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## 1 INTRODUCTION

The Department of Applied Mathematics, one of the four departments in the Faculty of Applied Science and Textiles, has an establishment of 37 academic staff and 13 supporting staff.

The Department contributes significantly to the academic programmes of the University by offering academic programmes and supervising research students leading to the awards of MPhil and PhD. In addition, it is actively involved in providing support courses to various departments and faculties across the University. The academic programmes administered by the Department are as follows:

Full-time BSc(Hons) in Investment Science  
Part-time MSc/PgD in Applied Mathematics for Science and Technology  
Part-time BSc(Hons) in Statistics and Computing  
Part-time BSc(Hons) in Actuarial Science  
Minor Programme in Applied Mathematics

The main research directions of the Department are in the areas of optimization and optimal control, statistics, actuarial science, financial mathematics and computational mathematics. While applied research is the main focus of the Department, many staff members also carry out fundamental research. The Department encourages interdisciplinary research as attested by the number of joint research publications, joint research projects, joint organization of conferences and workshops, and academic visitors.

### Contact Information

Department of Applied Mathematics  
The Hong Kong Polytechnic University  
Hung Hom  
Kowloon  
Hong Kong, China

Tel : (852)2766-6946  
(852)2766-6948

Fax : (852)2362-9045  
(852)2764-4382

Homepage : <http://www.polyu.edu.hk/~ama>

## 2 MISSION AND OBJECTIVES

### 2.1 Mission

The Mission of the Department is to facilitate learning through excellent teaching and research in Applied Mathematics with leading expertise in optimization, optimal control, applied statistics and actuarial science, financial mathematics and engineering mathematics. Amongst all the mathematics departments of local tertiary institutions, the distinctive characteristic of the Department is its strength in application-oriented research. The Department has a leading research group in optimization and optimal control, and it has a solid reputation in the areas of applied statistics and engineering mathematics.

### 2.2 Objectives

Our objectives are summarized as follows:

(a) Teaching

- (i) To provide professional oriented programmes of the highest academic standards, at both undergraduate and postgraduate levels, which are responsive to student, community and professional needs and demands.
- (ii) To provide quality service teaching so that students will possess a solid foundation in mathematics needed in the study of subjects of their own programmes. This is especially crucial when the duration of undergraduate programmes is changed from 3 years to 4 years.
- (iii) To provide quality teaching to students of our own programmes.
- (iv) To offer a UGC-funded BSc (Hons) programme and to offer UGC-funded joint degree programmes with appropriate departments of the University.
- (v) To produce preferred graduates with sound mathematical, analytical and communication skills; the ability to work individually and as part of a team; the capability to fill a wide range of employment niches; and the motivation for life-long learning.

(b) Research

We aim to become a centre of excellence in applied mathematics in Hong Kong with leading expertise in optimization, optimal control, applied statistics, actuarial science, financial mathematics and engineering mathematics. Our research emphasis is on developing techniques and their applications to engineering, finance, investment, insurance, marketing and environmental studies. These research activities are relevant to the teaching of our own programmes as well as our service teaching. There are close research collaborations among the staff members from the three Research Groups within the Department. For example, novel optimization techniques are being developed to tackle problems in statistics and scientific computing. While maintaining the strength of the Operations Research and Computational Mathematics Group, our aim in the next 5 to 10 years is to become a leading applied mathematics center in the Southern China region, specializing both in teaching and research in the areas of optimization, optimal control, statistics and actuarial science, and engineering mathematics. New appointments, as budget permits, will be made in the areas of statistics and actuarial science. The Department will maintain and further enhance its research atmosphere and culture, so that its staff can bring forth new research development and, more importantly, research enthusiasm during their teaching for students of our own programmes and service teaching. This will provide students with opportunities to be exposed to and participate in original research, scholarship and creative activities. The Department also aims to serve as a bridge for bringing together overseas researchers in applied mathematics and those from Mainland China.

### **3 STAFF**

#### **3.1 Academic Staff**

##### **Head of Department and Chair Professor of Applied Mathematics**

Qi Li-qun, BSc, Tsinghua University / MSc, University of Wisconsin / PhD, University of Wisconsin

##### **Deputy Head of Department and Professor**

Chan Cheong-ki, BSc, The City University / MSc, University of Salford / PhD, Robert Gordon's Institute of Technology

##### **Chair Professor of Engineering Mathematics**

Colin Rogers, BA, Oxford University / MSc, University of Nottingham / Med, University of Toronto / PhD, University of Nottingham / DSc, University of Nottingham

##### **Chair Professor of Mathematical Computation**

Kwong Man Kam, BSc, University of Hong Kong / MSc, University of Chicago / PhD, University of Chicago

##### **Chair Professor under the Distinguished Scholar Scheme**

Ian Sloan, BSc, BA, Melbourne University / MSc, Adelaide University / PhD, University of London

##### **Associate Head and Professor**

Hou, Shui-hung, BSc, University of Michigan / MSc, University of Michigan / PhD, University of Michigan

##### **Honorary Professor**

Chang Kung-ching, Beijing University

Ma Zhi-ming, BSc., Chongqing Normal University / Ph.D, the Chinese Academy of Sciences

Ye Yinyu, BS, Huazhong University of Science and Technology / MS, Stanford University / PhD, Stanford University

##### **Adjunct Professor**

Fung Hing Wang, JP, BSoc. Sc, The University of Hong Kong / MSoc. Sc, The University of Hong Kong

##### **Professor**

Chen Xiaojun, MSc, Xi'an Jiaotong University / PhD, Xi'an Jiaotong University / PhD, Okayama Science University

Lin Yanping, BS, NE Institute of Technology / MS, Washington State University / PhD, Washington State University

Yang Xiaoqi, BSc, Chongqing Jianzhu University / MSc, Chinese Academy of Science / PhD, University of New South Wales

#### **Associate Professors**

Chan Chi-kin, BSc, University of Kent / MBA, University of Aston / PhD, Lancaster University

Ip Wai-cheung, BSc, Leeds University / MSc, Manchester University / PhD, Leeds University

Lee Heung-wing Joseph, BSc, University of Western Australia / PhD, University of Western Australia

Wong Heung, BSc, Chinese University of Hong Kong / MSc, The University of Newcastle upon Tyre / PhD, University of Hong Kong

Zhou Xian, BSc, Shanghai Jiao Tong University / MSc, University of California of Santa Barbara / PhD, University of California at Santa Barbara

#### **Assistant Professors**

Choy Yee-hung, BSc, University of Hong Kong / MSc, University of Reading / PhD, University of Technology, Sydney

Kwan Ying-keung, BSc, University of Hong Kong / MPhil, University of London

Leung Kar-juen, BSc, Chinese University of Hong Kong / MSc, Southampton University and UMIST

Leung Ping-kei, BSc, University of Manitoba / MSc, University of Manitoba / PhD, University of Manitoba

Li Leong-kwan, BSc, Chinese University of Hong Kong / MSc, University of Southern California / PhD, University of Southern California

Li Xun, BSc, Shanghai University of Science and Technology / MSc, Shanghai University / PhD, Chinese University of Hong Kong

Pang Wan-kai, BSc, University of London / MSc, University of Aston / MPhil, University of Hong Kong / PhD, University of Southampton

Yam Sheung Chi Phillip, BSc, University of Hong Kong / MPhil, University of Hong Kong / CASM, University of Cambridge / DPhil, University of Oxford

Yiu Ka-fai, MSc, University of London / DPhil, University of Oxford

Zhao Xingqiu, BSc, University of Hubei / MSc, University of McMaster / PhD, University of McMaster.

#### **Senior Lecturers**

Chan Chun-wah, BSc, Chinese University of Hong Kong / PhD, New York University

Pong Tak-yun, BSc, University of Wisconsin / MSc, University of Missouri / PhD, Loughborough University

## **Lecturers**

Chung Kwok-chiu, BSc, University of Hong Kong / MPhil, University of Hong Kong / PhD, Loughborough University

Huang Jian-hui James, BSc, Shandong University / MSc, Shandong University / PhD, University of Alberta

Hung Kim-fai, BSc, Eastern New Mexico University / MA, Eastern New Mexico University / PhD, University of North Carolina at Chapel Hill

## **Instructor**

Chiu Lai-lin, MSc, University of Sheffield / PhD, The Hong Kong Polytechnic University

Or Ming-keung Ben, BSc, the Chinese University of Hong Kong / MPhil, the Chinese University of Hong Kong / PGDE, the Chinese University of Hong Kong / MSc, the University of Oxford

## **Tutors**

Francis Robert Austin, BSc, The University of New South Wales / MSc, The University of London / PhD, The University of Surrey

Ho Chor Yin, BSc, The Chinese University of Hong Kong / MSc, City University of Hong Kong / MSc, The Chinese University of Hong Kong / MPhil, The Chinese University of Hong Kong

Hau San-ming, BSc, University of Texas at Austin / MA, University of Texas at Austin

Mak Kai-long, BSc, University of Plymouth / MPhil, The Hong Kong Polytechnic University

Mak Wai-kwong, BSc, University of California / MSc, California State University

Nora Man, BSc, University of Alberta / MSc, University of Alberta

So Moon Tong, MPhil, The University of Hong Kong / PhD, The University of Hong Kong

Tsoi Sze-leong, BSc, Simon Fraser University

Wong Wai Him, MSc(Eng), University of Hong Kong / PCEd, University of Hong Kong / MSc, Chinese University of Hong Kong

Yeung Hon Keung, BSocSc, The University of Hong Kong / BSc, The Hong Kong Polytechnic University

Yuen Man-wai Steven, BSc, City University of Hong Kong / MSc, The Chinese University of Hong Kong / MPhil, City University of Hong Kong / PDGE, The Chinese University of Hong Kong

## **University Postdoctoral Fellows**

Ling Chen, B.S., Zhejiang Normal University / PhD, The Hong Kong Polytechnic University

## 3.2 General Staff

### Executive Officer

Miss Hau Ling-ling, Cynthia, BSoc. Sc, The Chinese University of Hong Kong / MSc,  
University of Western Australia

### Personal Secretary to Head of Department

Mrs. Fanny Cheung

### Technician

Mr. Cheng Tak-shing, Joseph

### Assistant Technical Officer

Mr. Au Yeung Wai-lap, Alex

Mr. Fu To, Benny

Mr. Lo Charn Tong, Peter

### Assistant Officer

Miss Cheung Wan-chi, Katie

### Marketing Officer

Ms. Wu Chung Ting, Vicky

### Student Placement Officer

Miss Fung Tak Wai, Agnes

### Executive Assistant

Ms. Yeung Pui Shan, Julia

### Clerical Officers II

Ms. Chiu Au Wah-yin, Jojo

Miss Law Siu-lin, Margaret

Ms. Mak Man Wai-lin, Ida

Ms. Yiu Yee-wah, Eva

### Office Assistant

Mr. Choy Chun-wai

## 3.3 Awards and Honours

Prof. Qi Liqun was named one of the world's most influential mathematicians during the period of 1981 to 1999, one of the four researchers among the eight UGC-funded institutions being put on this roll of honour, according to the authoritative citation database ISIHighlyCited.com. A total of 232 researchers are listed in mathematics in the world.

