Young Researcher Award". In the same year, he was awarded Fellow of International Society of Biomechanics in Sports (FISBS). He is also Life Member of World Association of Chinese Biomedical Engineers (WACBE), Member of Institute of Electrical and Electronics Engineers (MIEEE), Member of Engineering in Medicine and Biology Society (MEMBS), and Member of Hong Kong Ergonomics Society (MHKES).

### Poster - CUHK-1



#### Project Objectives

Ankle sprain is the most common single type of sport-related injury. Ankle sprain injury occurs when there is an incorrect foot orientation during landing as the athlete often cannot react quickly enough to correct the orientation in the short time available. The proposed intelligent anti-sprain sport shoe is being designed in order to produce a resistive torque to the supination torque when ankle sprain risk is identified. It is active protective apparel, which is different from other protective apparel by allowing full range of motion during normal movement, but only provides protection when needed.

#### Brief Description of the Project

The proposed intelligent anti-sprain sport shoe consists of three parts: sensing, identification, and correction. Briefly, the anti-sprain sport shoe has a sensor to detect the ankle motion in a real time manner. The identification part can determine the sprain risk based on the data collected. If the motion is endangering the athlete, the correction system will be initiated to delay or stop the sprain motion. The corrective system is a myoelectric stimulation device, which can deliver electric signals to the peroneal muscles at the lateral shank to correct the spraining motion. A prototype version of the intelligent anti-sprain sport shoe has been successfully developed, it being the first intelligent anti-sprain application system in the sports area around the world.



Accidental Ankle Sprain Motion in Sports

#### Impact and Contributions

The intelligent anti-sprain shoe can prevent acute traumatic ankle ligamentous sprain injury and reduce the ankle injury risks effectively. It is a revolutionary innovation of functional sport apparel. There is no similar product in the market right now and it is applicable to different sport and ready for the industry to use.



Common Ankle Sprain Motion

Wireless Anti-Sprain Device

User Equipped with Anti-Sprain Device

#### Project Team

Department of Orthopaedics and Traumatology  
Prof. Daniel Tik Pui FONG, Research Assistant Professor  
Prof. Kai Ming CHAN, Chair Professor  
Dr. Patrick Shu Hang YUNG, Honorary Clinical Associate Professor  
Ms. Vikki Wing Shan CHU, Research Assistant  
Ms. Mandy Man Ling CHUNG, Research Assistant

Department of Mechanical and Automation Engineering  
Prof. Wei Hsin LIAO, Professor

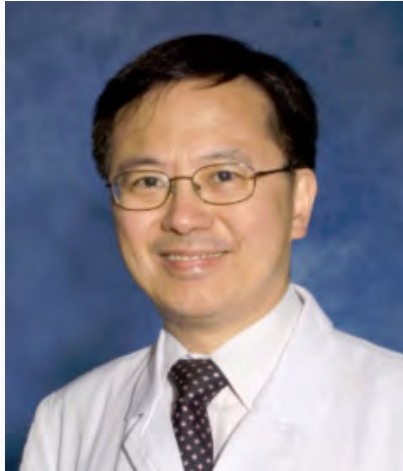
Department of Electronic Engineering  
Prof. Tan LEE, Associate Professor

#### Project Sponsor(s)

Sengital Limited  
Hong Kong Technologies Group Ltd  
International Biomechanics Limited

#### Funding Source

Innovation and Technology Commission and  
The Hong Kong Research Institute of  
Textiles and Apparel



## Professor Wai Sang Poon

Chair Professor and Chief of the Division of Neurosurgery  
Department of Surgery

The Chinese University of Hong Kong

### Biography

Professor Poon is currently the Chair Professor and Chief of the Division of Neurosurgery, Department of Surgery, Prince of Wales Hospital, the Chinese University of Hong Kong. He is active in undergraduate and postgraduate surgical education, as head of the Division of Surgery of the Graduate School, and specialist training in neurosurgery, as Chairman of the Specialty Board in Neurosurgery.

