

<b>Time</b>	<b>30 May 2017 (Tuesday)</b>
16:30 - 17:30	Registration [Open area outside V322]
17:30 - 19:30	Welcome Reception [Open area outside V322]

31 May 2017 (Wednesday)									
08:30-	Registration [Open area outside V322]								
09:00									
09:00 -	Opening Ceremony [V322]								
09:15									
09:15 -	Group photo taking [Lam Tai Fai Amphitheatre]								
09:30									
09:30 -	<b>Chi-Wang Shu</b> [V322] <i>Entropy stable high order discontinuous Galerkin methods for hyperbolic conservation laws</i>								
10:15									
10:15 -	<b>Benoit Perthame</b> [V322] <i>Models for neural networks; analysis, simulations and behavior</i>								
11:00 -									
11:00 -	Coffee Break [Open area outside V322]								
11:20									
11:20 -	<b>Stream 1</b>	<b>Stream 2</b>	<b>Stream 3</b>	<b>Stream 4</b>	<b>Stream 5</b>	<b>Stream 6</b>	<b>Workshop 1</b>	<b>Workshop 2</b>	<b>Workshop 3</b>
	[V312]	[V315]	[V302]	[V303]	[V304]	[V311]	[V313]	[V314]	[V316]
12:20	2 Invited Talks	2 Invited Talks	2 Invited Talks	2 Invited Talks	2 Invited Talks	2 Invited Talks	2 Invited Talks	2 Invited Talks	2 Invited Talks
12:30 -	Lunch [Open area outside V322]								
14:00									
14:00 -	<b>Stream 1</b>	<b>Stream 2</b>	<b>Stream 3</b>	<b>Stream 4</b>	<b>Stream 5</b>	<b>Stream 6</b>	<b>Workshop 1</b>	<b>Workshop 2</b>	<b>Workshop 3</b>
	[V312]	[V315]	[V302]	[V303]	[V304]	[V311]	[V313]	[V314]	[V316]
15:30	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks
15:30 -	Coffee Break [Open area outside V322]								
15:50									
15:50 -	<b>Stream 1</b>	<b>Stream 2</b>	<b>Stream 3</b>	<b>Stream 4</b>	<b>Stream 5</b>	<b>Stream 6</b>	<b>Workshop 1</b>	<b>Workshop 2</b>	<b>Workshop 3</b>
	[V312]	[V315]	[V302]	[V303]	[V304]	[V311]	[V313]	[V314]	[V316]
17:20	2 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	2 Invited Talks	3 Invited Talks	3 Invited Talks
	4 Contributed Talks						2 Contributed Talks		
17:40 -	Dinner [4/F, Communal Building]								
20:00									

<b>Time</b>	<b>1 June 2017 (Thursday)</b>									
09:00 - 09:45	<p align="center"><b>Jong-Shi Pang</b> [V322] <i>On the pervasiveness of difference-convexity in optimization and statistics</i></p>									
09:45 - 10:30	<p align="center"><b>Bernd Sturmfels</b> [V322] <i>Gaussian mixtures and their tensors</i></p>									
10:30 - 10:50	Coffee Break [Open area outside V322]									
10:50 - 12:20	<b>Stream 1</b>	<b>Stream 2</b>	<b>Stream 3</b>	<b>Stream 4</b>	<b>Stream 5</b>	<b>Stream 6</b>	<b>Workshop 1</b>	<b>Workshop 2</b>	<b>Workshop 3</b>	<b>JRC Workshop</b>
	[V312]	[V315]	[V302]	[V303]	[V304]	[V311]	[V313]	[V314]	[V316]	[V321]
12:20	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks
12:30 - 14:00	Lunch [Open area outside V322]									
14:00 - 15:30	<b>Stream 1</b>	<b>Stream 2</b>	<b>Stream 3</b>	<b>Stream 4</b>	<b>Stream 5</b>	<b>Stream 6</b>	<b>Workshop 1</b>	<b>Workshop 2</b>	<b>Workshop 3</b>	<b>JRC Workshop</b>
	[V312]	[V315]	[V302]	[V303]	[V304]	[V311]	[V313]	[V314]	[V316]	[V321]
15:30	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	2 Invited Talks
15:30 - 15:50	Coffee Break [Open area outside V322]									
15:50 - 17:20	<b>Stream 1</b>	<b>Stream 2</b>	<b>Stream 3</b>	<b>Stream 4</b>	<b>Stream 5</b>	<b>Stream 6</b>	<b>Workshop 1</b>	<b>Workshop 2</b>	<b>Workshop 3</b>	<b>JRC Workshop</b>
	[V312]	[V315]	[V302]	[V303]	[V304]	[V311]	[V313]	[V314]	[V316]	[V321]
17:20	1 Invited Talk	2 Invited Talks	2 Invited Talks	3 Contributed Talks	1 Invited Talk	3 Invited Talks	2 Invited Talks	3 Invited Talks	2 Invited Talks	2 Invited Talks
	6 Contributed Talks		2 Contributed Talks		2 Contributed Talks		2 Contributed Talks		2 Contributed Talks	
18:30 - 21:30	Banquet [Colour Crystal Restaurant, Tsim Sha Tsui East]									