Prof. Qi Liqun was elected a Foreign Member of the Petrovskaya Academy of Sciences and Arts (RUSSIA) in April, 2003. He was elected for his extraordinary achievements and contributions to numerical optimization. The Petrovskaya Academy of Sciences and Arts (PASA) was established by Peter the Great in 1724.

Prof. Hou Shui-hung and Chan Cheong-ki received Second Prize of the Shanghai Science and Technology Progress Award in 2002. This was awarded to the joint research study with Tongji University on the vibration and stability of beam bundles in fluid.

Prof. Qi Liqun has received The President's Awards for Excellent Performance / Achievement in the category of Research and Scholarly Activities 2003/2004.

Prof. C. Rogers has received the Centenary Medal from the Australia Government in 2003.

Prof. X.Q. Yang has received the First Prize of Natural Science from the Chongqing municipal Government in 2006.

## **4 ACADEMIC PROGRAMMES AND SERVICE TEACHING**

### **4.1 Academic Programmes**

The Department offers a broad range of academic programmes, with one MSc/PgD programme and three BSc(Hons) programmes. The common thread of the four programmes is mathematics and statistics.

The Master of Science/Postgraduate Diploma in Applied Mathematic for Science and Technology offers two specialisms, (i) Decision Science, and (ii) Actuarial and Investment Science. The "Decision Science" specialism aims to provide students with up-to-date theoretical and practical knowledge in statistics, operations research and computational mathematics relevant to decision making and practical problem solving in engineering, finance and management. The "Actuarial and Investment Science" specialism aims to provide students with a solid foundation of actuarial and investment science. We also teach our students essential mathematical modeling as well as computational techniques, developing generic skills required for solving real-life problems.

For the BSc(Hons) programme in Statistics and Computing, it consists of a balanced selection of complementary subjects in statistics, computing, finance, and operations research. The common aim is to produce preferred graduates with the capacity to fill a wide range of employment niches, particularly those related to statistics and information technology, and the motivation and ability for life-long learning.

For the BSc(Hons) programme in Actuarial Science, it is in response to the increasing importance of financial industries in Hong Kong with China opening up its insurance market after joining WTO. The aims of this programme are to provide students with rigorous theoretical foundation in actuarial science and to produce leading professionals in the actuarial and related fields such as quantitative finance and probabilistic risk management.

For the BSc in Investment Science, the aim is to produce graduates with strong mathematical and statistical skills and a thorough understanding of their applications in the world of modern investment and finance. The education is to develop students' ability in quantitative analysis, critical thinking and communication skills, which will

enable them to pursue a variety of careers such as investment banking, fund management, risk management and financial product development and pricing. With a solid foundation of investment science, mathematics and statistics, the students will be able to develop an outlook that remains valuable in whatever career they pursue in the world of business and commerce.

## 4.2 Service Teaching

Service teaching in mathematics and statistics is a major component of teaching activities of the Department. Nearly all academic staff of the Department are involved in service teaching. A service teaching coordinator and two deputy coordinators are appointed to oversee various aspects of service teaching. They are responsible for liaison with other departments in the PolyU, design and revision of syllabuses, preparation of teaching materials, collection of feedback from students and staff, as well as preparation and conduct of examination matters.

The Department runs remedial mathematics courses for students from various departments of the University. It also runs a Mathematics Support Learning Centre. The Centre aims to provide students with additional help in their studies of mathematics and statistics subjects. An on-line booking system has also been put in place so that bona fide students could reserve a time-slot in advance to reduce possible waiting time.

## 5. RESEARCH

### 5.1 An Overview

The Department continues to work to enhance its research culture and environment. Staff are also encouraged to participate in major international conferences. It will continue to provide a supportive and stimulating environment to enhance performance.

The Department will continue to maintain its firm commitment to staff development programmes.

In line with its mission the Department has established two research groups, (i) Operations Research and Computational Mathematics; and (ii) Applied Mathematics and Actuarial Science. The Department has been actively involved in the organization of high-level professional activities such as international conferences and workshops. The staff has joint research activities with colleagues from other departments of the University and sister institutions in Hong Kong. We have also established collaborations with higher institutions in Mainland China, some under National Key Research Schemes, and other parts of the world. Many academic visitors have visited the Department for research collaboration.

### 5.2 Editorial Positions

**CHAN, Chi Kin**, Member of Editorial Board. *Idea Group Publishing*.

**CHEN, X.J.**, Member of Editorial Board. *Journal of Industrial and Management Optimization*.

**CHEN, X.J.**, Member of Editorial Board. *Numerical Functional Analysis and Optimization*.

**CHEN, X.J.**, Member of Editorial Board. *Numerical Algorithms*.

**CHEN, X.J.**, Member of Editorial Board. *Asian Information-Science-Life*.

**HOU, S.H.**, Editor. *The Electronic Journal of Mathematics & Technology (EJMT)*.

**IP, W.C.**, Member of Editorial Board. *Advances and Applications in Statistics*.

**IP, W.C.**, Member of Editorial Board. *International Journal of Statistics & Systems*.

**IP, W.C.**, Member of Editorial Board. *Current Development in Theory and Applications of wavelets*.

**LEE, H.W.J.**, Member of Editorial Board. *Idea Group Publishing*

**QI, L.Q.**, Editor-in-chief. *Pacific Journal of Optimization*.

**QI, L.Q.**, Member of Editorial Board. *Computational Optimization and Applications*.

**QI, L.Q.**, Member of Editorial Board. *ESAIM : Control, Optimization and Calculus of Variations*.

**QI, L.Q.**, Member of Editorial Board. *Frontiers of Mathematics*.

**QI, L.Q.**, Member of Editorial Board. *Journal of Combinatorial Optimization*.

**QI, L.Q.**, Member of Editorial Board. *Journal of Industrial and Management Optimization*.

**QI, L.Q.**, Member of Editorial Board. *Systems Engineering – Theory and Practice*.

**ROGERS, C.**, Member of Editorial Board. *Studies in Applied Mathematics*.

**ROGERS, C.**, Member of Editorial Board. *Boundary Value Problems*.

**ROGERS, C.**, Member of Editorial Board. *Journal of Mathematical Analysis & its Applications*.

**YAM, S.C. Phillip**, Assistant Editor. *IAENG International Journal of Applied Mathematics*.

**YANG, X.Q.**, Associate Editor. *Journal of Optimization Theory and Applications*.

**YANG, X.Q.**, Associate Editor. *Journal of Systems Engineering - Theory and Practice*.

**YANG, X.Q.**, Associate Editor. *Journal of Industrial and Management of Optimization*.

**YANG, X.Q.**, Associate Editor. *Numerical Mathematics: A Journal of Chinese Universities*.

**YANG, X.Q.**, Associate Editor. *International Journal of Management Science and Engineering Management*.

**YANG, X.Q.**, Associate Editor. *International Journal of Numerical Analysis & Modeling, Institute for Scientific Computing and Information, CanadaManagement*.

### 5.3 Research Grants

The Department has secured a number of research grants from UGC Research Grants Council, PolyU Research Committee and a number of external research funding institutions.

(a) Competitive Earmarked Research Grants (CERG)

Competitive earmarked research grants (CERG) won by the Department since 2004 are summarized in the following table:

<u>Principal Investigator</u>	<u>Project Title</u>	<u>Year</u>	<u>Amount in HK\$</u>
Prof. Qi, Liqun	Multivariate Polynomial Optimization and Systems	2004	392,000
Prof. Teo, Kok Lay	Design of Filter Banks for VLSI Implementations	2004	337,631
Dr. Yang, Xiaoqi	Infinite Dimensional Optimization with Applications	2004	600,080
Dr. Zhou, Xian	Stochastic Scheduling Subject to Machine Breakdowns with Partial Loss of Work and Information	2004	506,447
Prof. Qi, Liqun	Constrained and Unconstrained Nonsmooth Equation Methods	2005	463,600
Prof. Yang, X.Q.	Semi-Definite Programs with Applications	2005	538,836
Prof. Qi, Liqun	Eigenvalues of Higher-Order Tensors and Applications	2006	250,000
Dr. Wong, Heung	Non-parametric Time Series Modeling with Applications to Public Health of Hong Kong	2006	365,750
Dr. Yang, Xiaoqi	Second-order Optimality Conditions in Constrained Optimization	2006	356,000
Dr. Yiu, Ka-fai Cedric	FPGA-based beamforming processor for acoustic applications	2006	382,161
Prof. Qi, Liqun	Stable Solutions of Systems of Nonlinear Equations	2007	445,000
Prof. Yang, Xiaoqi	Vector Variational Inequalities with Applications	2007	396,000
Dr. Yiu, Ka-fai Cedric	Risk Control in Inventory Management via Value-at-risk Constraints	2007	379,390
Prof. Chen, Xiaojun	Robust Algorithms for Singular Smooth and Nonsmooth Equations	2008	579,610
Prof. Qi, Liqun	Optimization Methods for Problems Related with Two Fourth Order Tensors	2008	783,200
Prof. Rogers, Colin	Wave Interaction and Indentation in Solitonic Elastic Materials. Application of Backlund Transformations	2008	463,688
Dr. Yam, Sheung-chi Phillip	Application of Theory of Rough Paths to Some Issues in Geometry	2008	293,700
Prof. Chan, Cheong-ki	Simulation of Turbulent Combustion with LES and Contour Advection with Surgery	2008	358,660
Prof. Yang, Xiaoqi	Semi-infinite and Generalized Semi-infinite Programs	2008	838,829