He received his undergraduate medical education at Glasgow University (1973-8), general surgical training at the City and University Hospitals, Nottingham, U.K. (1980-1982), neurosurgical training at Glasgow's Institute of Neurological Sciences, experimental cerebral ischaemia at Glasgow University's Wellcome Surgical Institute (1986) and experimental neuro-oncology at Harvard Medical School's Massachusetts General Hospital (1990-1).

His clinical interests include pituitary surgery and surgical management of Parkinson's disease; research interests include clinical and experimental head injury, hyponatraemia, telemedicine, neurorehabilitation and neuro-oncology.

He is an active participant of college and society activities locally and internationally: He is a member of the Editorial Board of the British Journal of Neurosurgery, Neurosurgery and World Neurosurgery.

In January 2011, he received the State Scientific and Technological Progress Award (SSTPA) 2010 second-class for the research study entitled "Technology for the early diagnosis and prevention of secondary brain injury in the management of traumatic brain injury".

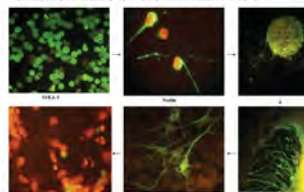
## Poster - CUHK-2

香港中文大學  
The Chinese University of Hong Kong

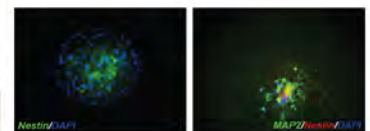
### Three-year Development of Translational Research for Stem Cell Therapy in Neurosurgery, CUHK

#### Stem Cell Translational and Clinical Research 幹細胞轉化及臨床研究

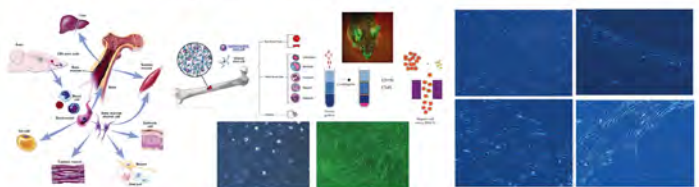
ESC Derivation into Neuronal Lineage  
胚胎幹細胞誘導到神經細胞的研究



Neural Stem Cells 神經幹細胞及其分化



Bone Marrow Mesenchymal Stem Cell 骨髓基質幹細胞



骨髓基質幹細胞具有多潛能分化能力 幹細胞研究工具轉基因小鼠骨髓基質幹細胞磁珠分離方法 人骨髓基質幹細胞培養

Platform for Stem Cell and Regenerative Medicine Research 幹細胞及再生醫學研究平臺



人類神經系統疾病模型 小動物活體腦損傷與修復人體檢測平臺 行為學功能檢測平臺

#### On-Going Stem Cell Clinical Trials

1. Feasibility and Safety of Umbilical Cord Blood Cell Transplant into Injured Spinal Cord: an Open-Labelled, Dose-Escalating Clinical Trial
2. Study of Feasibility and Efficacy for the Use of Umbilical Cord Blood Transfusion for the Treatment of Children with Cerebral Palsy
3. Autologous Mesenchymal Stem Cell Therapy Trial in Stroke Patients (Ref. no. CRE2006.425-T)
4. A Multi-Centre Clinical Study in Cell Therapy for Spinal Cord Injury Patients in Mainland China and Hong Kong

#### Stem Cell Grants in Neurosurgery

1. A Novel Approach for Stem Cell Therapy Targeted Delivery: Study and Validation in a Rat Intracerebral Hemorrhage Model (CUHK Grant)
2. Stem Cells and Tissue Regeneration, Brain Injury Model: Stroke (CUHK Li Ka Shing Institute of Health Sciences)
3. Deviation of Embryonic Stem Cells to Functional Neurons and Gene Expression Profiles upon Neural Differentiation (CUHK Strategic Research Programme)
4. Fibre Regeneration after Mesenchymal Stem Cell Transplantation in Experimental Intracerebral Haemorrhage (ICH): How does it Work? (RGC General Research Fund)
5. Translation Research of Stem Cell Therapy for Neurodegeneration Disease (Company Collaboration Fund)
6. Autologous Adipose Mesenchymal Stem Cell Therapy for Brain Trauma Injury (US Department of Defense)

