

Time	27 May Wednesday								
8: 50 – 9: 00	Opening Ceremony [N 002]								
9: 00 – 10: 00	2 Talks (Stream 3 and Stream 4) [N 002]								
10: 00 – 10: 30	Coffee Break								
10: 30 – 12: 30	4 Talks (Stream 5) [N 001]			4 Talks (Stream 6) [N 002]			Workshop 1 [M 106]	Workshop 2 [M 107]	Workshop 3 [M 108]
12: 45 – 13: 45	Lunch [4/F, Communal Building]								
14: 00 – 15: 00	2 Talks (Stream 1) [N 001]			2 Talks (Stream 2) [N 002]			Workshop 1 [M 106]	Workshop 2 [M 107]	Workshop 3 [M 108]
15: 00 – 15: 15	Group Photo [QR Podium, Amphi Theatre]								
15: 15 – 15: 30	Coffee Break								
15: 30 – 17: 00	Stream 1 3 Talks	Stream 2 3 Talks	Stream 3 3 Talks	Stream 4 3 Talks	Stream 5 3 Talks	Stream 6 3 Talks	Workshop 1 [M 106]	Workshop 2 [M 107]	Workshop 3 [M 108]
17: 00 – 18: 00	3 Talks [M 110]	3 Talks [N 112]	3 Talks [M 111]	3 Talks [N 113]	3 Talks [N 114]	3 Talks [N 115]			
18: 15 – 20: 00	Dinner [4/F, Communal Building]								

Time	28 May Thursday								
9: 00 – 10: 00	2 Talks (Stream 5 and Stream 6) [N 002]								
10: 00 – 10: 30	Coffee Break								
10: 30 – 12: 30	4 Talks (Stream 1) [N 001]			4 Talks (Stream 2) [N 002]			Workshop 1 [M 106]	Workshop 2 [M 107]	Workshop 3 [M 108]
12: 45 – 13: 45	Lunch [4/F, Communal Building]								
14: 00 – 15: 00	2 Talks (Stream 3) [N 001]			2 Talks (Stream 4) [N 002]			Workshop 1 [M 106]	Workshop 2 [M 107]	Workshop 3 [M 108]
15: 00 – 15: 30	Coffee Break								
15: 30 – 17: 30	Stream 1 4 Talks [M 110]	Stream 2 4 Talks [N 112]	Stream 3 4 Talks [M 111]	Stream 4 4 Talks [N 113]	Stream 5 4 Talks [N 114]	Stream 6 4 Talks [N 115]	Workshop 1 [M 106]	Workshop 2 [M 107]	Workshop 3 [M 108]
17: 45 – 18: 45	Dinner [4/F, Communal Building]								
19: 00 – 19: 15	Bus to Tsim Sha Tsui Star Ferry Pier								
19: 30 – 21: 30	Excursion (Harbour Cruise)								

Time	29 May Friday									
9: 00 – 10: 00	2 Talks (Stream 1 and Stream 2) [N 002]									
10: 00 – 10: 30	Coffee Break									
10: 30 – 12: 30	4 Talks (Stream 3) [N 001]			4 Talks (Stream 4) [N 002]			5 Talks (Stream 5) [N 114]	Workshop 1 [M 106]	Workshop 2 [M 107]	Workshop 3 [M 108]
12: 45 – 13: 45	Lunch [4/F, Communal Building]									
14: 00 – 15: 00	2 Talks (Stream 5) [N 001]			2 Talks (Stream 6) [N 002]			3 Talks (Stream 4) [N 113]	Workshop 1 [M 106]	Workshop 2 [M 107]	Workshop 3 [M 108]
15: 00 – 15: 30	Coffee Break									
15: 30 – 16: 30	Stream 4 8 Talks [M 110]	Stream 2 2 Talks	Stream 5 5 Talks	Stream 4 2 Talks	Stream 5 2 Talks	Stream 6 2 Talks	Workshop 1 [M 106]	Workshop 2 [M 107]	Workshop 3 [M 108]	
16: 30 – 18: 10		4 Talks [N 112]	Stream 1 Discussion [M 111]	4 Talks [N 113]	4 Talks [N 114]	4 Talks [N 115]				
18: 30 – 20: 30	Banquet, Colour Crystal Restaurant, 2/F Harbour Crystal Centre									

Stream 1:

Complexity and Approximation in Numerical Analysis

Organizer: Ian Sloan (PolyU, UNSW)

27 May, Wednesday

Chair : Markus Hegland

[N001]

14:00-14:30 **Yuesheng Xu** (Syracuse University, USA)
Fast fourier analysis for high dimensional data

14:30-15:00 **Rob Womersley** (University of New South Wales, Australia)
Solving large scale highly nonlinear systems of equations and spherical designs

Chair : Robert S. Womersley

[M110]

15:30-16:00 **Ding-Xuan Zhou** (The City University of Hong Kong,
Hong Kong)
Learning schemes in reproducing kernel Hilbert spaces

16:00-16:30 **Shigehiko Kuratsubo** (Hirotsaki University, Japan)
A remark on Landau's theorem of lattice point problem and its application to the convergence problem of multiple fourier series