(b) PolyU Internal Research Grants for CERG

<u>Principal Investigator(s)</u>	<u>Project Title</u>	<u>Year</u>	<u>Amount in HK\$</u>
Dr. Ip, W.C.	Testing Structural Changes in Single-index Model by Wavelet	2005	150,000
Dr. Lee, H.W.J.	Optimal Control Problems with Elliptic Separation Constraints	2005	150,000
Dr. Chan, C.K.	Study of Premixed Turbulent Combustion using Level-Set and LES	2006	150,000
Dr. Lee, H.W.J.	The Optimal Design of Locations and Shapes of Multiple Fixed Perimeter Pillars Attaining Maximum Volume	2006	150,000
Dr. Zhou, X.	Stochastic Scheduling Subject to Multiple Types of Machine Breakdowns	2006	150,000
Dr. Chan, Chi Kin	Co-ordination in a Single-vendor Multi-buyer Supply Chain by Synchronizing Ordering and Production Cycles with Cost Sharing	2007	150,000
Dr. Hou, S.H.	Set-valued impulsive systems and optimal controls	2007	150,000
Dr. Ip, W.C.	Multi-scale Variability and Trends of Precipitation in North China	2007	150,000
Dr. Lee, H.W.J.	An Optimal Control Approach to the Design of Optimal Locations and Shapes of the Support Frame of Intimate Apparel	2007	150,000
Dr. Zhou, X.	Stochastic scheduling of deteriorative jobs subject to machine breakdowns	2007	150,000
Prof. Hou, Shui-hung	Controllability of Impulsive Systems with Time Delay in Infinite Dimensional Banach Spaces	2008	190,000
Dr. Ip, Wai-cheung	Applications of Grey Relational Method to River Environment Quality Evaluation in China	2008	190,000
Dr. Li Xun	Revenue Optimization with Capacity Effects and Applications	2008	190,000
Dr. Wong Heung	A Graphical Time Series Approach to Environmental Problems in Hong Kong and the Pearl River District	2008	190,000
Dr. Yiu, Ka-fai Cedric	Continuous Portfolio Optimization with Stochastic Volatility Under Risk Constraints	2008	190,000

(c) PolyU Internal Research Grants

The PolyU Internal Research Grants won by the staff members of the Department since 2000 are listed as follows:

(i) Inter-faculty Projects

<u>Principal Investigator(s)</u>	<u>Project Title</u>	<u>Year</u>	<u>Amount in HK\$</u>
Dr. Lee, H.W.J.	Containment Strategy for the SARS Epidemic via Optimal Links Removal in the Logical Topology of Small World Network Model	2004	277,000
Dr. Chan, C.K.	Numerical and Experimental Studies of Premixed Turbulent Flames	2005	320,000
Dr. Chan, Chi Kin	Combination Forecasts of the Demand for Hong Kong Tourism	2005	320,000
Prof. Yang, X.Q.	Development of Nonlinear Lagrangian Method for Multi-objective Optimization Problems and its Application to the Optimal Design of Logistics Networks	2006	319,200

(ii) Intra-faculty Projects

<u>Principal Investigator(s)</u>	<u>Project Title</u>	<u>Year</u>	<u>Amount in HK\$</u>
Dr. Chan, C.K.	Fracture Behaviours of Polymer Composites under Low Temperature	2004	220,000
Dr. Pang, W.K.	The Markov Chain Monte Carlo Approach for Estimating the Risks of Claims in Insurance Management	2005	106,965
Dr. Chan, C.K.	Fatigue Analysis of Polymer Composites Under Expansion-contraction Conditions	2006	150,000
Dr. Pang, W.K.	A Bayesian Approach to Study the Distribution of Divident Yield Data in the Hong Kong Stock Market	2006	100,000

(iii) Single-department Projects

<u>Principal Investigator(s)</u>	<u>Project Title</u>	<u>Year</u>	<u>Amount in HK\$</u>
Dr. Chan, Chi Kin	Delivery Scheduling of Joint Replenishments in a Single-vendor Multi-buyer Supply Chain	2004	100,000
Dr. Ip, W.C.	A Nonparametric Test for Conditional Heteroscedasticity in Economic Time Series	2004	117,306
Prof. Hou, S.H.	A Study on the Mechanism of Electro-spinning	2005	90,000
Dr. Lee, H.W.J.	Continuous Sensor Scheduling for Parameter Estimation of Distributed Systems	2005	90,000
Dr. Wong, H.	Non-parametric Regression and Time Series Modelling of Pollution Data of Hong Kong	2005	90,000
Dr. Zhou, X.	Statistical Inference on Seemingly Unrelated Partially Linear Models with One-way Error Component Structure	2005	90,000
Dr. Chan, Chi Kin	Supply Chain Co-ordination with Cost Sharing	2006	120,000
Dr. Ip, W.C.	Model Checking for General Linear Models with Non-ignorable Missing Covariates	2006	90,000
Dr. Leung, P.K.B.	The Sensitivity of Common Capability Indices to Departures from Normality	2006	90,000
Dr. Yiu, Ka-fai Cedric	Optimal Filter Design for Hands-free Speech Recognition Device via Optimization	2006	120,000

<u>Principal Investigator(s)</u>	<u>Project Title</u>	<u>Year</u>	<u>Amount in HK\$</u>
Dr. Zhou, X.	Change-point Models for Survival Data with Long-term Survivors	2006	90,000
Dr. Chan, Chi-kin	Supply Chain Co-ordination with Trade Credit Option	2007	100,000
Dr. Lee, Heung-wing Joseph	Non-smooth Maximun Volume Isoperimetric Pillars Problems with Topological Techniques	2007	100,000
Dr. Leung, Ping-kei	Cumulants, Interest-Sensitivity Measures and Exact Credibility	2007	100,000
Dr. Li, Leong-kwan	Neural Networks for Financial Applications	2007	100,000
Dr. Wong, Heung	Non-parametric Single-Index Model with Applications	2007	100,000

(d) Postdoctoral Fellows

The Department secured the following University Postdoctoral Fellowships during the past few years:

<u>Year</u>	<u>Postdoctoral Fellow</u>	<u>Project Leader</u>	<u>Project Title</u>
2003/2004	Li Shengjie	Yang Xiaoqi	Semi-Infinite Programming and Semi-Definite Optimization Problems
2004/2005	Wang Yi-ju	Qi Liqun	Polynomial Optimization: Theory, Algorithms and Applications
2004/2005	Zheng Xi-yin	Yang Xiaoqi	Fermat and Language Rules for Multiobjective Optimization
2007	Ling Chen	Qi Liqun	Generalized Equations: Theory, Algorithms and Applications
2007	Zhou Weijun	Chen Xiaojun	Large-scale constrained nonlinear least squares problems and applications in engineering and economics

#### 5.4 Research Students

The Department monitors the progress of the research students via annual seminars and progress reports. A clear policy has been laid down which requires these seminars to be presented before the Departmental Research Committee members and progress reports to be submitted to the Departmental Research Committee for comments.

Current PhD students:

<b>Name</b>	<b>Project Title</b>	<b>Supervisor(s)</b>
An Congpei	Robust Solutions of Stochastic Variational Inequalities and Applications	Xiao Jun Chen
Chen Jinhai	Solution Methods for Solving Nonlinear System of Equations Under Some	Liqun Qi

	Particular Conditions	
Chen Zhangyou	On The Study of Infinite Dimensional Optimization with Applications	Xiao Qi Yang
Chen Zhe	The Study of Global Optimization Problems and Applications	Xiao Qi Yang
Ham Karim	Computational Optimal Control Problems	Joseph Lee Heung Wing / Chi Kin Chan / Ping Kei Leung
Liu Jingzhen	Portfolio Risk Control via Value-at-Risk Constraints and Insurance Policy	Cedric Yiu / Xiao Qi Yang
Meng Kai Wen	On the Study of Semi-definite Programs	Xiao Qi Yang
Tan Zhiping	Proportional Hazards Models for Survival Data under Competing Risks	Xian Zhou
Tsoi Sze Leong	The Inverted Bivariate and Multivariate Probability Loss Functions: Properties and Applications	Ping Kei Leung
Wu Yingyan	Numerical Study of Premixed Turbulent Combustion	Cheong Ki Chan
Yeung Hon Keung	Survival Analysis with Cox Model for Competing Risks in Actuarial Data	Chi Kin Chan / Joseph Lee
Zhang Fan	Graphical Modelling of Spatial Time Series	Wai Cheung Ip / Heung Wong / Yuan Li
Zhang Xinfa	Nonparametric Conditional Heteroscedastic Models for Measuring Risk Aversion with Applications	Heung Wong / Wai Cheung Ip / Yuan Li
Zhang Xinzhen	Numerical Multilinear Algebra and Optimization	Liquan Qi
Zhou Hongjun	Stochastic Volatility Modelling for Portfolio Risk Control	Leong Kwan Li / Cedric Yiu

Recent PhD. Graduates:

<b>Name</b>	<b>Project Title</b>	<b>Supervisor(s)</b>
Fung Hon Kwok, Hankel	Pricing and Hedging of Financial Derivatives and Investment Guarantees	Leong Kwan Li / Elias Shiu S.W
Jiang Yuan	Optimal Co-ordination Strategies in Supply Chains	Chi Kin Chan / Joseph Lee, Ping Kei Leung
Lee Yu Chung, Eugene	Stability in Supply Chain Management	Joseph Lee / Chi Kin Chan / Ping Kei Leung
Ling Chen	Generalized Newton Methods and Their Applications	Liquan Qi / Xiao Qi Yang
Tang Hiu Yeuk, Blossom	Computational Fluid Dynamics	Cheong Ki Chan
Wang Fei	Numerical Methods for Optimization and Nonlinear Equations	Liquan Qi / Shui Hung Hou
Yu Kwok Wai	Optimisation Approaches to Mean-value-at-risk Problems in Risk Management	Xiao Qi Yang / Heung Wong
Zhang Kai	The Study of Augmented Lagrangian Methods with Applications in Option Pricing	Kok Lay Teo / Xiao Qi Yang
Zhao Xiao Bing	Bayesian Estimation for Censored Survival Data	Xian Zhou
Zhou Yu Ying	The Study of Generalized Semi-infinite Programming and Applications	Xiao Qi Yang / Kok Lay Teo