<b>Time</b>	<b>2 June 2017 (Friday)</b>									
09:00 - 09:45	<p style="text-align: center;"><b>Zhiliang Ying [V322]</b> <i>Statistical methods for measuring mind</i></p>									
09:45 - 10:30	<p style="text-align: center;"><b>Shige Peng [V322]</b> <i>Data based nonlinear distributions under robust expectations</i></p>									
10:30 - 10:50	Coffee Break [Open area outside V322]									
10:50 - 12:20	<b>Stream 1</b>	<b>Stream 2</b>	<b>Stream 3</b>	<b>Stream 4</b>	<b>Stream 5</b>	<b>Stream 6</b>	<b>Workshop 1</b>	<b>Workshop 2</b>	<b>Workshop 3</b>	<b>JRC Workshop</b>
	[V312]	[V315]	[V302]	[V303]	[V304]	[V311]	[V313]	[V314]	[V316]	[V321]
12:20	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks	1 Invited Talk 1 Contributed Talk	3 Invited Talks	3 Invited Talks	3 Invited Talks	3 Invited Talks
12:30 - 14:00	Lunch [Open area outside V322]									
14:00 - 15:30	<b>Stream 1</b>	<b>Stream 2</b>	<b>Stream 3</b>	<b>Stream 4</b>		<b>Stream 6</b>	<b>Workshop 1</b>	<b>Workshop 2</b>	<b>Workshop 3</b>	<b>JRC Workshop</b>
	[V312]	[V315]	[V302]	[V303]		[V311]	[V313]	[V314]	[V316]	[V321]
15:30	3 Invited Talks	1 Invited Talk 2 Contributed Talks	1 Invited Talk 4 Contributed Talks	1 Invited Talk 2 Contributed Talks		Free Discussion	Free Discussion	3 Contributed Talks	1 Invited Talk Free Discussion	3 Invited Talks
15:30 - 15:50	Coffee Break [Open area outside V322]									
15:50 - 17:20	<b>Stream 1</b>	<b>Stream 2</b>	<b>Stream 3</b>			<b>Stream 6</b>		<b>Workshop 2</b>	<b>Workshop 3</b>	<b>JRC Workshop</b>
	[V312]	[V315]	[V302]			[V311]		[V314]	[V316]	[V321]
17:20	7 Contributed Talks	Free Discussion	Free Discussion			Free Discussion		Free Discussion	Free Discussion	2 Invited Talks
17:40 - 20:00	Dinner [4/F, Communal Building]									



# Stream 1:

## Numerical Solutions of Differential Equations

*Organizers:* Jintao Cui (PolyU), Buyang Li (PolyU), Yanping Lin (PolyU)

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**31 May 2017,                      Wednesday**

