

2004 Young Scientist Awards Updates

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A total of 57 applications were received: 18 in Physical/Mathematical Science, 16 in Life Science and 23 in Engineering Science.

Three [Selection Panels](#), one in each field, had been set up to review the applications and performed initial screening. [Short-listed applicants](#) were asked to give oral presentation of their work for the final selection.

The Award winners will be announced at the presentation ceremony to be held during the HKIS Annual Conference on 30 October 2004.

Selection Panels

Physical/Mathematical Science Panel

<i>Chairman</i>	Prof. Qiang ZHANG	(Department of Mathematics, CityU)
<i>Members</i>	Prof. T.K. NG	(Department of Physics, HKUST)
	Prof. Jiming LIU	(Department of Computer Science, HKBU)
	Dr. Pauline LI	(Department of Appl. Biol. & Chem. Tech., PolyU)

Life Science Panel

<i>Chairman</i>	Prof. Benjamin PENG	(Department of Biology, HKUST)
<i>Members</i>	Prof. M.C. FUNG	(Department of Biology, CUHK)
	Prof. Nora TAM	(Department of Biology and Chemistry, CityU)
	Dr. Stephen CHUNG	(Institute for Molecular Biology, HKU)

Engineering Science Panel

<i>Chairman</i>	Prof. Allen CHWANG	(Department of Mechanical Engineering, HKU)
<i>Members</i>	Prof. J.M. KO	(Dean of Construction and Land Use, PolyU)
	Prof. S.P. WONG	(Department of Electronic Engineering, CUHK)

Short-listed Applicants

Physical/Mathematical Science

GU Hongwei 顧宏偉

Department of Chemistry, Hong Kong University of Science and Technology

Title of the Work: Biofunctional nanomaterials for pathogen detection

The work integrates biology, nanotechnology, and magnetism in developing a system for the detection of pathogens as well as a protocol utilizing biofunctional magnetic nanoparticles for capturing and separating proteins for applications in clinical diagnostics, biotechnology and biomedicine.

HUANG Ji Ping

Department of Physics, Chinese University of Hong Kong

Title of the Work: New man-made nonlinear materials with a giant nonlinearity enhancement

New man-made nonlinear materials basing on graded materials and electrorheological fluids are developed. Potential industrial applications of the materials include nonlinear optical switching devices for photonics and real-time coherent optical signal processors, nonlinear dielectric materials for electronic and microwave components and sensor windows.

KO Chi Chiu 高志釗

Department of Chemistry, University of Hong Kong

Title of the Work: Photosensitized photochromic materials

This work relates to the design and synthesis of photochromic ligands and their corresponding transition metal complexes. It provides a new strategy in the design of photochromic materials and photoswitching molecular devices which is one of the important aspects in the design, architecture and construction of optical functioning devices.

MEI Yongfeng 梅永丰

Department of Physics and Material Science, City University of Hong Kong

Title of the Work: Fabrication, characterization and application of porous anodic alumina template for nanoelectronics and nano-optoelectronics

This work relates to fabrication and characterization of nanostructures and nanomaterials for potential applications in nanoelectronics or nano-optoelectronic. Porous anodic alumina template is produced and explored for further synthesis of nanomaterials. The microstructures and color centers are investigated in details.

WANG Ligang 王立剛

Department of Physics, Hong Kong Baptist University

Title of the Work: The propagation of light pulses in dispersive media and photonic crystals

The propagation of light pulses in dispersive media and photonic crystal is an important aspect in laser physics and quantum optics. This work investigates the mechanics of superluminal pulse propagations in dispersive media and demonstrates that the coherence of light pulses plays an important effect on superluminal propagation.

WEN Ting Bin 溫庭斌

Department of Chemistry, Hong Kong University of Science and Technology

Title of the Work: Synthesis and Chemistry of Metallabenzynes

This work relates to the synthesis and characterization of metallabenzynes which represent a new class of organometallic compounds and open up a new area in organometallic chemistry.

Life Science

CHAN Chun Fai 陳俊輝

Department of Biology, Hong Kong University of Science and Technology

Title of the Work: Study of cancer vaccine candidates for human hepatocellular carcinoma

This work relates to cancer immunotherapy and provides approaches for developing vaccine candidates for human hepatocellular cancer. Further exploration of the novel cancer/testis antigen HCA661 may provide a good target for immunotherapy for this lethal cancer.

CHAN Pui Yee 陳佩兒

Department of Chemistry, Hong Kong University of Science and Technology

Title of the Work: A superior rapid test for early diagnosis of myocardial infarction

This work relates to the field of clinical biochemistry. Fatty acid-binding protein (FABP) is demonstrated to be an early cardiac marker for heart infarction. It opens a new opportunity for early diagnosis and therapeutic intervention of myocardial infarction. The development of the rapid FABP assay has the potential to become a point-of-card diagnostic product with a huge market.

CHAN Siu Lung 陳少龍

Department of Biochemistry, Hong Kong University of Science and Technology

Title of the Work: G protein signal transduction and integration

This work aims at delineating the signal integration mechanism of G protein-coupled receptors. It can be applied to the study of the pharmacological responses of Chinese medicines and can be further extended to explore novel potential therapeutic formulation for medical use, as well as the integration of Western and Chinese medicine pharmacology.

ZHOU Chen Xi 周晨曦

Department of Physiology, Chinese University of Hong Kong

Title of the Work: Influence of sperm maturation and fertilizing capacity by secretions of male and female reproductive tract epithelia

This work is a study on the molecular mechanisms underlying sperm maturation, fertilization and the pathology of CF female infertility. The findings can be used for diagnosis of male infertility and enable better management of assisted reproductive technologies for infertile CF women. The findings may also provide grounds for development of new contraceptive strategies and treatment of infertility.

Engineering Science

CHEN Shengyong 陳勝勇

Department of Manufacturing Engineering and Engineering Management, City University of Hong Kong

Title of the Work: Automatic sensor placement for model-based robot vision perception

An automatic sensor placement strategy is developed for a robot vision system to fully automate its perception tasks in model-based applications.

CHOW Kin Kee 周健基

Department of Electronic Engineering, Chinese University of Hong Kong

Title of the Work: All-optical processing devices for high-speed fiber communications

A series of novel all-optical processing devices is proposed and demonstrated. A new kind of optical fiber is investigated and its new applications in all-optical signal processing developed, including broadband wavelength converter and signal regenerator.

SUN Zhi 孫智

Department of Civil Engineering, Hong Kong University of Science and Technology

Title of the Work: Wavelet packet based structural health monitoring and damage assessment

A novel index is proposed for structural health monitoring and damage assessment of civil

infrastructures. This index is found sensitive to structural damage and insensitive to environmental noise, and can be used for various levels of damage assessment including identifying damage occurrence, location and severity.

ZHU Ledong 朱樂東

Department of Civil and Structural Engineering, Hong Kong Polytechnic University

Title of the Work: Buffeting response of long span cable-supported bridges under skew winds: field measurement and analysis

This work has both theoretical and practical significance to the wind-resistant design of long-span bridges. A new method for analyzing the buffeting response of long span bridges under skew winds is developed, and verified to some extent using the field measurement results of the Tsing Ma Bridge.