## 5.5 Conferences, Distinguished lectures and Seminars

International workshops, conferences and distinguished lectures and seminars jointly organized by the Department include:

- The Third International Workshop on Optimization and Control with Applications (OCA2004), 25-31 July 2004, Chongqing-Chengdu-Jiuzhaigou, China (with the Institute of System Science CAS, Chongqing University, Chongqing Normal University and Sichuan University).
- International Workshop in Financial Mathematics and Statistics, 16 December 2004, Hong Kong.
- International Workshop on Successful Strategies in Supply Chain Management, Hong Kong, 5-6 January 2006
- The International Conference on Nonlinear Programming with Applications (NPA2006), Shanghai, China, 29 May - 1 June 2006.
- Distinguished Lecture on Numerical Integration in High Dimensions – Lifting the Curse of Dimension, 22 June, 2006 (with Professor Ian H. Sloan FAA from University of New South Wales).
- The 11th Asian Technology Conference in Mathematics (ATCM2006), Hong Kong, 12-16 December 2006.
- Workshop on Vector Variational Inequalities and Related Topics, 27 January, 2007 (with Pukyong National University, Chongqing University, National Changhua University of Education and The National Sun Yat-sen University)
- Distinguished Lecture on Approaches to Risk in Optimization Under Uncertainty, 28 May, 2007 (with Professor R. Tyrrell Rockafellar from University of Washington).
- Workshop on Optimization, 25 May, 2007 (with Academy of Mathematics and Systems Sciences, Chinese Academy of Sciences).
- Distinguished Lecture on Introduction to the Modern Theory of Extended Thermodynamic with Applications to Rarefied Gases and Multi-temperature Mixture of fluids, 14 November, 2007 (with Professor Tommaso Ruggeri from University of Bologna).
- Distinguished Lecture on Algorithms for Nonlinear Optimization Since 1959, 4 December, 2007 (with Professor Michael J.D. Powell from University of Cambridge).
- Distinguished Lecture on Robustness of Multiple Hypothesis Testing Procedures Against Dependence, 21 December, 2007 (with Professor Peter Gavin Hall from University of Melbourne).
- Distinguished Lecture on Finding Equitable Convex Partitions and Its Applications, 27 December, 2007 (with Professor Yinyu Ye from Stanford University).
- Distinguished Lecture on Differential Variational Inequalities: A New Mathematical Paradigm, 3 April, 2008 (with Professor Jong-shi Pang from University of Illinois at Urbana-Champaign).

- Distinguished Lecture on The Ising Model – A Paradigm of Co-operative Behaviour, 9 October, 2008 (with Professor Tony Guttman from University of Melbourne).
- Distinguished Lecture on Impact of Dimensionality and Correlation Learning from Ultra-high Dimensional Data, 16 December, 2008 (with Professor Jianqing Fan from Princeton University).
- Engineering and Computational Mathematics Seminar Series:
  - Solitary Pulses and Periodic Patterns in Nonlinear Evolution Systems, 1 November, 2007 (with Dr. K. W. Chow from the University of Hong Kong).
  - Drawing of Viscous Threads with Temperature-dependent Viscosity, 8 November, 2007 (with Dr. Jonathan Wylie from City University, Hong Kong).
  - Painleve Structure of a Multi-ion Electrodiffusion System, 3 December, 2007 (with Professor Robert Conte from University of Paris VI).
  - Computational Fluid Dynamics based on the Unified Coordinates, 31 March, 2008 (with Professor Grafton W.H. Hui from Hong Kong University of Science and Technology).
  - Some Linear Statistics of Random Matrices that are Painleve Functions, 9 October, 2008 (with Professor Chen Yang from Imperial College London).
  - Isochronous Systems, 13 November, 2008 (with Professor Francesco Calogero from University of Rome).
- The AMSS-PolyU Joint Research Workshop 2008
  - 27 June, 2008 (with Professor Tom Coleman, Professor Adrian Lewis, Professor Ph. Toint, Professor Yinyu Ye, Professor Zhongzhi Bai, Professor Yuhong Dai, Professor Zhiming Ma and Professor Yaxiang Yuan).
  - 24 September, 2008 (with Professor Raymond Chan, Professor Roderick S C Wong, Professor Philippe G Ciarlet, Professor Houde Han, Professor Michael Ng, Professor Weiwei Sun, Professor Tao Tang, Professor Xiaoqun Wang and Professor Jun Zou).
  - 22-23 December, 2008 (with Professor Immanuel M. Bomze, Professor Kungching Chang, Professor Leonid Faybusovich, Professor Mariya Ishteva, Professor Masakazu Kojima, Professor Jean B. Lasserre, Professor Lek-heng Lim, Professor Tom Luo, Professor Michael Ng, Professor Yinyu Ye, Professor Shuzhong Zhang and Professor Tan Zhang).
- Colloquium on Applied Mathematics, 3 October, 2008 (with Professor Zongben Xu from Xian Jiaotong University).
- Seminar on Calculus and High-school Trigonometry, 16 December, 2008 (with Professor Qun Lin from Chinese Academy of Sciences).

## 5.6 Seminars

### Seminars in 2004

Date	Speaker	Title	Institute
22 March 2004	Prof. S.R. Jammalamadaka	Middle Censoring	Department of Statistics and Applied Probability, University of California, Santa Barbara

25 May 2004	Prof. Alex Rubinov	A Multidimensional Descent Method in Optimization	School of Information Technology and Mathematical Sciences, University of Ballarat, Australia
25 May 2004	Dr. Adil Bagirov	Max-Min Separability with Applications	School of Information Technology and Mathematical Sciences, University of Ballarat, Australia
25 May 2004	Dr. Musa Mammadov	A New Global Optimization Algorithm Based on a Dynamic Systems Approach	School of Information Technology and Mathematical Sciences, University of Ballarat, Australia
18 June 2004	Prof. Yinju Ye	Semidefinite programming for ad hoc wireless sensor network localization and other Euclidean geometry problems	Department of Management Science and Engineering, Stanford University, California
20 July 2004	Prof. David Gao	Canonical dual transformation and complete solutions to a class of NP-hard problems in global optimization	Department of Mathematics, Virginia Polytechnic Institute and State University, USA
21 July 2004	Prof. Franco Giannessi	On generalized systems and concave minimization	Department of Mathematics, The University of Pisa, Italy
22 July 2004	Prof. David Gao	Duality, Triality and Unity in Art, Science and Religion	Department of Mathematics, Virginia Polytechnic Institute and State University, USA
2 Sept 2004	Prof. Biswa Nath Datta	Recent Advances on Structured Inverse Eigenvalue Problems for Quadratic Matrix Pencils	Presidential Research Professor, Department of Mathematical Sciences, Northern Illinois University, De Kalb, Illinois
3 Sept 2004	Prof. Biswa Nath Datta	Recent Advances on Finite Element Model Updating in Structural Dynamics	Presidential Research Professor, Department of Mathematical Sciences, Northern Illinois University, De Kalb, Illinois
13 Oct 2004	Prof. Guang-Ren Duan	Parametric Control Systems Design — Theory and Applications	Harbin Institute of Technology, China
20 Oct 2004	Prof. Thomas F. Coleman	Minimizing CVaR, and Hedging Issues, for a Portfolio of Derivatives	Professor, Computer Science and Applied Mathematics Director, Cornell Theory Center Cornell University
21 Oct 2004	Prof. Yin Zhang	Optimization in Action: Helping Treat Cancers	Department of Computational and Applied Mathematics Rice University, Houston, Texas 77005, USA
25 Oct 2004	Prof. James M. Hill	Fully developed plastic flow of frictional granular materials	Professor of Theoretical Mechanics ARC Australian Professorial Fellow

			School of Mathematics and Applied Statistics University of Wollongong, Wollongong NSW 2522, Australia
3 Dec 2004	Prof. Marco A. López	Stability in convex semi-infinite programming and rates of convergence for discretization algorithms	Professor of Operations Research Department of Statistics and Operations Research Faculty of Sciences, University of Alicante 03071 Alicante, Spain
6 Dec 2004	Prof. A.L. Dontchev	Conditioning of Optimization Problems	Mathematical Reviews, Ann Arbor, MI 48107
15 Dec 2004	Dr. Ba-Ngu Vo	Multi-object filtering and applications	Department of Electrical Engineering University of Melbourne, Australia
17 Dec 2004	Prof. Lixing Zhou	Development of Second-order Moment Multiphase and Reacting Turbulence Models	Department of Engineering Mechanics Tsinghua University, China
23 Dec 2004	Prof. Yaxiang Yuan	Trust Region Algorithms with Subspace Techniques	Institute of Computational Mathematics and Scientific/Engineering Computing Chinese Academy of Sciences

### Seminars in 2005

Date	Speaker	Title	Institute
28 April 2005	Prof. Duan Li	Optimal lot solution to cardinality constrained mean-variance formulation for portfolio selection	Department of Systems Engineering and Engineering Management, The Chinese University of Hong Kong
9 May 2005	Miss Blossom H.Y. Tang	Numerical simulation of turbulent premixed combustion: determination of flame surface density and overall burning rate	Department of Applied Mathematics, The Hong Kong Polytechnic University
2 June 2005	Prof. Robert Mufflin	A superlinearly convergent VU-algorithm for general convex minimization	Department of Mathematics, Washington State University, Pullman WA 99164-3113, USA
13 July 2005	Prof. Bo Chen	On-line Algorithms and Competitive Analysis	Warwick Business School, University of Warwick, UK
9 Dec 2005	Dr. Patrick Tam	Optimization in Geometric Optics Design	Principal, NU Systems, USA
16 Dec 2005	Prof. Ben-yu Guo	Spectral Method On Triangle	Shanghai Normal University, China
20 Dec 2005	Prof. Li Yuan	Numerical simulation of chemically reacting gas flows by a moving mesh method	Institute of Computational Mathematics and Scientific/Engineering Computing,

			Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China
	Prof. Xiang-sun Zhang	Deterministic Optimization Methods for Haplotyping Problem	Academy of Mathematics and Systems Science Chinese Academy of Sciences
21 Dec 2005	Prof. Jie Sun	Rates of Convergence of the Augmented Lagrangian Method for Nonlinear Programming and Semidefinite Programming	School of Business and Singapore-MIT Alliance, National University of Singapore, Republic of Singapore