**Chair:**    Yanping Lin **[V312]**

11:20-11:50    **Paul Houston** (University of Nottingham, United Kingdom)  
*hp-Adaptive Newton-Discontinuous-Galerkin Finite Element Methods  
 for Semilinear Elliptic Boundary Value Problems*

11:50-12:20    **Dexuan Xie** (University of Wisconsin-Milwaukee, United States)  
*A New Nonlinear Finite Element Iterative Method for Solving a  
 Nonuniform Ionic Size Modified Poisson-Boltzmann System*

**Chair:**    Zhimin Zhang **[V312]**

14:00-14:30    **Christian Lubich** (University of Tuebingen, Germany)  
*A-stable Time Discretizations Preserve Maximal Parabolic Regularity*

14:30-15:00    **Weiwei Sun** (City University of Hong Kong, Hong Kong)  
*New Error Analysis of FEMs for Incompressible Miscible Flows in  
 Porous Media*

15:00-15:30    **Xinyuan Wu** (Nanjing University, China)  
*FERKN Integrators for Solving Nonlinear Wave Equations*

**Chair:**    Jilu Wang **[V312]**

15:50-16:20    **Jichun Li** (University of Nevada Las Vegas, United States)  
*Recent Advances on DG Methods for Maxwell's Equations in Complex  
 Media*

- 16:20-16:50 **Hengguang Li** (Wayne State University, United States)  
*A New Anisotropic Finite Element Method on Polyhedral Domains*
- 16:50-17:05 **Bin Wang** (Qufu Normal University, China)  
*Exponential Fourier Collocation Methods for Solving First-Order Differential Equations*
- 17:05-17:20 **Changhui Yao** (Zhengzhou University, China)  
*The Regularity Problem of Magneto-Heating Coupling Model with Turbulent Convection Zone and the Flow Fields*
- 17:20-17:35 **Filipe S. Cal** (Engineering Superior Institute of Lisbon, Portugal)  
*Wave Interaction with Structures in a Stratified Multilayer Fluid*
- 17:35-17:50 **Guanyu Zhou** (The University of Tokyo, Japan)  
*Numerical Methods for the Navier-Stokes Equations with the Unilateral Boundary Condition of Signorini's Type*

**1 June 2017, Thursday**

**Chair:** Paul Houston [V312]

- 10:50-11:20 **Xiaobing Feng** (The University of Tennessee, United States)  
*Fully Discrete Finite Element Methods for the Stochastic Allen-Cahn Equation with Gradient-Type Multiplicative Noises*
- 11:20-11:50 **Amiya Kumar Pani** (Indian Institute of Technology Bombay, India)  
*Semi-discrete Finite Element Analysis of Time Fractional Diffusion Problems with Nonsmooth Initial Condition using Energy Arguments*
- 11:50-12:20 **Zhimin Zhang** (Beijing Computational Science and Research Center, China)  
*Numerical Analysis of the Galerkin and Weak Galerkin Method for the Helmholtz Equation with High Wave Number*

**Chair:** Jintao Cui

[V312]

14:00-14:30 **Li-yeng Sung** (Louisiana State University, United States)  
*Novel Finite Element Methods for Elliptic Optimal Control Problems*

14:30-15:00 **Norikazu Saito** (The University of Tokyo, Japan)  
*Convergence of the Immersed-Boundary Finite-Element Method for the Stokes Problem*

15:00-15:30 **Zhiqiang Cai** (Purdue University, United States)  
*A Posteriori Error Estimators for Discontinuous Finite Element Approximations to Diffusion Problems*

**Chair:** Bin Wang

[V312]

15:50-16:20 **Georgios Akrivis** (University of Ioannina, Greece)  
*Stability of Implicit and Implicit-Explicit Multistep Methods for Nonlinear Parabolic Equations in Hilbert Spaces*

16:20-16:35 **Takiko Sasaki** (Waseda University, Japan)  
*Finite Difference Approximation for Nonlinear Schrödinger Equations with Application to Blow-up Computation*

16:35-16:50 **Jilu Wang** (Florida State University, United States)  
*Convergence of Numerical Solutions of Stochastic Integro-Partial Differential Equations Driven by the Space-Time White Noise*