16:30-17:00 **Xiaoqun Wang** (Tsinghua University, China)
High dimensional model representations in QMC methods for computational finance

Chair: Yuesheng Xu

[M110]

17:00-17:20 **Jong Juang** (National Chiao Tung University, Taiwan)
Synchronization theory on coupled map lattices with wavelet transform method

17:20-17:40 **Shu-rong Sun** (Harbin Institute of Technology, China)
Approximation of the secular function of Rayleigh wave in multilayered medium

17:40-18:00 **Congpei An** (The Hong Kong Polytechnic University,
Hong Kong)
Study on the numerical methods for TCT image reconstruction

STREAM 1

28 May, Thursday

Chair: Ding-Xuan Zhou

[N001]

- 10:30-11:00 **Josef Dick** (University of New South Wales, Australia)
Consistency of Markov chain quasi-Monte Carlo on continuous state spaces
- 11:00-11:30 **Fred Hickernell** (Illinois Institute of Technology, USA)
Computational issues for kernel-based function approximation
- 11:30-12:00 **Markus Hegland** (Australian National University, Australia)
On the complexity of several CME solvers
- 12:00-12:30 **Holger Wendland** (University of Sussex, UK)
Divergence-free kernels and their application to fluid-flow problems

Chair : Markus Hegland

[M110]

- 15:30-16:00 **Jan Baldeaux** (University of New South Wales, Australia)
 $(t, \alpha, \beta, n, m, s)$ nets and $(t, \alpha, \beta, \sigma, s)$ sequences: an overview
- 16:00-16:30 **Shuhuang Xiang** (Central South University, China)
Error bounds for approximation with Chebyshev points and efficient methods for highly oscillatory functions
- 16:30-16:50 **Feng-Nan Hwang** (National Central University, Taiwan)
PPJD, the parallel scientific package for large sparse polynomial eigenvalue problems
- 16:50-17:10 **Chao Yang** (Chinese Academy of Sciences, China)
A parallel fully implicit solver for the shallow water model on the cubed-sphere

29 May, Friday

Chair: Ian Sloan

[N002]

- 9:00-9:30 **Henryk Wozniakowski** (Columbia University, USA and
University of Warsaw, Poland)
How to cope with the curse of dimensionality?
- 17:10-18:10 **Open Discussion** [M111]
Introduced by **Ian Sloan**
Approximation and computation on the sphere

Stream 2:

Numerical Solution of Differential Equations

Organizer: Zhong-ci Shi (AMSS, CAS)

27 May, Wednesday

Chair : Ronald H.W. Hoppe **[N002]**

14:00-14:30 **Hans-Jurgen Reinhardt** (University of Siegen, Germany)
Multidimensional inverse heat conduction problems

14:30-15:00 **Xue-Cheng Tai**, Qiya Hu, and Ragnar Winther
(University of Bergen, Norway and Nanyang
Technological University, Singapore)
A saddle point approach to the computation of harmonic maps

Chair : Houde Han **[N112]**

15:30-16:00 **Waisun Don** (Hong Kong Baptist University, Hong Kong)
High order PSIC/WENO-Z scheme in shock-particles Laden flow

16:00-16:30 **Weizhu Bao** (National University of Singapore, Singapore)
*Emerging applications of spectral methods in quantum and
plasma physics*

16:30-17:00 **Chi-Tien Lin** (Providence University, Taiwan)
*On high-order central-upwind schemes for hyperbolic
conservation laws*

Chair: Weizhu Bao **[N112]**

17:00-17:20 **Tsu-Fen Chen** (National Chung Cheng University, Taiwan)
*Optimal grids of least-squares finite element methods in two
spatial dimension*

17:20-17:40 **Xiao-liang Cheng** (Zhejiang University, China)
*A greedy algorithm for eigenvalue optimization problems in shape
design of two-density inhomogeneous drum*

STREAM 2

17:40-18:00 **Dongyang Shi** (Zhengzhou University, China)
Two robust C^0 elements with double set parameters for fourth order elliptic singular perturbation problems

28 May, Thursday

Chair: H.-J. Reinhardt [N002]

10:30-11:00 **Ronald Hoppe** (University of Houston, USA)
Goal oriented mesh adaptivity for control and state constrained elliptic optimal control problems

11:00-11:30 **Jack Xin** (University of California at Irvine, USA)
Soft-constrained iterative methods for blind source separation

11:30-12:00 **Houde Han** (Tsinghua University, China)
The tailored finite point method for singular perturbation problem of second order elliptic equation

12:00-12:30 **Tao Tang** (Hong Kong Baptist University, Hong Kong)
Convergence analysis for numerical methods to stochastic hyperbolic equations

Chair : Jack Xin [N112]

15:30-16:00 **Zhimin Zhang** (Wayne State University, USA)
Super-geometric convergence of spectral/spectral collocation methods

16:00-16:30 **Xiao-Ping Wang** (Hong Kong University of Science and Technology, Hong Kong)
Phase field simulations of two phase fluid flow