### Seminars in 2006

Date	Speaker	Title	Institute
23 January 2006	Dr. Boris CHOY	Modelling with heavy-tailed distributions in finance via scale mixtures	Department of Mathematical Sciences, University of Technology, Sydney, Australia
3 February 2006	Prof. Zhong-ci SHI	Studies of Low Order Quadrilateral Finite Element Methods	Institute of Computational Mathematics, Chinese Academy of Sciences, China
3 March 2006	Prof. Xiao-jun CHEN	The Stochastic Linear Complementarity Problem and Its Applications	Department of Mathematical System Science, Hirosaki University, Hirosaki 036-8561, Japan
28 April 2006	Prof. Ming-gao GU	Efficiency of Hong Kong racetrack betting market and related investment strategies	Department of Statistics, The Chinese University of Hong Kong
19 May 2006	Prof. Alexander Ioffe	Variational Problems with Finite Dimensional Duals	Department of Mathematics, The Technion, Haifa 32000, Israel
23 May 2006	Prof. Boris Mordukhovich	Variational Analysis and Generalized Differentiation: New Trends and Developments	Department of Mathematics, Wayne State University, USA
25 May 2006	Prof. Jiu DING	Chaos from the Statistical Point of View	Department of Mathematics, The University of Southern Mississippi, Hattiesburg, MS 39406, USA
2 June 2006	Prof. Wing-keung WONG	Prospect and Markowitz Stochastic Dominance	Department of Economics, National University of Singapore, Singapore
12 June 2006	Prof. Biswa Nath Datta	Finite Element Model Updating in Structural Dynamics-Recent Developments on Computational methods	Distinguished Research Professor, IEEE Fellow, Northern Illinois University, USA

13 June 2006	Prof. Biswa Nath Datta	Robust Stability Analysis and Design of Robust Stable Systems using Optimization Techniques	Distinguished Research Professor, IEEE Fellow, Northern Illinois University, USA
30 June 2006	Prof. Sally SHAO	The State Space Search Algorithm for Recurrent Neural Dynamics and Some Applications	Department of Mathematics, Cleveland State University, USA
14 July 2006	Prof. Ravi P. AGARWAL	Recent Trends In Discrete Boundary Value Problems	Florida Institute of Technology, Melbourne, FL 32901, USA
24 August 2006	Prof. Kee Yuen LAM	Coding Theory, Graph Coloring and a Cell-Phone Channel Frequency Assignment Problem	University of British Columbia, Canada
11 September 2006	Prof. Wei-Chi YANG	One Optimization Problem and One Limit problem - Connecting Dynamic Geometry and Analytic Geometry	Department of Mathematics and Statistics, Radford University, Virginia, USA
16 November 2006	Dr. Wai-ki CHING	High-Dimensional Markov Chain Models and Their Applications	Department of Mathematics, University of Hong Kong

#### Seminars in 2007

Date	Speaker	Title	Institute
18 January 2007	Prof. Nguyen Dong Yen	On Some Solution Methods for Pseudomonotone Variational Inequalities	Institute of Mathematics, Vietnamese Academy of Science & Technology, Hanoi, Vietnam
25 January 2007	Prof. Kin LAM	Market Excess Volatility, Underreaction, Overreaction and Bayesian Inference	Baptist University, Hong Kong
25 January 2007	Mr. Christopher Langford	An Increase in Mortality Among Children in 1918: An Often Overlooked Feature of the Influenza Pandemic	Emeritus Reader in Demography London School of Economics, UK
8 February 2007	Prof. Guo-Hua Nie	Some Analytical Solutions for Elliptical Inhomogeneity Problems for Orthotropic Materials and Engineering Applications	Institute of Applied Mechanics School of Aerospace Engineering and Applied Mechanics Tongji University, Shanghai, China
8 March 2007	Prof. Yuan LI	Testing Coefficients of AR and Bilinear Time Series Models by a Graphical Approach	School of Mathematics and Information Science Guangzhou University Guangzhou, China

12 March 2007	Prof. Jiachun Li	HPC in CFD, Present Status and Its Perspective	Academician, Institute of Mechanics Chinese Academy of Sciences Beijing, China
22 March 2007	Dr. Riquan Zhang	Varying-Coefficient Single-Index Model	Department of Statistics East China Normal University China
29 March 2007	Prof. Xiaoqi Yang	On Some Nonlinear Optimization Problems and Methods	Department of Applied Mathematics The Hong Kong Polytechnic University Hong Kong
30 March 2007	Dr. Houyuan Jiang	Airline Network Revenue Management with Buy-up	University of Cambridge UK
10 May 2007	Prof. Lixing Zhu	Empirical Likelihood for a Varying Coefficient Model with Longitudinal Data	Department of Statistics Hong Kong Baptist University
11 May 2007	Prof. Wing Kam Fung	Transmission Disequilibrium Tests and Imprinting Effects Tests Based on Case-parents Trios and Case-parent Pairs	Department of Statistics and Actuarial Science The University of Hong Kong
20 September 2007	Dr. Xian Zhou	Stochastic Scheduling Subject to Preemptive-repeat Breakdowns with Imcomplete Information	Department of Applied Mathematics The Hong Kong Polytechnic University
4 October 2007	Prof. Delin Chu	The Numerical Computation of the Hamiltonian Schur Form	Department of Mathematics National University of Singapore
20 November 2007	Prof. Ding-Zhu Du	Greedy Approximation with Nonsubmodular Potential Functions	Department of Computer Science University of Texas at Dallas
30 November 2007	Prof. Xunyu Zhou	Portfolio Selection under Prospect Theory	Nomura Professor of Mathematical Finance Mathematical Institute University of Oxford, UK
10 December 2007	Mr. Christopher Langford	Did the 1918-19 Influenza Pandemic Originate in China?	London School of Economics UK

#### Seminars in 2008

Date	Speaker	Title	Institute
20 Feb 2008	Professor Paul Tseng	<a href="#">Block-coordinatewise methods for sparse optimization with nonsmooth regularization</a>	Department of Mathematics University of Washington Seattle, USA

6 March 2008	Professor Wuyi Yue and Dr. Mark S.K. Lau	<a href="#">An Extended Version of Measure of Separability and its Applications</a>	Department of Information Science and Systems Engineering Konan University, Kobe, Japan
7 March 2008	Dr. W.T. Arthur Hung	<a href="#">An Extended Version of Measure of Separability and its Applications</a>	Cancer Institute NSW Australia
10 March 2008	Professor Jein-Shan Chen	<a href="#">On Second-order Cone Complementarity Problem</a>	Department of Mathematics Taiwan Normal University
28 March 2008	Professor Liming Wang	<a href="#">Testing for Change-point of the First-order Autoregressive Time Series Models</a>	Department of Statistics Shanghai University of Finance and Economics
	Professor Zhang Miao	<a href="#">Quantitative Analysis of Gender Discrimination about First Job Offers</a>	Department of Statistics Shanghai University of Finance and Economics
18 April 2008	Professor Zhong-Ci Shi	<a href="#">Cascadic Multigrid Methods</a>	Institute of Computational Mathematics Chinese Academy of Sciences
25 April 2008	Dr. Yinglin Liao	<a href="#">Research on the Compiling of SUFE Shanghai Customer Satisfaction Index</a>	Department of Statistics Shanghai University of Finance and Economics
14 May 2008	Professor Chi-Kwong Li	<a href="#">Quantum Computing, Higher Rank Numerical Ranges, Totally Isotropic Subspaces and Matrix Equations</a>	Department of Mathematics The College of Willaim and Mary
23 May 2008	Professor Zhijun Wu	<a href="#">The Solution of the Distance Geometry Problem for Protein Modeling</a>	Department of Mathematics Iowa State University
28 May 2008	Professor C.T. Kelley	<a href="#">Optimal Design of Municipal Water Supply Portfolios with Implicit Filtering</a>	Department of Mathematics North Carolina State University
30 May 2008	Professor Yong Shi	<a href="#">Data Mining via Multiple Criteria Mathematical Programming</a>	Research Center on Fictitious Economy and Data Science, Chinese Academy of Sciences Beijing, China University of Nebraska at Omaha Omaha, NE, USA
4 June 2008	Dr. Wai Yuen Chan	<a href="#">Blow-up and Quenching Phenomena of Degenerate Parabolic Problems</a>	Department of Mathematics Southeast Missouri State University
19 June 2008	Dr. Delin Chu	<a href="#">Quadratic Inverse Eigenvalue Problem in Model Updating with Symmetry, Positive Definiteness, and no Spill-Over</a>	Department of Mathematics National University of Singapore
20 June 2008	Ning Chang	<a href="#">The problem of environmental information disclosure of enterprises</a>	Department of Statistics Shanghai University of Finance and Economics

	Fenggu Dong	<a href="#">Studying Shanghai's Economical Development on the Basis of Economical Periods</a>	Department of Statistics Shanghai University of Finance and Economics
	Jianmin Dou	<a href="#">Analysis on the Macro-economic Situation in China</a>	Department of Statistics Shanghai University of Finance and Economics
27 June 2008	Professor Ya-xiang Yuan	<a href="#">Subspace Techniques for Nonlinear Optimization</a>	AMSS Chinese Academy of Sciences
30 June 2008	Professor Yanping Lin	<a href="#">The immersed numerical methods for interface problems</a>	Department of Mathematics University of Alberta
12 Sept 2008	Dr. Chee Khian Sim	<a href="#">On the underlying paths and local convergence behavior of an interior point algorithm for semidefinite linear complementarity problems</a>	Business School National University of Singapore
26 Sept 2008	Prof. Guoxiang Xu	<a href="#">The Method to Set Margin Levels of Index Futures and Its Empirical Study - The Application of EVT</a>	Research Centre for Applied Statistics Shanghai University of Finance and Economics
10 Oct 2008	Prof. Ian H. Sloan	<a href="#">High-dimensional challenges for computational mathematics</a>	The Hong Kong Polytechnic University University of New South Wales
24 Oct 2008	Prof. Youhua Fan	<a href="#">Four Basic Modes of Rayleigh Waves in Multilayered Medium and Fast Computation of Multi-modes Dispersion Curves</a>	Shenzhen Graduate School of Harbin Institute of Technology
31 Oct 2008	Prof. Jun-he Sun	<a href="#">Research on the contribution of human capital to economy development in China</a>	Department of Statistics Shanghai University of Finance and Economics
	Prof. Ming-fang Zhang	<a href="#">Study of measuring the season change mode of main price indexes in China - Comparing between the methods based on X-12ARIMA and TRAMO/SEATS</a>	Department of Statistics Shanghai University of Finance and Economics
28 Nov 2008	Prof. Qianshun Chang	<a href="#">A Combination Model of Second-order and Fourth-order Partial Differential Equations for Image Restoration</a>	Institute of Applied Mathematics, Academy of Mathematics and Systems Sciences, Chinese Academy of Sciences, Beijing, China
1 Dec 2008	Ying Chen	<a href="#">A Method to Analyze Three-Level Orthogonal Saturated Designs</a>	Department of Statistics Shanghai University of Finance and Economics
	Chunjie Wu	<a href="#">A Robust-Likelihood Cumulative Sum Chart</a>	Department of Statistics Shanghai University of Finance and Economics