16:50-17:05 **Tomoya Kemmochi** (The University of Tokyo, Japan)  
 *$L^\infty$ -Error Estimates for the Finite Element Method of Parabolic Problems on Domains with Smooth Boundaries*

17:05-17:20 **Huipo Liu** (Institute of Applied Physics and Computational Mathematics, China)  
*Error Analysis of Discontinuous Galerkin Finite Element Method for Optimal Control Problem Governed by the Transport Equation*

17:20-17:35 **Junxia Wei** (Institute of Applied Physics and Computational Mathematics, China)  
*A Discontinuous Finite Element Method For Neutron Transport Equations on 3-D Unstructured Grids*

17:35-17:50 **Sadia Arshad** (Chinese Academy of Sciences, China)  
*Modeling the Effect of Depression in Medical Illness*

**2 June 2017, Friday**

**Chair:** Xiaobing Feng **[V312]**

10:50-11:20 **Dong Liang** (York University, Canada)  
*Mass Conservative Domain Decomposition Methods for Multicomponent Contamination Flows*

11:20-11:50 **Jiguang Sun** (Michigan Technological University, United States)  
*Recursive Integral Eigenvalue Solver with Cayley Transformation*

11:50-12:20 **Lili Ju** (University of South Carolina, United States)  
*A Conservative Nonlocal Convection-Diffusion Model and Asymptotically Compatible Finite Difference Discretization*

**Chair:** Buyang Li **[V312]**

14:00-14:30 **Dmitriy Leykekhman** (University of Connecticut, United States)  
*A Priori Error Estimates of Parabolic Optimal Control Problems with Point Controls*

14:30-15:00 **Liwei Xu** (University of Electronic Science and Technology, China)  
*Boundary Integral Equation Methods for Acoustic and Elastic Waves*

15:00-15:30 **Alan Demlow** (Texas A&M University, United States)  
*Maximum-norm A Posteriori Error Analysis for Finite Element Methods*

**Chair:** Changhui Yao

[V312]

- 15:50-16:05 **Dongwoo Sheen** (Seoul National University, South Korea)  
*Nonconforming Framework for GMsFEM (Generalized MultiScale Finite Element Method)*
- 16:05-16:20 **Thida Pongsanguansin** (Chulalongkorn University, Thailand)  
*Wet/dry Tracking Well-Balanced WAF Finite Volume Method for 2D Shallow Water Equations*
- 16:20-16:35 **Yuze Zhang** (The Hong Kong Polytechnic University, Hong Kong)  
*Structure-Preserving Methods for the Degasperis-Procesi Equation*
- 16:35-16:50 **Xue Jiang** (Beijing University of Posts and Telecommunications, China)  
*Eddy Current Model for Nondestructive Evaluation with Thin Cracks*
- 16:50-17:05 **Weidong Shen** (Institute of Computational Physics and Computational Mathematics, China)  
*A Five-Equation Model Based ALE Method for Compressible Multifluid Fluids*
- 17:05-17:20 **Xiang Li** (National University of Defense Technology, China)  
*Numerical Multi-Symplectic Schemes for A Series of PDEs with Singularity*
- 17:20-17:35 **Zhenying Hong** (Institute of Applied Physics and Computational Mathematics, China)  
*Preserving Positive Linear Discontinuous Finite Element Scheme for Spherical Neutron Transport Equations*

## Stream 2:

### Mathematical Methods and Computation in Biology

*Organizers:* Daihai He (PolyU), Yijun Lou (PolyU), Zhian Wang (PolyU)

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**31 May 2017, Wednesday**

**Chair:** Yijun Lou **[V315]**

11:20-11:50 **Sanyi Tang** (Shaanxi Normal University, China)  
*Dengue Control: Data and Modeling Analyses*

11:50-12:20 **Nicolas Vauchelet** (Université Paris 13, France)  
*Mathematical Modeling of the Spread of Wolbachia for Dengue Control*