#### Project Team

Department of Surgery, CUHK  
 Prof. Wai Sang POON, Professor of Surgery  
 Prof. Gang LU, Assistant Professor  
 Dr. Chi Ping NG, Scientific Officer  
 Dr. Pi Chu LIU, Research Manager  
 Department of Anatomical and Cellular Pathology, CUHK  
 Prof. Ho Keung NG, Professor of Pathology  
 Dr. Kent Kam Sze TSANG, Adjunct Associate Professor

For enquiries: Prof. Lu Gang (lugang@surgery.cuhk.edu.hk)



## Professor Aaron Ho Pui Ho

Professor  
Department of Electronic Engineering  
The Chinese University of Hong Kong

### Biography

Professor Ho received his BEng and PhD in Electrical and Electronic Engineering from the University of Nottingham in 1986 and 1990 respectively. He is currently a professor in the Department of Electronic Engineering, The Chinese University of Hong Kong (CUHK). He has held positions as Associate Dean of Engineering, CUHK, Assistant Professor in the Department of Physics and Materials Science, City University of Hong Kong, and Senior Process Engineer for semiconductor laser fabrication in Hewlett-Packard. Started as a compound semiconductor materials scientist, his academic interests have evolved over the years to cover a broad range of topics including nano-sized semiconductor materials for photonic and sensor applications, optical instrumentation, surface plasmon resonance biosensors and biophotonics. He has published over 230 peer-reviewed articles and 5 US patents.

## Poster - CUHK-3



KNOWLEDGE  
EXCHANGE  
CONFERENCE

香港中文大學  
The Chinese University of Hong Kong

# Centrifugal Microfluidic Platform for Bioassay Automation

### PROJECT OBJECTIVES

The goal of this study is to design and fabricate a multi-functional centrifugal microfluidic disc-platform for bioassay applications. The highlight is on the development of highly versatile lab-on-a-discs (LOAD) devices. With point-of-care diagnosis and universality as the objectives, low-cost, easy-operation, high degree of automation are the main considerations.

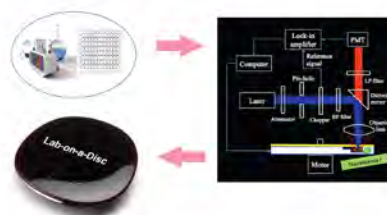
### CENTRIFUGAL MICROFLUIDICS

Centrifugal microfluidics for applications such as the "lab-on-a-disc" (LOAD) is arguably the simplest possible architecture for driving fluids in microchannels, thus making it an attractive option for a wide variety of bio-detection related applications. LOAD pursues the use of pseudo forces on a rotating reference frame and capillary force for precise control of flow. It only requires a single motor to control complex transportation of fluids. It therefore translates complex assay protocols into a microfluidic architecture and the analysis is conducted automatically under different rotation speeds.

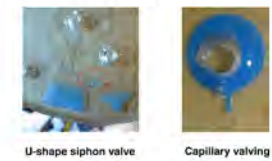
### APPLICATIONS

- Testing of allergic reactions
- Medical diagnostics
- Pharmaceutical analysis
- Environmental and food safety tests