10 Dec 2008	Prof. Shouhong Wang	<a href="#">Dynamic Transition Theory and Equilibrium Phase Transitions</a>	Indiana University
11 Dec 2008	Dr. Xavier Bresson	<a href="#">TV-based Models and Numerical Schemes for Geometry Processing</a>	University of California, UCLA Los Angeles
12 Dec 2008	Prof. Yanping Chen	<a href="#">Superconvergence of Mixed Finite Element Methods for Optimal Control Problems</a>	Department of Mathematics South China Normal University Guangzhu, Guangdong, China
12 Dec 2008	Prof. Ken Hayami	<a href="#">Convergence of Krylov Subspace Methods for Least Squares Problems</a>	National Institute of Informatics, Tokyo, Japan
19 Dec 2008	Prof. Soon-Yi Wu	<a href="#">An Explicit Exchange Algorithm for Linear Semi-infinite Programming Problems with Second-order Cone Constraints</a>	National Cheng Kung University Taiwan

## 5.7 The AMSS – PolyU Joint Research Institute

The purpose of The Joint Research Institute (JRI) is to promote research collaboration on Engineering and Management Mathematics among researchers of Academy of Mathematics and System Sciences and The Hong Kong Polytechnic University.

Academy of Mathematics and System Sciences (AMSS), Chinese Academy of Sciences is the highest research institution of mathematics and system sciences in China, with 15 Members of Chinese Academy of Sciences (CAS), 2 Members of Chinese Academy of Engineering (CAE) and other leading mathematicians in China. The Hong Kong Polytechnic University (PolyU) is the largest university in Hong Kong, renowned for its application-oriented teaching and research. There is a long history of good collaboration history between AMSS and applied mathematicians at PolyU. Five professors of AMSS, who are members of either CAS or CAE, have been invited by PolyU as Distinguished Visitors. Based upon the existing links, the Joint Research Institute is established in January 2006. It would organize joint research projects on Engineering and Management Mathematics. JRI will foster technical exchange and research cooperation between Mainland China and Hong Kong. JRI allows both institutions to capitalize on their specialties to extend the frontiers of technology. The collaboration is expected to yield benefit in the developments of integrated solutions on Engineering and Management Mathematics.

## 5.8 The Pacific Optimization Research Activity Group

The Pacific Optimization Research Activity Group (POP, taken the first letter of the first word "Pacific" and the first two letters of the second word "Optimization") was established in October, 2000, during the First Sino-Japan Optimization Meeting (SJOM 2000) in Hong Kong, initiated by a call of Masao Fukushima, Masakazu Kojima, Liqun Qi, Jie Sun, Kok Lay Teo and Jianzhong Zhang.

The Department initiated the establishment of the Pacific Optimization Research Activity Group (POP), and has maintained its operation, including membership endorsement, conference endorsement and newsletters. POP now has over 450 members from over 30 countries and regions.

## 5.9 Research Collaborations

The Department has strong links with a number of higher institutions in Hong Kong, Mainland China, overseas countries and regions, including Ballarat University (Australia), Curtin University of Technology (Australia), CSIRO (Australia), Monash University (Australia), University of New South Wales (Australia), University of Western Australia (Australia), University of Wollongong (Australia), University of Waterloo (Canada), Beijing Polytechnic University (China), Fudan University (China), Guangzhou University (China), Hunan University (China), Peking University (China), Qufu Normal University (China), Zhongshan University (China), Hong Kong Baptist University (Hong Kong), The Chinese University of Hong Kong (Hong Kong), The Hong Kong University of Science and Technology (Hong Kong), The University of Hong Kong (Hong Kong), Institute of Statistical Mathematics (Japan), Kyoto University (Japan), Kyoto University of Education (Japan), Shimane University (Japan), National University of Singapore (Singapore), University of Witwatersand (South Africa), National Cheng Kung University (Taiwan), National Sun Yat Sen University (Taiwan), Cambridge University (UK), University of California at Berkeley (USA), University of Iowa (USA), Lawrence Berkeley National Laboratory (USA), University of Manitoba (Canada), University of Connecticut (USA), etc.

Colleagues from these institutions are frequent visitors to our Department and vice versa for research collaborations. In particular, we have established a long-term collaboration to conduct joint research on a 973 National Key Research Project entitled “Large Scale Power System Collapse Prevention and Efficient Operation in China” led by Professor Lu Qian, and a National Key Research Project, entitled “Water Cycle and Water Safety in Northern China” led by Professor Xia Jun. The Division of Mathematical and Information Sciences of Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia and the Department of Geography of The Chinese University of Hong Kong are also participating in the second joint research project.

## 5.10 Academic Visitors

	NAME	POST	DATE	SUPERVISOR
1	BAI Lihua (Dr.)	Academic Visitor	11/08/2008-18/08/2008	Dr. Cedric Yiu
2	CHAN Guangya (Prof.)	Academic Visitor	23/02/2009-25/02/2009	Prof. X.Q. Yang
3	CHAN Ho Yin (Dr.)	Research Associate	02/01/2009-28/02/2009	Dr. X. Li
4	CHEN Chunrong (Mr.)	Research Assistant	09/02/2009-08/03/2009	Prof. X.Q. Yang
5	CHEN Liuxin (Dr.)	Research Associate	08/12/2008-08/05/2009	Dr. X. Li
6	CHEN Ying (Dr.)	Academic Visitor	18/08/2008-13/09/2008	Dr. P.K. Leung
7	CHEN Shihua (Prof.)	Research Associate	15/01/2009-14/03/2009	Dr. Francis Austin
8	CHEUNG Kin Sion Bernard (Dr.)	Academic Visitor	05/01/2009-16/01/2009	Dr. C.K. Chan
9	CHIU Chun Hung (Dr.)	Research Associate	01/06/2008-30/09/2009	Dr. X. Li
10	CHOW Kwok Cheung (Mr.)	Project Assistant	01/09/2008-30/04/2009	Dr. P.K. Leung
11	CHU Yiu Ha Carmen (Miss)	Project Associate	05/01/2009-22/01/2009	Dr. C.K. Chan
12	DENG Shijie (Prof.)	Academic Visitor	16/01/2009-22/01/2009	Dr. X. Li
13	FANG Donghui (Mr.)	Research Assistant	17/10/2008-31/08/2009	Prof. X.Q. Yang
14	FANG Yaping (Dr.)	Postdoctoral Fellow	08/09/2008-07/09/2009	Prof. X.Q. Yang
15	FENG Jianwen (Prof.)	Research Associate	04/08/2008-03/10/2008	Dr. Francis Austin
16	FENG Zhiguo (Mr.)	Postdoctoral Fellow	<b>02/09/2008-01/09/2009</b>	Dr. Cedric Yiu
17	GAO Fuqing (Prof.)	Research Fellow	12/01/2009-11/02/2009	Dr. X.Q. Zhao
18	HAN Deren (Dr.)	Research Associate	05/06/2007-31/08/2008	Prof. L. Qi
19	HU Baoqing (Prof.)	Research Associate	22/07/2008-21/09/2009	Dr. W.C. Ip
20	HUANG Jun (Dr.)	Postdoctoral Fellow	02/10/2008-01/10/2009	Prof. C.K. Chan
21	HUANG Nanjing (Prof.)	Research Fellow	08/01/2009-07/02/2009	Prof. X.Q. Yang
22	HUI Wing Shan (Ms.)	Project Associate	02/02/2009-01/08/2009	Dr. C.K. Chan