**Chair:** Daihai He **[V315]**

14:00-14:30 **Stanca M. Ciupe** (Virginia Tech, USA)  
*Mathematical Models of HIV-HPV Co-infection*

14:30-15:00 **Robert Smith?** (The University of Ottawa, Canada)  
*A Mathematical Model of Ebola Virus Disease: Using Sensitivity Analysis to Determine Effective Intervention Targets*

15:00-15:30 **Jane Heffernan** (York University, Canada)  
*The Complexity of Models of Waning Immunity in Infectious Diseases*

**Chair:** Sanyi Tang **[V315]**

15:50-16:20 **Yanni Xiao** (Xian Jiaotong University, China)  
*Comprehensive Effect of ART on HIV Infection: Insight From Multi-scale Models*

16:20-16:50 **Gergely Rost** (University of Szeged, Hungary)  
*Population Dynamics of Epidemic and Endemic States of Drug-resistance Emergence in Infectious Diseases*

16:50-17:20 **Elissa J. Schwartz** (Washington State University, USA)  
*Free-virus and Cell-to-cell Transmission in Mathematical Models of Equine Infectious Anemia Virus Infection*

### **1 June 2017, Thursday**

**Chair:** Yuan Lou **[V315]**

10:50-11:20 **Xiaoqiang Zhao** (Memorial University of Newfoundland, Canada)  
*A Malaria Transmission Model With Temperature-dependent Incubation Period*

11:20-11:50 **Zhigui Lin** (Yangzhou University, China)  
*The Impact of Climate Warming and Spatial Heterogeneity on the Spreading of the West Nile Virus*

11:50-12:20 **Kevin Painter** (Heriot-Watt University, United Kingdom)  
*Nonlocal PDE Models for Cell Interactions and Movement*

**Chair:** Xiaoqiang Zhao **[V315]**

14:00-14:30 **Xingfu Zou** (University of Western Ontario, UK)  
*On a Diffusive Host-pathogen System With Different Dispersal Rates*

14:30-15:00 **Yuan Lou** (Ohio State University, USA)  
*Evolution of Diffusion in a Mutation-selection Model*

15:00-15:30 **Michael Li** (University of Alberta, Canada)  
*Global Dynamics of an Infinite Dimensional Epidemic Model With Nonlocal State Structures*

**Chair:** Zhian Wang

[V315]

15:50-16:20 **Jian Fang** (Harbin Institute of Technology, China)  
*Forced Waves of the Fisher-KPP Equation in a Shifting Environment*

16:20-16:50 **Feng-Bin Wang** (Chang Gung University, Taiwan)  
*A PDE System Modeling the Growth of Phytoplankton  
Consuming Inorganic Carbon With Internal Storage*

## 2 June 2017, Friday

**Chair:** Daihai He

[V315]

10:50-11:20 **Raluca Eftimie** (University of Dundee, UK)  
*Pattern Formation in a Nonlocal Model for Tumour Dynamics as a  
Result of the TGF- $\beta$  Pathway*

11:20-11:50 **Gail Wolkowicz** (McMaster University, Canada)  
*Sensitivity of the General Rosenzweig-MacArthur Predator-prey  
Model to the Mathematical Form of the Functional Response: a  
Bifurcation Theory Approach*

11:50-12:20 **Qiuping Lu** (Yangzhou University, China)  
*Existence of Infinitely Many Radially Symmetric Solutions With  
Compact Support in  $\mathbb{R}^N$  and Peaking Phenomenon*

**Chair:** Yijun Lou

[V315]

14:00-14:30 **Cuiping Li** (Beihang University, China)  
*On the Periodic Logistic Map*

14:30-14:50 **Gary P. T. Choi** (Harvard University, United States)  
*Planar Morphometrics via Teichmüller Mappings*

14:50-15:10 **Meiling Zhao** (North China Electric Power University, China)  
*Fast High Order Methods for Electromagnetic Scattering by  
Large Cavities*

**Chair:** Gail Wolkowicz

**[V315]**

15:50-17:20 *Free Discussion*



16:20-16:50 **Marc Teboulle** (Tel-Aviv University)  
*First Order Methods Beyond Lipschitz Gradient Continuity*