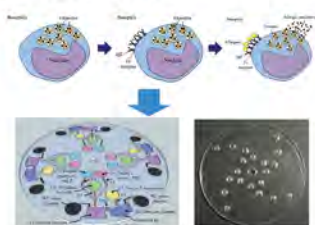
### OUR VISION



### FLUIDIC CONTROL



### 1. TESTING OF ALLERGIC REACTIONS

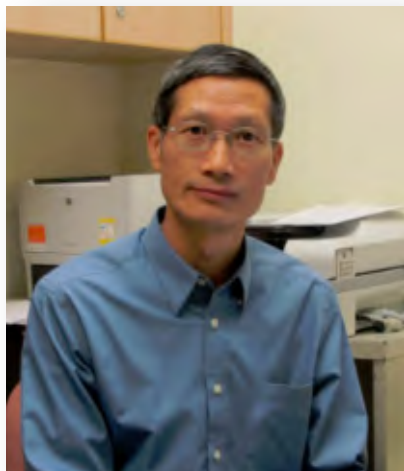


### 2. GENE AMPLIFICATION AND DETECTION



### PROJECT TEAM

Department of Electronic Engineering, The Chinese University of Hong Kong  
Prof. Aaron H. P. HO, Professor  
Dr. Q. L. CHEN, Dr. J. Q. ZHOU, Dr. G. H. WANG, Dr. S. Y. WU, Mr. H.C. KWOK  
Programme of Biochemistry, School of Life Sciences, The Chinese University of Hong Kong  
Prof. S. K. KONG, Mr. K. L. CHEUNG, Ms. Alice K.L. YANG  
School of Biomedical Sciences, The Chinese University of Hong Kong  
Prof. Y. W. KWAN, Professor  
Department of Medicine and Therapeutics, The Chinese University of Hong Kong  
Prof. P. KWAN, Professor  
Department of Chemical Pathology, The Chinese University of Hong Kong  
Prof. C. K. WONG, Professor



## Dr. Kwan Chi Leung

Laboratory Technologist  
School of Life Science

The Chinese University of Hong Kong

### Biography

Dr. K.C. Leung is currently laboratory technologist of the School of Life Sciences, The Chinese University of Hong Kong (CUHK). With extensive research experience in clinical enzymology, protein chemistry, instrumental analysis, immunological analysis, animal study and recombinant DNA technology, Dr. Leung is devoted to the development and production of electronic courseware modules for the education of biochemistry and life sciences of university and secondary school students over the years. Recently, Dr. Leung and his team members have won the awards in the Teaching and Learning Innovation Expo 2009 and 2010 at CUHK for development of an e-learning platform for biochemical science.

Based on the experience of courseware production and the implementation of the new Senior Secondary School Curriculum in Hong Kong, Dr. Leung and his team members have started to develop teaching and learning modules for the new curriculum a few years ago. In view of the various experiments in the new biology curriculum which demand expensive reagents and equipment, Dr. Leung's team was the first in Hong Kong to design and supply affordable lab equipment, specially-formulated reagents and teaching-learning packages to secondary schools which have only limited budget, hoping that students taking biology can all enjoy some good learning activities. The current project "Development of hardware modules for DNA amplification for new senior secondary school (NSS) biology teaching and learning" is one of their tasks towards this direction.

## Poster - CUHK-4

香港中文大學  
The Chinese University of Hong Kong

### Development of Hardware Modules for DNA Amplification for New Senior Secondary School (NSS) Biology Teaching and Learning — Learn by Constructivist Approach

#### Project Objectives

This project aims to develop education hardware to provide students with hands-on experience in learning the key principles of DNA technology, a new challenging domain of the New Senior Secondary School (NSS) Biology Curriculum.

#### Brief Description of the Project

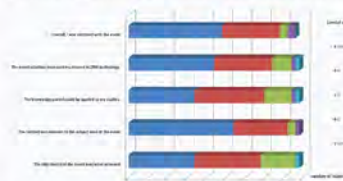
- The project is about the research and development of an education hardware and the reagent kit for the experiment of DNA amplification with instruction manuals and study materials.
- It allows students to manipulate different parameters of the experiment and learn the principle of DNA amplification from the results.



Several workshops have been held for secondary school students. They used the tailor-made hardware module to carry out experiments on various topics of biotechnology and experienced the fun of learning.



Feedback from 44 students in the workshops held on 18 Jun and 10 Aug, 2011.



#### Impact and Contributions

- This project is the first in Hong Kong on development of hardware modules for secondary school students to learn modern biology by a constructivist approach.
- Secondary school teachers can make use of this simple and affordable hardware to design teaching modules for students to learn abstract concepts of modern biology easily.
- Knowledge and experience can be transferred from the higher education sector to secondary education sector through the provision of teaching and learning references and the linkage of exchange.
- This project serves as an exemplary work for other related subjects in curriculum development.