23	LAM Ka Wai, Candy (Ms.)	Research Assistant	01/07/2008-30/09/2008	Mr. Y.K. Kwan
24	LEE Yu Chung, Eugene (Dr.)	Postdoctoral Fellow	16/08/2008-15/08/2009	Dr. C.K. Chan
25	LI Chong (Prof.)	Academic Visitor	05/12/2008-12/12/2008	Prof. X.Q. Yang
26	LI Donghui (Prof.)	Research Associate	07/07/2008-07/09/2008	Prof. L. Qi
27	LI Jun (Mr.)	Research Assistant	08/01/2009-07/02/2009	Prof. X.Q. Yang
28	LI Ronghua (Prof.)	Postdoctoral Fellow	02/01/2009-01/01/2010	Dr. P.K. Leung
29	LI Shengjie (Dr.)	Postdoctoral Fellow	09/02/2009-08/03/2009	Prof. X.Q. Yang
30	LI Xianggui (Dr.)	Research Fellow	16/06/2008-15/08/2008	Prof. C.K. Chan
31	LI Yuan (Dr.)	Research Fellow	05/02/2009-03/04/2009	Dr. H. Wong
32	LIN Qun (Prof.)	Visiting Professor	03/11/2008-03/12/2008	Prof. L. Qi
33	LING Chen (Prof.)	Postdoctoral Fellow	13/08/2007-12/08/2009	Prof. L. Qi
34	LIU Feng (Dr.)	Research Assistant	05/06/2008-31/08/2008	Dr. H. Wong
35	LIU Jinshan (Prof.)	Research Fellow	22/12/2008-21/02/2009	Dr. W.C. Ip
36	LIU Qian (Dr.)	Research Associate	01/08/2008-30/09/2008	Prof. X.Q. Yang
37	LIU Qing (Miss)	Research Assistant	30/06-2008-29/06/2009	Prof. C.K. Chan
38	LUN Wacheung Anthony (Dr.)	Research Fellow	22/09/2008-21/10/2008	Prof. C.K. Chan
39	LUO Xianhua (Dr.)	Research Assistant	14/07/2008-11/09/2008	Dr. W.C. Ip
40	MA Zhiming (Prof.)	Visiting Professor	09/02/2009-08/03/2009	
41	NI Qin (Prof.)	Research Associate	01/11/2008-31/12/2008	Prof. L. Qi
42	NI Yuanhua (Mr.)	Research Assistant	11/08/2008-10/09/2008	Dr. X. Li
43	NIE Guohua (Prof.)	Academic Visitor	24/12/2008-21/01/2009	Prof. C.K. Chan
44	Nogenmyr Karl-John (Dr.)	Research Associate	02/09/2008-01/09/2009	Prof. C.K. Chan
45	QIU Qiu Sheng (Prof.)	Research Associate	02/01/2009-01/02/2009	Prof. X.Q. Yang
46	SHAO Quan Xi (Dr.)	Academic Visitor	17/10/2008-16/11/2008	Dr. H. Wong
47	SHI Xiaoxiang (Mr.)	Research Assistant	30/03/2007-31/12/2008	Dr. Cedric Yiu
48	SHI Zhongci (Prof.)	Academic Visitor	22/09/2008-25/09/2008	Prof. L. Qi
49	SIM Chee Chian (Dr.)	Academic Visitor	11/09/2008-13/09/2008	Prof. L. Qi
50	Ian Sloan (Prof.)	Distinguished Scholar	19/09.2008-18/10/2008	Prof. L. Qi
51	SREERAM Victor (Prof.)	Academic Visitor	09/12/2008-12/12/2008	Prof. Y.P. Lin
52	SUN Min (Prof.)	Visiting Professor	05/01/2009-04/06/2009	
53	SUN Wenyu (Prof.)	Research Fellow	01/02/2009-01/03/2009	Prof. L. Qi
54	TANG Wai Man (Mr.)	Project Associate	08/09/2008-07/09/2009	Dr. Cedric Yiu
55	TONG Xiaojiao (Dr.)	Research Fellow	02/01/2009-28/02/2009	Prof. L. Qi
56	TONG Xingwei (Dr.)	Research Associate	02/02/2009-12/02/2009	Dr. X.Q. Zhao
57	WANG Changyu (Prof.)	Research Fellow	12/09/2008-11/11/2008	Prof. X.Q. Yang
58	WANG Guangchen (Dr.)	Research Associate	15/07/2008-31/08/2008	Dr. James Huang
59	WANG Liming (Dr.)	Research Associate	11/08/2008-06/09/2008	Dr. X. Zhou
60	WANG Xiaoqun (Prof.)	Academic Visitor	07/09/2008-20/09/2008	Prof. X.J. Chen
61	WANG Yiju (Dr.)	Postdoctoral Fellow	16/06/2008-15/08/2008	Prof. L. Qi
62	WONG Kar Hung (Prof.)	Academic Visitor	05/12/2008-13/01/2009	Dr. C.K. Chan
63	WU Soon Yi (Prof.)	Academic Visitor	14/12/2008-20/12/2008	Prof. L. Qi
64	XIA Yong (Dr.)	Research Associate	02/02/2009-01/03/2009	Prof. X.J. Chen
65	XIA Zihui (Prof.)	Senior Research Fellow	22/09/2008-18/10/2008	Prof. C.K. Chan
66	XIANG Shuhuang (Prof.)	Research Fellow	01/08/2008-31/07/2009	Prof. X.J. Chen
67	XU Fengmin (Dr.)	Research Assistant	02/03/2009-29/05/2009	Prof. X.J. Chen
68	XU Honglei (Mr.)	Academic Visitor	20/11/2008-26/11/2008	Dr. Cedric Yiu
69	XU Zongben (Prof.)	Academic Visitor	01/10/2008-05/10/2008	
70	YAN Jia-an (Prof.)	Visiting Professor	02/03/2009-31/03/2009	
71	YANG Xinmin (Prof.)	Academic Visitor	23/02/2009-25/02/2009	Prof. X.Q. Yang
72	YANG Zaiyue (Dr.)	Postdoctoral Fellow	01/09/2008-31/08/2009	Dr. L.K. Li
73	YE Yinyu (Prof.)	Chair Professor under DSS	15/03/2009-17/04/2009	
74	YE Yuquan (Dr.)	Research Fellow	01/01/2009-31/12/2009	Dr. Joseph Lee
75	YU Gaohang (Dr.)	Postdoctoral Fellow	22/09/2008-21/09/2009	Prof. L. Qi
76	YUAN Yaxiang (Prof.)	Academic Visitor	02/01/2009-31/01/2009	
77	ZHANG Gongqing (Prof.)	Visiting Professor	01/12/2008-31/12/2008	Prof. C.K. Chan
78	ZHANG Jianzhong (Prof.)	Academic Visitor	12/01/2009-18/01/2009	Prof. L. Qi
79	ZHANG Kai (Mr.)	Research Associate	02/07/2008-31/08/2008	Prof. X.Q. Yang
80	ZHANG Liansheng (Mr.)	Senior Research Fellow	15/01/2008-15/03/2009	Dr. X. Li
81	ZHANG Riquan (Dr.)	Research Associate	25/11/2008-24/11/2009	Dr. H. Wong

82	ZHANG Shisheng (Prof.)	Academic Visitor	22/12/2008-19/01/2009	Dr. C.K. Chan
83	ZHANG Zhe George (Prof.)	Academic Visitor	17/03/2009-23/03/2009	Dr. X. Li
84	ZHAO Chao (Dr.)	Academic Visitor	02/01/2009-13/02/2009	Prof. X.J. Chen
85	ZHAO Yingxue (Mr.)	Research Assistant	02/03/2009-30/04/2009	Prof. X.Q. Yang
86	ZHENG Xiyin (Dr.)	Postdoctoral Fellow	02/01/2009-31/01/2009	Prof. X.Q. Yang
87	ZHI Zhongci (Prof.)	Academic Visitor	22/09/2008-25/09/2008	Prof. L. Qi
88	ZHOU Guanglu (Dr.)	Research Fellow	20/12/2008-19/01/2009	Prof. L. Qi
89	ZHOU Lixing (Prof.)	Senior Research Fellow	08/01/2008-07/12/2008	Prof. C.K. Chan
90	ZHOU Weijun (Dr.)	Postdoctoral Fellow	14/08/2008-13/08/2010	Prof. X.J. Chen
91	ZGOU Xian (Dr.)	Research Fellow	29/01/2009-20/02/2009	Dr. X. Li
92	ZHOU Xunyu (Prof.)	Visiting Scholar	15/08/2008-30/08/2008	Dr. X. Li
93	ZHU Qingyong (Dr.)	Academic Visitor	28/07/2008-02/08/2008	Prof. C.K. Chan

## 6. RESEARCH OUTPUTS

### 6.1 Monographs, Edited Books and Special Journal Issues

#### Monographs:

#### 2004

TROUTT, M.D., PANG, W.K. and HOU, S.H., *Vertical Density Representation and Its Applications*, 1<sup>st</sup> Ed. *World Scientific*, Singapore (245 pages).

#### 2005

CHEN G.Y., HUANG X.X. and YANG X.Q., *Vector Optimization: Set-Valued and Variational Analysis*. 1<sup>st</sup> Ed. Vol. 541, Springer, USA, 316pp (2005) ISBN 3-540-21289-2.

#### 2007

CHOY, Y.H., KRAWCZAK, M., SHANNON, A.G. and SZMIDT, E., *A Survey of Generalized Nets*. 1st Ed. Raffles KvB Institute Pty Ltd, Australia, 301pp (2007).

CHAN, C.K., CHAN, C.W. and HUNG, K.F., *Basic Engineering Mathematics*. 2nd Ed. McGraw Hill, Singapore, 324pp (2007) ISBN 978-007-126591-1

#### Edited Books:

#### 2005

CHAN, Chi Kin and LEE, H.W.J., *Successful Strategies in Supply Chain Management*, Idea Group Publishing, USA, 258pp (2005)

QI, L., TEO, K.L. and YANG, X., *Optimization and Control with Applications*. 1st Ed. Springer, New York, USA, 600pp (2005).

#### 2006

**CHAN, Chi Kin, LEE, H.W.J and S.H. HOU.** *Proceedings of International Workshop on Successful Strategies in Supply Chain Management.* Department of Applied Mathematics, PolyU, Hong Kong, 346pp, 2006.

S.C. Chu, **S.H. HOU** and W.C. YANG. Proceedings of the 11<sup>th</sup> Asian Technology Conference in Mathematics, Hong Kong, ATCM Inc., 2006.

**2008**

**CHAN, Chi Kin,** "Data Mining for Combining Forecasts in Inventory Management". In John Wang, ed., *Data Warehousing and Mining: Concepts, Methodologies, Tools, and Applications*, Vol. 6, Information Science Reference, USA, pp.2792-2797, ISBN 978-1-59904-951-9, 2008.

LOPEZ, M., **QI, L.** and WU, S.Y., "Semi-Infinite Programming". In Lopez, M., Qi, L. and Wu, S.Y., eds., *Journal of Computational and Applied Mathematics*, Vol. 217, Elsevier Science Publisher, Amsterdam, The Netherlands, pp.299-300, 2008.

#### **Journal Special Issues:**

**2004**

**QI, L.Q., TEO, K.L.** and **YANG, X.Q.**, Optimization and Control with Applications, *Journal of Global Optimization*, Vol. 28, no. 2, 2004.

**2005**

**Wong H.,** Yang H.L. and **Zhou X.**, *Journal of Industrial and Management Optimization*, Vol. 2, no.2, 2005.

**TEO, K.L.,** CHENG, E., CAI, X.Q. and **YANG, X.Q.**, Optimization Theory and Applications, Part II, *Annals of Operations Research*, no. 1-4, 2005.

**YANG, X.Q., YANG, X.M.** and **QI, L.Q.**, *Journal of Industrial and Management Optimization*. Vol. 1, American Institute of Mathematical Sciences, China, 148pp, 2005.

**YANG, X.Q.** and **YAO, J.C.**, Vector Variational Inequalities, *Journal of Global Optimization*, Vol 32, no. 8, 2005.

**2008**

**CHAN, C.KIN, HOU, S.H.** and **LANGEVIN, A.**, *Special Issue on Advanced Modeling and Innovative Design of Supply Chain, International Journal of Production Economics*, Vol. 113, No. 2, Elsevier, The Netherlands, pp.499-501, 2008.