16:50-17:20 **Kim-Chuan Toh** (National University of Singapore)  
*SDPNAL+: A Matlab Software Package for Large Scale SDPs  
With a User-friendly Interface*

**1 June 2017, Thursday**

**Chair:** Yinyu Ye **[V302]**

10:50-11:20 **Henry Wolkowicz** (University of Waterloo)  
*Low-rank Matrix Completion (LRMC) Using Nuclear Norm (NN)  
With Facial Reduction (FR)*

11:20-11:50 **Ya-xiang Yuan** (AMSS, Chinese Academy of Sciences)  
*A Partial Affine-scaling Method for Linearly Constrained  
Optimization Problems*

11:50-12:20 **Shuzhong Zhang** (University of Minnesota)  
*Constrained Non-convex Block Optimization Over Manifolds*

**Chair:** Marc Teboulle **[V302]**

14:00-14:30 **Radu Ioan Boţ** (University of Vienna)  
*A General Double-proximal Gradient Algorithm for D.C. Programming*

14:30-15:00 **Zhaosong Lu** (Simon Fraser University)  
*Algorithmic Development for Computing B-stationary Points of a  
Class of Nonsmooth DC Programs*

15:00-15:30 **Robert S. Womersley** (University of New South Wales)  
*Using Spherical  $t$ -designs and  $\ell_q$  Minimization for Recovery of  
Sparse Signals on the Sphere*

**Chair:** Xiaoqi Yang [V302]

15:50-16:20 **Xianfu Wang** (University of British Columbia Okanagan)  
*Epiconvergence, Moreau Envelope, and Generalized Linear-quadratic Functions*

16:20-16:50 **Jane Ye** (University of Victoria)  
*On Solving Non-lipschitz Nonconvex Programs: Necessary Optimality Conditions, Exact Penalization and an Augmented Lagrangian Method*

16:50-17:05 **Rüdiger Berlich** (Gemfony Scientific UG)  
*Parametric Optimization of Large-scale Industrial and Scientific Problems in Distributed and Parallel Environments*

17:05-17:20 **Ying Cui** (National University of Singapore)  
*On the Efficient Computation of the Projection Onto the Doubly Nonnegative Cone*

**2 June 2017, Friday**

**Chair:** Sven Leyffer [V302]

10:50-11:20 **Maryam Fazel** (University of Washington)  
*Online Optimization, Smoothing, and Worst-case Competitive Ratio*

11:20-11:50 **Andreas Fischer** (Technische Universität Dresden)  
*The LP-Newton Method and Recent Developments*

11:50-12:20 **Carl Tim Kelley** (North Carolina State University)  
*New Results for Anderson Acceleration: Theory and Applications*

**Chair:** Jane Ye [V302]

14:00-14:30 **Michael Hintermüller** (Humboldt-Universität)  
*Generalized Nash Equilibrium Problems in Banach Spaces: Theory, Nikaido-Isoda-based Path-following Methods, and Applications*

- 14:30-14:45 **Cong Sun** (Beijing University of Posts and Telecommunications)  
*On a Special Robust Optimization Problem-design of Secure Beamforming in Wiretap Networks With Channel Uncertainty*
- 14:45-15:00 **Sie Long Kek** (Universiti Tun Hussein Onn Malaysia)  
*Conjugate Gradient Approach for Linear Optimal Control Problem With Model-reality Differences*
- 15:00-15:15 **Surya Prakash** (BML Munjal University)  
*Application of Robust Optimization Approach for Supply Chain Design, Capacity Planning and Optimization Under Risk and Uncertainty*
- 15:15-15:30 **Bo Jiang** (Nanjing Normal University)  
*Unified SVRG for Optimization on Riemannian Manifold*

**Chair:** Defeng Sun

**[V302]**

15:50-17:20 *Free Discussion*



16:50-17:20 **Wen Li** (South China Normal University, China)  
*The Sparse Non-negative Tensor Equations Arriving from Data Sciences*