16:30-17:00 **Xuejun Xu** (Sciences Chinese Academy of Sciences, China)
Rigorous spectral analysis of optimized Schwarz methods with Robin transmission conditions

17:00-17:30 **Xingye Xue** (University of Science and Technology of China, China)
Relations between the multiscale methods for elliptic homogenization problems

STREAM 2

29 May, Friday

Chair: Zhong-ci Shi **[N002]**

9:30-10:00 **Alfio Quarteroni** (Ecole Polytechnique Fédérale de Lausanne, Switzerland and Politecnico di Milano, Italy)
Mathematical modeling in medicine, sports, and technology

Chair: Zhimin Zhang **[N112]**

15:30-16:00 **Zhongying Chen** (Zhongshan University, China)
Fast multilevel augmentation methods for solving Hammerstein equations

16:00-16:30 **Jun Hu** (Peking University, China)
Convergence of adaptive Morley-type element methods

Chair: Jun Hu **[N112]**

16:30-16:50 **Zhongdi Cen** (Zhejiang Wanli University, China)
A robust and accurate finite difference method for a generalized Black-Scholes equation

16:50-17:10 **Weihua Geng** (University of Michigan, USA)
An interface method based Poisson-Boltzmann equation solver and its application on molecular dynamics

17:10-17:30 **Rob Haelterman** (Royal Military Academy, Belgium)
Optimal Runge-Kutta coefficients for a multi-grid V-cycle

17:30-17:50 **Hossein Azari** (Shahid Beheshti University, Tehran, Iran)
Efficient techniques for numerical solutions of some parabolic inverse problems

Stream 3:

Soliton Theory and Its Applications in Nonlinear

Continuum Mechanics

Organizers: Colin Rogers (PolyU, MASCOS), Alex Wai (PolyU),

Kwok. W. Chow (HKU)

27 May, Wednesday

Chair : Colin Rogers **[N002]**

9:00-9:30 **Roger Grimshaw** (Loughborough University, UK)
Long wave models for internal Solitary waves

Chair : Oktay K. Pashaev **[M111]**

15:30-16:00 **Jyh-Hao Lee** (Academia Sinica, Taiwan)
Solutions of the reaction-diffusion system related to the resonant nonlinear Schrödinger equation

16:00-16:30 **Xing-biao Hu** (AMSS, China)
Two discrete integrable systems and their applications

16:30-17:00 **Adam Szereszewski** (University of Warsaw, Poland)
L-isothermic surfaces

Chair : SenYue Lou **[M111]**

17:00-17:20 **Samuel Shen** (San Diego State University, USA)
Wu's mass postulate and solutions of the fKdV equation

17:20-17:40 **Ivan P. Ganachev** (Shibaura Mechatronics Corporation, Japan)
Electromagnetic field simulation of corrugated surface-wave discharges

17:40-18:00 **Xuefeng Liu** (Harbin Institute of Technology, China)
Quick inversion of Rayleigh wave fundamental mode dispersion curves in a multilayered medium in which velocities increase monotonically

STREAM 3

28 May, Thursday

Chair: K. W. Chow

[N001]

14:00-14:30 **Wolfgang Schief** (Technische Universität Berlin, Germany)
On shell membranes, the Lamé equation and Enneper surfaces

14:30-15:00 **Keith Blow** (Aston University UK)
Solitons in optical communications

Chair : Wolfgang Schief

[M111]

15:30-16:00 **SenYue Lou** (Ningbo University, China)
Multiple vortex interaction models: symmetries, conservation laws and vortex sources

16:00-16:30 **K. W. Chow** (The University of Hong Kong, Hong Kong)
Modulation instabilities and periodic patterns in systems of coupled nonlinear Schrödinger equations

16:30-17:00 **Jonathan J C Nimmo** (University of Glasgow, UK)
Darboux transformations on time scales

17:00-17:30 **James M. Hill** (University of Wollongong, Australia)
New geometric polyhedral models for nanotubes

29 May, Friday

Chair: Jonathan J C Nimmo

[N001]

10:30-11:00 **Oktay K. Pashaev** (Izmir Institute of Technology Gulbahce, Turkey)
The envelope soliton resonances: basic ideas and new results

11:00-11:30 **Boris A. Malomed** (Tel Aviv University, Israel)
Dynamical symmetry breaking in dual-core nonlinear systems

11:30-12:00 **Yuri Kivshar** (Australian National University, Australia)
Energy localization and solitons in nonlinear periodic systems

12:00-12:30 **Nail Akhmediev** (The Australian National University, Australia)
Extreme solitons: dangerous or useful?