#### **6.2 Journal Articles**

**2004**

1. **ANSARI, Q.H., CHAN, W.K.** and **YANG, X.Q.**, The system of vector quasi-equilibrium problems with applications, *Journal of Global Optimization*, Vol. 29, No. 1, pp. 45-47, 2004.
2. **CAI, X.Q., TEO, K.L., YANG, X.Q.** and **ZHOU, X.Y.**, Minimax portfolio optimization: empirical numerical study, *Journal of the Operational Research Society*, Vol. 55, No. 1, pp. 65-72, 2004.

3. CHADLI, O., YANG, X.Q. and YAO, J.C., On generalized vector pre-variational and pre-quasivariational inequalities, *Journal of Mathematical Analysis and Applications*, Vol. 295, pp. 392-403, 2004.
4. CHAN, Chi Kin, KINGSMAN, B.G. and WONG, H., Determining when to update the weights in combined forecasts for product demand – an application of the CUSUM technique, *European Journal of Operational Research*, Vol. 153, pp. 757-768, 2004.
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6. CHEUNG, L.F. and LAW, C.K., An initial Value Approach to Rotationally Symmetric Harmonic Maps, *Journal of Mathematical Analysis and Applications*, Vol. 289, pp. 1-13, 2004.
7. CHEUNG, L.F. and LEUNG, P.F., An Application of Moser Iteration to Complete Minimal Submanifolds in a Sphere, *Journal of Australian Mathematical Society*, Vol. 76, pp. 151-165, 2004.
8. FUNG, E.H.K., ZOU, J.Q. and LEE, H.W.J., Lagrangian Formulation of Rotating Beam with Active Constrained Layer Damping in Time Domain Analysis, *ASME Journal of Mechanical Design*, Vol. 126, pp. 359-364, 2004.
9. HOU, S.H. and HOU, E.S.H., On Partial Fraction Expansion with Multiple Poles. *International Journal of Mathematical Education in Science and Technology*, Vol. 35, No. 5, pp.782-791, 2004.
10. HUANG, C.S., WANG, S. and TEO, K.L., On Application of an Alternating Direction Method to Hamilton-Jacobi-Bellman Equations, *Journal of Computational & Applied Mathematics*, Vol. 166, pp. 153-166, 2004.
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12. HUANG, X.X. and YANG, X.Q., Duality of multiprojective optimization via nonlinear Lagrangian functions, *Journal of Optimization Theory and Applications*, Vol. 120, No. 1, pp. 111-127, 2004.
13. HUANG, X.X., YANG, X.Q. and TEO, K.L., A sequential quadratic penalty method for nonlinear semidefinite programming, *Optimization*, Vol. 52, No. 6, pp. 715-738, 2004.
14. IP, W.C., CHIU, L.L. and KWAN, Y.K., Construction of Health Indices Using Paired Comparisons, *Social Indicators Research*, Vol. 67, pp. 353-373, 2004.
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17. IP, W.C., WONG, H., XIE, Z.J. and LUAN, Y.H., On Comparison of Jump Point Detection for an Exchange Rate Series, *Science in China Ser. A Mathematics*, Vol. 47, No. 1, pp. 52-64, 2004.

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47. **Wong H** and Lau, S (2004), 'Modelling seasonal conditional heteroscedasticity', *Advances and Applications in Statistics*, 4, 327-355.

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1. **CHAN, C.K.** and LI, X.G., Flame Surface Density in Turbulent Premixed V-Flame with Buoyancy. *Flow, Turbulence and Combustion*, Vol. 74, No. 3, pp.273-289, 2005.
2. CHANG, S.S., **LEE, H.W.J.** and WU, D.P., A Class of Random Complementarity Problems in Hilbert Spaces. *Mathematical Communications*, Vol. 10, No. 1, pp.95-100, 2005.
3. CHEN, G.Y., **YANG, X.Q.** and YU, H., A Nonlinear Scalarization Function and Generalized Quasi-vector Equilibrium Problems. *Journal of Global Optimization*, Vol. 32, No. 4, pp.451-466, 2005.
4. GAO, X.B., LIAO, L.Z. and **QI, L.**, A Novel Neural Network for Variational Inequalities with Linear and Nonlinear Constraints. *IEEE Transactions on Neural Networks*, Vol. 16, No. 6, pp.1305-1317, 2005.
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## 6.4 Articles in refereed conference proceedings

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## 7. CONSULTANCY & PROFESSIONAL SERVICES

In addition to offering statistical consultancy and advisory services to staff and students of the University, the Statistical Advisory Unit (StatAU) within the Department also plays a prominent role in establishing links with the industry. In particular, the Unit has been maintaining a partnership with MVA Hong Kong Limited, a market research consultancy firm, to bid for consultancy projects in the open market since 2000.

The Department delivers tailor-made specialized courses to meet the community needs. Such courses include “Statistical Methods” to statistical officers of the Census and Statistics Department of HKSAR Government, a one-day seminar on Option-Pricing Theory and Investment Guarantees for members of the Actuarial Society of Hong Kong, and “Statistical Methods and Packages for Research” to staff of Department of Nursing and Health Science of the University.

The Department encourages its staff to offer professional services to the community and professional bodies. These include services to the Actuarial Society of Hong Kong, Hong Kong Examinations Authority, Hong Kong Education Department, Hong Kong Institute of Bankers, Hong Kong Mathematical Society, Hong Kong Statistical Society, Open University of Hong Kong, and PRC Actuarial Examination Committee on Asset and Liability Management.

A list of consultancy projects is given below.

<b>2004</b>	Ip, W.C.	Provision of customer satisfaction on FEHD public toilets	HK\$10,000
<b>2004</b>	Ip, W.C.	Provision of private housing recurrent survey	HK\$10,000
<b>2004</b>	Ip, W.C.	Provision of survey on waiting list applicants	HK\$10,000
<b>2005</b>	Ip WC	Study on Planning of Public Transport Services and Facilities at Boundary Control Points, commissioned by Planning Department	HK\$5,000

2005	Ip WC	Survey on propensity to use private cars to cross the Boundary 2005, commissioned by Planning Department	HK\$18,000
2005	Ip WC Chiu LL	Services for the retail positioning for development adjacent to KCRC New Railways Projects, commissioned by KCRC	HK\$143,364
2005	Ip WC Kwan YK Chiu LL	Student development task and lifestyle assessment study, commissioned by Student Affairs Office, The HK Polytechnic University	HK\$40,000
2005	Ip WC Kwan YK Chiu LL	Conducting an opinion survey on catering services provided by Shing Hing 15/F	HK\$5,200
2006	IP WC Chiu LL	Corporate Services User Satisfaction Survey, commissioned by Hong Kong Housing Society	HK\$15,000
2006	Ip WC Kwan YK Chiu LL Choy YH	Customer satisfaction study, commissioned by UHS, The HK Polytechnic University	HK\$10,000
2006	Ip WC Kwan YK Chiu LL	Hong Kong Housing Society Corporate Survey, commissioned by Hong Kong Housing Society	HK\$12,000
2006	Ip WC Kwan YK Chiu LL	Study on 青少年對法律之認知, commissioned by The Law Society of Hong Kong	HK\$35,000
2006	Ip WC Chiu LL	Study on shopping behaviour of visitors in Tuen Mun Twon Plaza, commissioned by Sino Real Estate Agency Limited	HK\$40,000
2006-2008	Ip WC Chiu LL	Study on the economic impact of pre-post total smoking ban in Hong Kong catering business, commissioned by Hong Kong Catering Industry Association	HK\$228,800
2006	Ip WC	Survey on student travel patterns and expenditure, commissioned by Student Financial Assistance Agency	HK\$5,000
2006	Ip WC	A household survey on financial disposition and retirement planning of current and future generations of older persons, Commissioned by Central Policy Unit	HK\$5,000
2006	Ip WC	Provision of services for conducting a series of telephone opinion surveys on various social and economic issues, commissioned by Central Policy Unit	HK\$2,541
2007	Ip WC Chiu LL	Data analysis and reporting of Corporate Services User Satisfaction Survey, commissioned by Hong Kong Housing Society	HK\$13,000
2007	Ip WC Leung PK Kwan YK	Design of in-service training on statistical methods for Statistical Officers, commissioned by Census and Statistics Department, HKSAR	HK\$30,000
2007	Ip WC Chiu LL	High performance competencies survey, commissioned by Roche Hong Kong Ltd	HK\$17,600
2007	Ip WC	Injury survey services, commissioned by Department of Health	HK\$5,000
2007	Ip WC	Opinion survey on water supplies services, commissioned by Water Supplies Department	HK\$8,000
2007	Ip WC	Private housing recurrent survey, commissioned by Housing Authority	HK\$5,000
2007	Ip WC	Service/routine maintenance contractor performance survey, commissioned by Housing Authority	HK\$5,000
2007	Ip WC	Resident opinion survey, commissioned by Housing Authority	HK\$5,000

<b>2007, 2008, 2009</b>	Ip WC	Public & business awareness survey on IP protection rights, commissioned by Intellectual Property Department	HK\$15,000
<b>2007</b>	Ip WC	Public opinion survey on film classification system, commissioned by	HK\$5,000
<b>2007</b>	Ip WC	First round of thematic household survey, commissioned by Census & Statistics Department	HK\$5,000
<b>2007</b>	Ip WC	Opinion survey on swimming pools, commissioned by LCSD	HK\$5,000
<b>2008</b>	Ip WC Chiu, LL	The best employers in the employees' mind, commissioned by Hong Kong Banking Employees Association	HK\$11660
<b>2008</b>	Ip, WC	Energy consumption survey on commercial sector 2008, commissioned by EMSD	HK\$5,000
<b>2008</b>	Ip, WC	Goods vehicles energy consumption survey 2008, commissioned by EMSD	HK\$5,000
<b>2008</b>	Ip, WC	Buses and Taxi energy consumption survey 2008, commissioned by EMSD	HK\$5,000
<b>2008</b>	Ip, WC	Car energy consumption survey 2008, commissioned by EMSD	HK\$5,000
<b>2008</b>	Ip WC Chiu, LL	Energy consumption survey on residential sector 2008, commissioned by EMSD	HK\$200,000
<b>2008</b>	Ip, WC	Pre and Post Training Evaluation on the programme "Being a Service Coach", commissioned by MTRC	HK\$6,200