**1 June 2017, Thursday**

**Chair:** Jean B. Lasserre **[V303]**

10:50-11:20 **Lek-Heng Lim** (University of Chicago, United States)  
*Tensor Network Ranks*

11:20-11:50 **Chen Ling** (Hangzhou Dianzi University, China)  
*Cone Eigenvalue Complementarity Problems for Higher-order Tensors and Some Polynomial Optimization Models*

11:50-12:20 **Ziyan Luo** (Beijing Jiaotong University, China)  
*The Sparsest Solutions to Z-tensor Complementarity Problems*

**Chair:** Lieven De Lathauwer **[V303]**

14:00-14:30 **Jean B. Lasserre** (LAAS-CNRS, France)  
*Sparse Interpolation via Super-resolution, Compressed Sensing and Prony*

14:30-15:00 **Yimin Wei** (Fudan University, China)  
*Neural Networks for Computing Best Rank-one Approximations of Tensors and its Applications*

15:00-15:30 **Qingzhi Yang** (Nankai University, China)  
*Two New Definitions of Eigenvalues for Fourth-order Tensors and Some Properties*

**Chair:** Zheng-Hai Huang **[V303]**

15:50-16:20 **Chuan Chen** (Ku Leuven, Belgium)  
*Moment Fusion Based Methods for Gaussian Mixture Estimation*

16:20-16:50 **Yannan Chen** (PolyU)  
*Octupolar Tensors for Liquid Crystals*

16:50-17:20 **Chunfeng Cui** (City University of Hong Kong, Hong Kong)  
*A Quadratic Penalty Method for Hypergraph Matching*

**2 June 2017, Friday**

**Chair:** Lek-Heng Lim **[V303]**

10:50-11:20 **Shmuel Friedland** (University of Illinois at Chicago, United States)  
*Spectral and Nuclear Norms of Higher-order Tensors*

11:20-11:50 **Guanglu Zhou** (Curtin University, Australia)  
*A Fast Algorithm for the Spectral Radius for Symmetric Nonnegative Tensors*

11:50-12:20 **Yisheng Song** (Henan Normal University, China)  
*Infinite Dimensional Hilbert Tensors on Spaces of Analytic Functions*

**Chair:** Lixing Han **[V303]**

14:00-14:30 **Guofeng Zhang** (PolyU)  
*Quantum Entanglement and Tensor Eigenvalues*

14:30-15:00 **Guyan Ni** (National University of Defense Technology, China)  
*Hermitian Tensors and their Properties*

15:00-15:30 **Hongmei Yao** (Harbin Engineering University, China)  
*Brualdi-type Singular Value Inclusion Sets of Rectangular Tensors*



*Monitoring Test by Empirical Likelihood and Resampling Method*

16:20-16:50 **Jialiang Li** (National University of Singapore, Singapore)  
*A Functional Varying-Coefficient Single-Index Model for Functional Response Data*

16:50-17:20 **Xiao Wang** (Purdue University, USA)  
*Spatial Quantile Regression Models for High-dimensional Imaging Data*

**1 June 2017, Thursday**

**Chair:** Xingqiu Zhao **[V304]**

10:50-11:20 **Guang Cheng** (Purdue University, USA)  
*Two-Layer Heterogeneity Model for Massive Data*

11:20-11:50 **Ji Zhu** (University of Michigan, USA)  
*Estimating Network Edge Probabilities by Neighborhood Smoothing*

11:50-12:20 **Ruoqing Zhu** (University of Illinois at Urbana-Champaign, USA)  
*Some New Understandings of Tree-based Methods in Survival Analysis*

**Chair:** Xin Guo **[V304]**

14:00-14:30 **Jingchen Hu** (Vassar College, USA)  
*Strategies to Facilitate Access to Detailed Geocoding Information Based on Synthetic Data*

14:30-15:00 **Kaoru Irie** (The University of Tokyo, Japan)  
*Bayesian Emulation for Multi-step Portfolio Decisions*

15:00-15:30 **Qiang Wu** (Middle Tennessee State University, USA)  
*Overlapping Sliced Inverse Regression for Dimension Reduction*