#### Project Team

Biochemistry Programme, School of Life Sciences, The Chinese University of Hong Kong  
Dr. Kwan Chi LEUNG  
Dr. Patrick Hung Kui NGAI  
Dr. Fai Hang LO  
Ms. Christy Lee Yi CHENG

#### Funding Source

Supported by CUHK Knowledge Transfer Project Fund



## Professor William Shi Yuan Wang

Wei Lun Research Professor of Electronic Engineering  
Department of Electronic Engineering  
The Chinese University of Hong Kong

### Biography

Prof. William Wang is Wei Lun Research Professor and director of the Language Engineering Laboratory at the Department of Electronic Engineering, The Chinese University of Hong Kong. Trained as a linguist, Prof. Wang has contributed to the language engineering field throughout his career, commencing in 1959 when his PhD dissertation was one of the first studies to apply combined knowledge of linguistics and acoustics to the problem of machine recognition of speech. More recently, he and his research team at the Language Engineering Lab have worked on:– speech recognition; computational modeling of language evolution; and the use of electro-encephalography (EEG) to study how the brain processes the Chinese language, particularly in perception of lexical tone and reading its logossyllabic writing system.

The latter work has progressed into the field of assistive communication. Some individuals have physical and/or cognitive impairments that prevent them from communicating with others by speech or any other conventional means. Brain-computer interfaces (BCIs) offer such individuals a means to communicate by converting EEG measurements of their spontaneous brain responses to visual stimuli presented on a computer into text typed on a computer screen. Prof. Wang and his lab members are currently developing two BCI systems specifically for input of Chinese text.

## Poster - CUHK-5



### Project Objectives

A substantial minority of people experience damage to their nervous system that limits, or even destroys, their ability to control muscle movement. In the most severe cases, the person can become locked-in, retaining full consciousness, but unable to communicate by any conventional means, such as speaking, writing, or signing. Several kinds of neuromuscular disorder can cause an individual to become locked-in, including amyotrophic lateral sclerosis (ALS), as well as other types of motor neuron disease.

About 10,000 people in Hong Kong are affected by neuromuscular disorders, with about 3 people in 100,000 having motor neuron disease. Our work is aimed at developing portable, inexpensive, and easy to use brain-computer interface systems that will allow such individuals to input Chinese text into a computer by thought alone, providing them with a new channel for communication with other people.

### Project Description

#### Brain-Computer Interfaces (BCIs):

A brain-computer interface, or BCI, is a system that uses neurophysiological signals that originate in the brain to control an external device, such as a computer.

#### Operating Principle:

Our BCIs monitor the electrical activity of the user's brain via electrodes positioned about the scalp (see Fig. 1), a method known as electroencephalography (EEG). The user looks at a computer screen that displays an array of Chinese text (see Fig. 2). The text in the array flashes rapidly in random order while the user focuses on the target text that he wishes to select. Each time the target flashes, a characteristic brain response is elicited (see Fig. 3), allowing the user's selection to be identified.

#### Our Current Systems:

We are currently developing two BCI systems, both of which use a portable EEG headset (see Fig. 4). One system encodes Chinese characters in terms of components (see Fig. 2); the second system encodes characters in terms of individual strokes, much like on a mobile phone.

### Impact and Contributions

We aim to deliver BCI systems by which users can input Chinese text at the rate of two characters per minute. These systems will give individuals with neuromuscular disorders a new channel for communication, potentially greatly improving their quality of life.

### Project Team

Department of Electronic Engineering  
Prof. William Shi Yuan WANG, Wei Lun Research Professor  
Dr. James W. MINETT, Research Associate  
Dr. Hong Ying ZHENG, Research Associate  
Dr. Gang PENG, Research Associate  
Ms. Lin ZHOU, Research Assistant  
Mr. Manson FONG, Research Student

### Project Sponsors

The Office of the Government Chief Information Officer, ATDF Project  
The Innovation and Technology Commission, ITF Project  
Supported by CUHK Knowledge Transfer Project Fund



Fig. 1. One of our BCI systems in operation



Fig. 2. Screenshot of our component-based BCI system

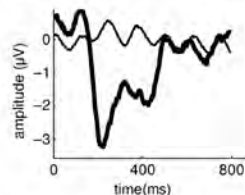


Fig. 3. Brain signals elicited from users of our BCI systems



Fig. 4. Portable EEG system used to measure brain activity  
Photograph shows the EPOC headset manufactured by  
Emotiv Systems, Inc., San Francisco, U.S.A.  
Image source: <http://www.emotiv.com/>