

Looking into myopic problems



The eye experts at PolyU announce to the press their research efforts.

The University is launching a series of research initiatives to track down the genetic origin of myopia among ethnic Chinese and effectively control the development of myopia for people of Hong Kong at all ages.

Prof. George Woo, Chair Professor of Optometry and Dean of Faculty of Health and Social Sciences, emphasises that prevention of myopia has been selected by the University as an “Area of Strategic Development” because of its unique research capabilities, and a Centre for Myopia Research has been established to support this important development.

A press briefing was held in October last year during which Prof. Woo and his research team reported on the progress of five major research initiatives that would help alleviate the myopia problem for Hong Kong people. These initiatives include:

- Genetic origin of myopia among Chinese
- Clinical study on myopia control
- Prevention of myopia for children
- Outcomes of refractive surgery
- Risk factors for myopia development in adult

Leading the research team for genetic studies are Prof. Maurice Yap Keng-hung, Head of the Department of Optometry and Radiography; and Associate Professor Dr Yip Shea-ping. In order to identify the genes involved in causing susceptibility to myopia in Chinese, the team will make use of a whole genome scan approach to search systemically for genetic effects at different locations along all human chromosomes.

This large-scale research project will involve 300 families, each consisting of at least two myopic siblings and their parents. All data collected will be sent to the Centre National de Genotypage in Paris for further analysis.

Meanwhile, Assistant Professor Dr To Chi-ho is also investigating the biochemical aspects of trans-retinal signal by using differential protein phosphorylation and differential gene expression methods. The results of this study will provide an important basis for the search of the pathogenesis of myopia.

Prof. Marion Edwards of the same department is leading a

team to study the effect of wearing progressive addition spectacle lenses for myopic Chinese children as compared to those who wear normal single vision corrective lenses. Initial findings of this research are very encouraging, and similar design of this study is being replicated and further explored in the US and on the mainland.

The team under Prof. Edwards is also actively involved in studying the prevention of myopia for school children. Specifically, the team will look into the relationship



Prof. George Woo (right) and Prof. Maurice Yap.

between prevalence of myopia and curriculum design, blur detection thresholds in childhood myopia, and the expandability of the eye in childhood myopia.

Prof. Woo, who has undertaken studies in the outcomes of various refractive surgery techniques in the past, is now involved with a study on LASIK. This research area will cover the more subtle aspects of visual function such as contrast sensitivity, recovery from glare, and changes in corneal activity after a surgical operation.

Another interesting study on the risk factors for myopia development in adults is being undertaken by Assistant Professor Dr Carly Lam Siu-yin. In this study, the team will follow a group of microscopists and a matched control group for two years to determine the progression of myopia in adults and identify the risk factors concerned.



Dr To Chi-ho gives a presentation on his project.

International conference on computer-aided design

The 3rd International Conference on Computer-Aided Industrial Design and Computer-Aided Conceptual Design, jointly organised by PolyU's School of Design, Department of Manufacturing Engineering and Industrial Centre, was held last November.

The conference brought together more than 100 product designers, engineering experts and academic researchers from five countries to present their latest findings in using computer as a tool for product design and development.

The three-day event was also organised as part of the University's initiative to develop "Training for Creativity and Innovation by Product and Process – A New Learning Factory" as an Area of Strategic Development.

The conference featured five keynote speakers who shared their insights on the latest development of computing design:

- Prof. Pan Yunhe, President of Zhejiang University



Prof Pan Yunhe, President of Zhejiang University.

- Prof. Lin Zhongkai, ICT of the Chinese Academy of Sciences
- Prof. John Frazer, Head of School of Design, PolyU
- Dr Lucienne Blessing, University of Cambridge
- Prof. David Brown, Worcester Polytechnic Institute, US

Besides, leading experts from Italy, France, UK, US and the Chinese mainland presented more than 120 papers on various

important issues related to the use of computing tools in innovative product design, including virtual reality, concept modelling and digital sculpting.

An exhibition was held concurrently with the conference at the University's Industrial Centre to provide visitors with hands-on and interactive experience of using computing tools and software. In addition, many innovative products developed by PolyU researchers were displayed. ❖



Mr Frank Pong at the opening ceremony.

Exploring ideas for fuel cell technology

Three leading experts flew from the US to introduce the latest development of the environmental-friendly fuel cell technology at a public seminar on campus last November. The speakers included Prof. G. Scott Samuelson and Dr Jacob Brouwer of University of California in Irvine, and Dr Mark C. Williams of US Department of Energy.

The speakers explained the principle of fuel cell technology, demonstrated the use of fuel cell, and elaborated on the benefits and potential applications of this new technology.

Organised by the Department of Electrical Engineering, the event has drawn more than 400 participants from the industry, with Mr Frank Pong, Executive Director of Shiu Wing Steel Ltd, and University Deputy President Mr Alexander Tzang officiated at the opening ceremony.

The seminar was sponsored by Shiu Wing Steel Ltd and supported by the Environmental Protection Department of the SAR Government, The Chartered Institute of Transport, the Hong Kong Institution of Engineers-Electrical Division, IEEE-Industry Applications and Power Electronics Society, IEEE (HK), IEEE- Power Engineering Society and the IEE Hong Kong Centre. ❖

Notable scholars from overseas visit PolyU

late last year, the Department of Nursing and Health Sciences (NHS) hosted the visits of two distinguished guests, Prof. David Mechanic, a medical sociologist of international repute, and Prof. Bruce Ames, a world-renowned life scientist.



Prof. David Mechanic (left) with Vice President Prof. Philip Yeung.

Prof. Mechanic, Director of the Institute of Health Care Policy and Aging Research at Rutgers University, visited PolyU under the Sir Edward Youde Memorial Fund Visiting Professorship Scheme. A member of the Editorial Board of several prestigious journals in health policy and medical sociology, Prof. Mechanic has been an elected Member of the Institute of Medicine, National Academy of Sciences since 1971. During his stay, Prof. Mechanic delivered an open lecture on “Knowledge, Technology and Changing Health Care Organisation: Challenges and Converging Approaches in Modern Nations” and ran a workshop on “Stress Illness and Illness Behaviour” on campus.

The events were well attended, reflecting the importance of these topics in our local scenario, characterised by an ageing population, stressful living conditions, and a health care system in transition. The expertise of Prof. Mechanic was beneficial to both the academics and clinicians in the health care field.

Prof. Ames is a Professor of Biochemistry and Molecular Biology, and the Director of the National Institute of Environmental Health Sciences Center, University of California, Berkeley. A member of the National Academy of Sciences, he has received many awards, including the highest award in environmental achievement, the Tyler Prize, the Lovelace Institutes Award for Excellence in Environmental Health Research, and the US National Medal of Science. Under the auspices of our World Renowned Researchers and Scholars Seminar Series Scheme, Prof. Ames delivered two open lectures on campus, and met with postgraduate research students of the NHS. His lecture topics, “Delaying the Mitochondrial Decay of Ageing” and “The Causes and Prevention of Cancer”, are of direct interest to scientists and health care professionals in Hong Kong. Strategies to delay the deleterious changes associated with ageing will benefit our local population, as more than 15 per cent of our population is aged 65 years and above, and cancer is our leading cause of death. The appreciative audience comprised academic staff and students of PolyU, and academics, scientists and researchers from the Department of Health, local hospitals and universities.



(from left) PolyU's Prof. Thomas Wong, Prof. Suleyman Demokan, Prof. Bruce Ames and Prof. George Woo.