Stream 4:

Applications of Engineering Mathematics

Organizers: C.K. Chan (PolyU), Man-kam Kwong (PolyU)

27 May, Wednesday

Chair : C.K. Chan

[N002]

9:30-10:00 **James A. Sethian** (University of California at Berkeley, USA)
Advances in advancing interfaces: Efficient algorithms for inkjet plotters, semiconductors, medical scanners, and seismic imaging

Chair : Wai Yuen Chan

[N113]

15:30-16:00 **Yincheng Guo** (Tsinghua University, China)
Large eddy simulation on coherent structures in rectangular methane non-premixed flame

16:00-16:30 **Huiqiang Zhang** (Tsinghua University, China)
Numerical simulation of internal flow-field of a swirl coaxial injector in a hot environment

16:30-17:00 **Xianggui Li** (Beijing Information Science and Technology University, China)
Two time-splitting numerical methods the Maxwell-dirac system

Chair : Yincheng Guo

[N113]

17:00-17:20 **Yang Liu** (Tsinghua University, China)
A two-Phase sub-grid-scale kinetic energy model for large eddy simulation of dense gas-solid flows

17:20-17:40 **Wei-Chang Yeh, Hsiang-Yu Lin** (National Tsing Hua University, Taiwan)
A soft computing algorithm for disassembly sequencing

17:40-18:00 **Xiaojian Liu** (Harbin Institute of Technology, China)
Computation of quasi-periodic phononic crystals band gaps basing on nonhomogeneous second-order ODEs

STREAM 4

28 May, Thursday

Chair: James A. Sethian

[N002]

- 14:00-14:30 **Claes Johnson** (Royal Institute of Technology KTH, Sweden)
The secret of flight by computation
- 14:30-15:00 **Weiwei Sun** (The City University of Hong Kong, Hong Kong)
Mathematical modeling and computation for moisture transport in fibrous materials

Chair : John Hogan

[N113]

- 15:30-16:00 **Guohua Nie** (Tongji University, China)
Elastically restrained orthotropic shallow spherical shells with imperfections under a concentrated load
- 16:00-16:30 **Jiang Zhu** (National Laboratory for Scientific Computing, Brazil)
Thermally coupled Quasi-newtonian flows: Analysis and computation
- 16:30-17:00 **Shengli Xu** (University of Science and Technology of China, China)
Computation on interface capturing in a complex geometry
- 17:00-17:30 **Ruijing Zhang** (Tongji University, China)
Size effect of deformation in beams, plates and shells

29 May, Friday

Chair: Man-kam Kwong

[N002]

- 10:30-11:00 **Qingyong Zhu** (Sun Yat-sen University, China)
A high order accurate upwind compact finite difference scheme with group velocity control for shallow water equations
- 11:00-11:30 **C. Y. Chan** (University of Louisiana, USA)
A quenching criterion for Multi-dimensional parabolic problems due to a concentrated nonlinear source
- 11:30-12:00 **John Hogan** (University of Bristol, UK)
TBA
- 12 :00-12:30 **Chunhua Ou** (Memorial Univeristy of Newfoundland, Canada)
Traveling waves of non-local reaction diffusion equations

STREAM 4

Chair: Guohua Nie

[N113]

- 14:00-14:20 **Bing Wang, H.Q. Zhang** (Tsinghua University, China)
Numerical study of statistical temporal scales in inertia-particle dispersion
- 14:20-14:40 **Hongwei Zhang, Zuliang Lu** (Changsha University of Science and Technology, China)
A V-cycle multigrid method for a viscoelastic fluid flow satisfying an oldroyd-B-type constitutive equation
- 14:40-15:00 **K-J. Nogenmyr** (The Hong Kong Polytechnic University, Hong Kong)
Large eddy simulation of premixed combustion under varying swirl numbers

Chair: C. Y. Chan

[N113]

- 15:30-16:00 **Waiyuen Chan** (Southeast Missouri State University, USA)
Quenching for nonlinear degenerate parabolic problems
- 16:00-16:30 **Jun Feng, Sheng-li Xu** (University of Science and Technology of China, China)
Capturing of free surface in flow impacting walls from a broken dam

Chair: Claes Johnson

[N113]

- 16:30-16:50 **Yingyan Wu** (The Hong Kong Polytechnic University, Hong Kong)
Large-eddy simulation of an ethylene-air turbulent premixed V-flame
- 16:50-17:10 **Chunxiao Xu** (Tsinghua University, China)
Large eddy simulation of gas-particle swirling flow using subgrid-scale second-order moment two-phase turbulent model
- 17:10-17:30 **Yonghoon Lee** (Pusan National University, South Korea)
Nonlinear p-Laplacian problems with various types of singular weights

STREAM 4

17:30-17:50 **Mohammad Reza Saviz** (Chabahar Maritime University, Iran)
3D elasticity analysis of laminated cylindrical shell with piezoelectric layer

Chair: Xiangui Li [M110]

15:30-15:50 **Yajun Zhang** (University of Science and technology of China, China)
Computation on fluid-structure interaction in a confined volume

15:50-16:10 **Jiawen Wang** (Harbin Institute of Technology, China)
Study on extraction method of dispersion curve by generalized S-transform

16:10-16:30 **Junfeng Ma** (University of Alberta, Canada)
Approximation property of T-S fuzzy singular systems

Chair: Weiwei Sun [M110]

16:30-16:50 **Zayid AbdulHadi** (American University of Sharjah, UAE)
On the univalence of functions with Logharmonic Laplacien

16:50-17:10 **Fathi M Allan** (United Arab Emirates University, UAE)
On the dynamics of mixing of a thermally stratified shear layer

17:10-17:30 **M C Jayaprakash, Indira R** (Nitte Meenakshi Institute of Technology, India)
Effect of velocity slip on Newtonian fluid flow in an eccentric annulus

17:30-17:50 **Yeung Ling Hei** (Hong Kong Baptist University, Hong Kong)
Some exact blow-up solutions to Euler-poisson equations and an unique exact solution to an initial value problem of Liouville equation

17:50-18:10 **Jun Huang** (The Hong Kong Polytechnic University, Hong Kong)
The valid range of thin Timoshenko beam theory based on finite element method

Stream 5:

Computational Optimization

Organizer: Liqun Qi (PolyU)

27 May, Wednesday

Chair : Shuzhong Zhang

[N001]

- 10:30-11:00 **Frederic Bonnans** (Ecole Polytechnique, France)
Sensitivity analysis in obstacle problems
- 11:00-11:30 **Masao Fukushima** (Kyoto University, Japan)
Regularity conditions in second-order cone programs without strict complementarity
- 11:30-12:00 **William W. Hager** (University of Florida, USA)
An affine-scaling interior-point CBB method for continuous knapsack constraints
- 12:00-12:30 **Toh Kim Chuan** (National University of Singapore, Singapore)
A distributed SDP-based algorithm for large noisy anchor-free graph realization in molecular conformation

Chair : Xiaoqi Yang

[N114]

- 15:30-16:00 **Duan Li** (The Chinese University of Hong Kong, Hong Kong)
Convex relaxation for nonconvex quadratic programming problems: Best D.C. decomposition and SDP formulation
- 16:00-16:30 **Lizhi Liao** (Hong Kong Baptist University, Hong Kong)
The maximal correlation problem
- 16:30-17:00 **Jane Ye** (University of Victoria, Canada)
New necessary optimality conditions for Bilevel programming problems

STREAM 5

Chair : Frederic Bonnans

[N114]

- 17:00-17:20 **Qingzhi Yang** (Nankai University, China)
From the split feasibility problem to the generalized KM theorems
- 17:20-17:40 **Pingqi Pan** (Southeast University, China)
An efficient nonstandard simplex algorithm for linear programming
- 17:40-18:00 **Yufei Yang** (Hunan University, China)
An active set strategy based on augmented Lagrangian method for non-negativity constrained image deblurring problem

28 May, Thursday

Chair: Liqun Qi

[N002]

- 9:00-9:30 **Yinyu Ye** (Stanford University, USA)
A unified framework for dynamic Pari-mutuel information market design

Chair: Jane Ye

[N114]

- 15:30-16:00 **Shuzhong Zhang** (The Chinese University of Hong Kong, Hong Kong)
New results on robust stochastic optimization
- 16:00-16:30 **Defeng Sun** (National University of Singapore, Singapore)
A proximal point method for matrix least squares problem with nuclear norm regularization
- 16:30-17:00 **Xiaoqi Yang** (The Hong Kong Polytechnic University, Hong Kong)
Nonlinear augmented Lagrangian for nonconvex multiobjective optimization
- 17:00-17:30 **Wenyu Sun** (Nanjing Normal University, China)
On filter-successive linearization methods for nonlinear Semidefinite programming

STREAM 5

29 May, Friday

Chair: Oleg Burdakov

[M106]

10:30-10:50 **Agachai Sumalee** (The Hong Kong Polytechnic University, Hong Kong)
A smoothing approach to the optimization of traffic networks

10:50-11:10 **Guihua Lin** (Dalian University of Technology, China)
Stochastic variational inequality problems with additional constraints and their applications in supply chain network equilibria

11:10-11:30 **Zhiping Chen** (Xi'an Jiaotong University, China)
General scenario tree generation algorithms under GARCH models

11:30-11:50 **Xiaojiao Tong** (Changsha University of Science and Technology, China)
A smoothing SQP method for nonlinear programs with stability constraints arising from power systems

11:50-12:10 **Chao Zhang** (Beijing Jiaotong University, China)
Stochastic nonlinear complementarity problems: theory, algorithms and applications

Chair: Duan Li

[N001]

14:00-14:30 **Oleg Burdakov** (Linköping University, Sweden)
A novel approach in multilinear least-squares with application to design of filter networks

14:30-15:00 **Yaxiang Yuan** (AMSS, China)
Gradient method with short BB step-lengths for minimizing large scale convex quadratic functions

Chair: Yinyu Ye

[M111]

15:30-15:50 **Naihua Xiu** (Beijing Jiaotong University, China)
Feasibility and solvability of Lyapunov-type linear programming over symmetric cones

STREAM 5

- 15:50-16:10 **Chee-Khian Sim** (The Hong Kong Polytechnic University, Hong Kong)
Asymptotic behavior of underlying NT paths in interior point methods for monotone semidefinite linear complementarity problems
- 16:10-16:30 **Jeinshan Chen** (National Taiwan Normal University, Taiwan)
A generalized Fischer-burmeister merit function for the second-order cone complementarity problem
- Chair:** Yaxiang Yuan [M111]
- 16:30-16:50 **Gyeong-Mi Cho** (Dongseo University, Korea)
Polynomial interior point methods for $P_(\kappa)$ nonlinear complementarity problems*
- 16:50-17:10 **Babaie-Kafaki Saman** (Sharif University of Technology, Iran)
A modified conjugate gradient algorithm for unconstrained optimization
- Chair:** William W. Hager [N114]
- 15:30-16:00 **Soonyi Wu** (National Cheng Kung University, Taiwan)
A new exchange method for convex and nonlinear semi-infinite programming
- 16:00-16:30 **Donghui Li** (Hunan University, China)
An almost smooth equation reformulation to the nonlinear complementarity problem and related Newton's method
- Chair:** Toh Kim Chuan [N114]
- 16:30-16:50 **Fengmin Xu** (Xi'an Jiaotong University, China)
A new Lagrangian net algorithm for solving max-bisection problems
- 16:50-17:10 **Laura Ingram** (The University of Alabama, USA)
A fast interval algorithm based on a binary tree data structure for global optimization
- 17:10-17:20 **Fengtao Liu** (Harbin Institute of Technology, China)
The use of QP-free method in the analysis of slope stability
- 17:30-17:50 **Yong Xia** (Beihang University, China)
On small size linearizations for the quadratic assignment problem

Stream 6:

Matrix Computations and Nonlinear Equations

Organizer: Xiaojun Chen (PolyU)

27 May, Wednesday

Chair : Günter Mayer **[N002]**

- 10:30-11:00 **Andy Wathen** (University of Oxford, UK)
Preconditioning for PDE-constrained optimization
- 11:00-11:30 **Zuhair Nashed** (University of Central Florida Orlando, USA)
Moment discretization of Ill-posed nonlinear operator equations with weakly bounded noise
- 11:30-12:00 **Tim Kelley** (North Carolina State University, USA)
Rank-Deficient nonlinear equations and least squares problems
- 12:00-12:30 **Götz Alefeld** (Karlsruhe University, Germany)
Error bounds for complementarity problems

Chair : Andreas Frommer **[N115]**

- 15:30-16:00 **Ken Hayami** (National Institute of Informatics, Japan)
A geometric view of Krylov subspace methods on singular systems
- 16:00-16:30 **Chong Li** (Zhejiang University, China)
Kantorovich's theorems for Newton's method on Lie groups
- 16:30-16:50 **Francisco Pedroche** (Universitat Politècnica de València, Spain)
A new eigenvalue inclusion set derived from α I-Matrices

Chair: Pierre Maréchal **[N115]**

- 17:00-17:20 **Yiju Wang** (Qufu Normal University, China)
A practical method for computing the largest M-Eigenvalue of a fourth-order partially symmetric tensor
- 17:20-17:40 **Jun-Feng Yin** (The Tongji University, China)
Preconditioners for saddle point problems arising in blood flow dynamics
- 17:40-18:00 **Yen-cherng Lin** (China Medical University, Taiwan)
F -implicit generalized vector complementarity problems

STREAM 6

28 May, Thursday

Chair: Xiaojun Chen [N002]

9:30-10:00 **Raymond Honfu Chan** (The Chinese University of Hong Kong, Hong Kong)
Missing data recovery by tight-frame algorithms

Chair : Ken Hayami [N115]

15:30-16:00 **Michael Ng** (Hong Kong Baptist University, Hong Kong)
Variational fuzzy Mumford-Shah model for image segmentation

16:00-16:30 **Pierre Maréchal** (Université Paul Sabatier, France)
Optimizing condition numbers

16:30-17:00 **Hiroshi Nakazato** (Hirosaki University, Japan)
Convexity of the Krein space numerical range

17:00-17:30 **Wen Li** (South China Normal University, China)
On the combined perturbation bound for matrix decompositions

29 May, Friday

Chair: Tim Kelley [N002]

14:00-14:30 **Shin'ichi Oishi** (Waseda University, Japan)
Error free transformations of floating point numbers and its applications

14:30-15:00 **Andreas Frommer** (University of Wuppertal, Germany)
Enclosure methods for the matrix square root

Chair : Andy Wathen [N115]

15:30-16:00 **Günter Mayer** (University of Rostock, Germany)
A survey on symmetric linear systems of equations with inexact input data

16:00-16:30 **Yimin Wei** (Fudan University, China)
Condition number for linear least squares and total least squares problems

STREAM 6

Chair: Götz Alefeld

[N115]

- 16:30-16:50 **Katsuhisa Ozaki** (Waseda University, Japan)
A priori error estimation for accurate matrix multiplication by using optimized BLAS
- 16:50-17:10 **Jinping Zeng** (Hunan University, China)
Generalized Newton-iterative methods for nonlinear equations with locally Lipschitzian functions
- 17:10 - 17:30 **Xinyuan Wu**, Zhengyu Wang (Nanjing University, China)
Improved Wilkinson's iteration refinement strategy with roundoff error analysis
- 17:30 -17:50 **Youhua Fan**, Xiaojian Liu (Harbin Institute of Technology, China)
Computation of matrix exponential in the long-time wave field simulation problem for one-dimensional non-periodical sonic crystals

Workshop 1:

Verified Computation of Solutions for Partial Differential

Equations and Related Topics [M 106]

Organizer: Mitsuhiro T. Nakao (Kyushu University, Japan)

27 May, Wednesday

10:50-11:00 Opening

[Session 1] Chair: M. Plum

11:00-11:30 **M.-N. Kim** (Kyushu University, Japan)
*Numerically verified bifurcated solutions of 3 dimensional
Rayleigh-Benard convection problem*

11:30-12:00 **S. Oishi** (Waseda University, Japan)
*Numerical existence theorem for solutions of fixed point type
equations and its applications*

[Session 2] Chair: K. Mischaikow

14:00-14:30 **M. Langer** (University of Strathclyde, UK)
*Eigenvalue enclosures and exclosures for non-self-adjoint problems
in hydrodynamics*

14:30-15:00 **B. M. Brown** (Cardiff University, UK)
*Enclosures for eigenvalues of selfadjoint and non selfadjoint
ordinary differential equations*

[Session 3] Chair: M. Brown

15:30-16:00 **T. Kinoshita** (Kyushu University, Japan)
*On the constants of a priori error estimates for the H_20 -projection
in Ritz-Galerkin methods*

WORKSHOP 1

- 16:00-16:30 **Y. Watanabe** (Kyushu University, Japan)
An eigenvalue excluding method for the Orr-Sommerfeld problem
- 16:30-17:00 **M. Plum** (University of Karlsruhe, Germany)
A computer-assisted existence and multiplicity proof for travelling waves in a nonlinearly supported beam
- 17:00-17:30 **K. Nagatou** (Kyushu University, Japan)
Orbital stability investigations for travelling waves in a nonlinearly supported beam

28 May, Thursday

[Session 4] Chair: S. Murashige

- 10:30-11:00 **Z. Wang** (Nanjing University, China)
Error bound for differential linear variational inequality
- 11:00-11:30 **M. Tabata** (Kyushu University, Japan)
A numerical convergence study of an energy stable finite element scheme for two-fluid flow problems
- 11:30-12:00 **K. Hashimoto** (Nakamura Gakuen Junior College, Japan)
A numerical verification method for solutions of nonlinear parabolic problems
- 12:00-12:30 **S. Ei** (Kyushu University, Japan)
Dynamics of boundary spikes for Gierer-Meinhardt model in 2D

[Session 5] Chair: N. Yamamoto

- 14:00-14:30 **T. Tsuchiya** (Ehime University, Japan)
An iterative scheme for free boundary problems defined with the Hadamard variation
- 14:30-15:00 **K. Kobayashi** (Kanazawa University, Japan)
A constructive a priori error estimation for finite element discretizations in a non-convex domain using mesh refinement

WORKSHOP 1

[Session 6] Chair: T. Tsuchiya

- 15:30-16:00 **K. Mischaikow** (The State University of New Jersey, USA)
Validated continuation and paths of equilibria for infinite dimensional problems
- 16:00-16:30 **N. Yamamoto** (The University of Electro-Communications, Japan)
An application of the Lohner method for boundary value problems of ODEs
- 16:30-17:00 **T. Minamoto** (Saga University, Japan)
Verified numerical computation of a period of unstable periodic orbits for the Rossler system
- 17:00-17:30 **S. Murashige** (Future University-Hakodate, Japan)
Numerical stability analysis of periodic solutions of ordinary differential equations
- 17:30- Closing remarks

29 May, Friday

10:30-17:00 Open discussions

This workshop is sponsored by Grants-in-Aid for Scientific Research (S)
“Development of computer assisted analysis for complicated nonlinear phenomena”

Workshop 2:

The Interface Problems and Its Applications [M 107]

Organizer: Yanping Lin (PolyU)

27 May, Wednesday

10:50-11:00 Opening

[Session 1] Chair: Yanping Lin

11:00-11:30 **Song Wang** (University of Western Australia, Australia)
On numerical solution of free boundary problems arising from option valuation

11:30-12:00 **M. Lai** (National Chiao Tung University, Taiwan)
A front tracking method for motion by mean curvature with surfactant

12:00-12:30 **D. Liang** (York University, Canada)
Splitting domain decomposition methods for porous media flows over non-overlapping sub-domains and interfaces

[Session 2] Chair: S. Wang

14:00-14:30 **J. Li** (University of Nevada Las Vegas and UCLA, USA)
Numerical convergence and physical fidelity analysis for Maxwell's equations in metamaterials

14:30-15:00 **G. Fairweather** (American Math Review and Colorado School of Mines, USA)
An optimal quadratic spline collocation method for the biharmonic Dirichlet problem

WORKSHOP 2

[Session 3] Chair: J. Li

- 15:30-16:00 **Y. Di** (Chinese Academy of Sciences, China)
A multi-mesh finite element method for interface problem simulations
- 16:00-16:30 **D. Kwak** (Korea Advanced Institute of Sciences and Technology, Korea)
Optional convergence analysis of an immersed interface finite element method
- 16:30-17:00 **T. Lin** (Virginia Polytechnic Institute and State University, USA)
IFE methods for solving interface problems on Cartesian meshes with local refinement
- 17:00-17:30 **Y. Cao** (Harbin Institute of Technology, China)
Ion thruster simulation using immersed finite element particle-in-cell method
- 17:30-18:00 **J. Deng** (University of Alberta, Canada)
Investigation of uncertainties in nonlinear aeroelastic systems

28 May, Thursday

[Session 4] Chair: D. Liang

- 10:30-11:00 **Z. Li** (North Carolina State University, USA)
Immersed finite element methods for elliptic and elastic systems with interfaces and non-homogeneous jump conditions
- 11:00-11:30 **D. Sheen** (Seoul National University, Korea)
On the fast linear solvers for Laplace transformation methods for parabolic problems
- 11:30-12:00 **N. Yan** (Chinese Academy of Sciences, China)
Adaptive anisotropic finite element mesh refinement for interface problems

WORKSHOP 2

12:00-12:30 **W. Cai** (University of North Carolina at Charlotte, USA)
A generalized discontinuous Galerkin(GDG) method for Schrodinger equations with nonsmooth solutions with application in optical waveguides

[Session 5] Chair: Z. Li

14:00-14:30 **G. Bao** (Michigan State University, USA)
Recent studies of direct and inverse problems for Maxwell's equations and applications

14:30-15:00 **W. Wang** (National Taiwan University, Taiwan)
Interface and polynomial eigenvalue problems in quantum dots simulations

[Session 6] Chair: G. Fairweather

15:30-16:00 **H. Wang** (University of South Carolina, USA)
An Eulerian-Lagrangian formulation for porous medium flow

16:00-16:30 **L. Cao** (Chinese Academy of Sciences, China)
Computational multiscale modeling of electromagnetics

16:30-17:00 **S. Zhang** (Tianjin University of Finance and Economics, China)
Superconvergence estimates of finite element methods for American options

17:00-17:30 **K. Ito** (North Carolina State University, USA)
High order finite difference schemes for wave equations in inhomogeneous media

17:30- Closing remarks

29 May, Friday

10:30-17:00 Open discussions

Workshop 3:

Data Mining and Business Intelligence [M 108]

Organizer: Yong Shi (Graduate University of Chinese Academy of
Sciences, China
University of Nebraska at Omaha, USA)

27 May, Wednesday

10:50-11:00 Opening

[Session 1] Chair: Yong Shi

11:00-11:30 **Panos M. Pardalos** (University of Florida, USA)
Classification of ambiguous medical data

11:30-12:00 **Jifa Gu** (Academy of Mathematics and Systems Science, Chinese
Academy of Sciences, China)
Expert mining and its applications

[Session 2] Chair: Yong Shi

14:00-14:30 **Qiang Yang** (Hong Kong University of Science and Technology,
Hong Kong)
Transfer learning in data mining

14:30-15:00 **Hong Cheng** (The Chinese University of Hong Kong, Hong Kong)
*Integration of classification and pattern mining: a discriminative
and frequent pattern-based approach*

15:30-16:00 **So Man-Cho, Anthony** (The Chinese University of Hong Kong,
Hong Kong)
Pari-mutuel markets: mechanisms and performance

WORKSHOP 3

16:00-16:30 **Yiu-Ka-Fai, Cedric** (The Hong Kong Polytechnic University, Hong Kong)

Optimal portfolios with a VaR constraint

16:30-17:00 **Frank Xu** (The University of Hong Kong, Hong Kong)

A system for China-based bonded manufacturing enterprises to manage customs risks in global supply chain

28 May, Thursday

[Session 3] Chair: Yong Shi

10:30-11:00 **Wu Zhen** (Shandong University, China)

The maximum principles for partially observed stochastic recursive optimal control problem and application

11:00-11:30 **Yingjie Tian** (Chinese Academy of Sciences, China)

Kernel regularized multiple criteria linear programming

11:30-12:00 **Xiaofei Zhou** (Chinese Academy of Sciences, China)

A novel classification method based on L_1 norm distance

[Session 4] Chair: Yong Shi

14:00-14:30 **Zhiwang Zhang** (Chinese Academy of Science, China)

A new multiple criteria programming approach based on rough approximation for classification

14:30-15:00 **Ling Feng Niu** (Academy of Mathematics and Systems Science, Chinese Academy of Science, China)

A new decomposition algorithm for training bound-constrained support vector machines

15:30-16:00 **Dongling Zhang** (Chinese Academy of Science, China)

A group of knowledge-incorporated multiple criteria linear programming classifier

WORKSHOP 3

16:00-16:30 **Peng Zhang** (Chinese Academy of Science, China)
Mining labeled and unlabeled data via multiple criteria linear programming classification model

16:30- Closing remarks

29 May, Friday

10:30-17:00 Open discussions