**Chair:** Heung Wong

**[V304]**

15:50-16:20 **Feng Chen** (University of New South Wales, Australia)  
*Likelihood Inference for a Continuous Time GARCH Model*

16:20-16:35 **Zhiqiang Shao** (Fuzhou University, China)  
*A New Measuring Method of the Gini Coefficient and the Empirical Analysis*

16:35-16:50 **Mu Yue** (National University of Singapore, Singapore)  
*Improvement Screening for Ultra-High Dimensional Data with Censored Survival Outcomes and Varying Coefficients*

**2 June 2017, Friday**

**Chair:** Zhen Pang

**[V304]**

10:50-11:20 **Xin Chen** (National University of Singapore, Singapore)  
*Efficient Feature Screening for Ultrahigh-dimensional Varying Coefficient Models*

11:20-11:50 **Shaobo Lin** (Wenzhou University, China)  
*Distributed Semi-supervised Learning*

11:50-12:20 **Jun Wen** (National University of Singapore, Singapore)  
*Estimating the Spectrum of a High Dimensional Covariance Matrix via Anticommuting Variables*

## Stream 6:

### Financial Mathematics

**Organizers:** James Huang (PolyU), Xun Li (PolyU), Zuoquan Xu (PolyU), Cedric Yiu (PolyU), Xiang Yu (PolyU)

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**31 May 2017, Wednesday**

**Chair:** Cedric Yiu **[V311]**

11:20-11:50 **Jiongmin Yong** (University of Central Florida, USA)  
*A Time-inconsistent Stochastic Optimal Control Problem with Recursive Cost Functional*

11:50-12:20 **Alain Bensoussan** (University of Texas at Dallas, USA)  
*Capital Accumulation and Real Options*

**Chair:** Chi Tim Ng **[V311]**

14:00-14:30 **Harry Zheng** (Imperial College, UK)  
*Dynamic Portfolio Optimization with Looping Contagion Risk*

14:30-15:00 **Nan Chen** (The Chinese University of Hong Kong, Hong Kong)  
*A Primal-Dual Iterative Monte Carlo Method for Stochastic Dynamic Programs and Its Applications in Finance*

15:00-15:30 **Chi Tim Ng** (Chonnam National University, Republic of Korea)  
*Markowitz Portfolio and Blue of History*

**Chair:** Xun Li **[V311]**

15:50-16:20 **Wai-Ki Ching** (The University of Hong Kong, Hong Kong)  
*On Optimal Pricing Model for Multiple Dealers in a Competitive Market*

16:20-16:50 **Qi Wu** (The Chinese University of Hong Kong, Hong Kong)  
*Persistence and Procyclicity in Margin Requirements*

16:50-17:20 **Shushang Zhu** (Sun Yat-Sen University, China)  
*Optimal Management of Crash Risk*

**1 June 2017, Thursday**

**Chair:** Xiang Yu **[V311]**

10:50-11:20 **Mihai Sirbu** (The University of Texas at Austin, USA)  
*Zero-sum Stochastic Differential Games without the Isaacs Condition:  
Random Rules of Priority and Intermediate Hamiltonians*

11:20-11:50 **Kazutoshi Yamazaki** (Kansai University, Japan)  
*Optimality of Hybrid Continuous and Periodic Barrier Strategies in  
the Dual Model*

11:50-12:20 **Claudio Fontana** (Paris Diderot University, France)  
*General Dynamic Term Structures under Default Risk*

**Chair:** Xiang Yu **[V311]**

14:00-14:30 **Christoph Frei** (University of Alberta, Canada)  
*Over-the-Counter Markets with Counterparty Risk*

14:30-15:00 **Xiaolu Tan** (University of Paris-Dauphine)  
*Duality for American Options in Non-dominated Discrete-time Models*

15:00- 15:30 **Song Wang** (Curtin University)  
*Pricing Real Call and Put Options of European and American Types*

**Chair:** Zuoquan Xu

**[V311]**

15:50-16:20 **Yong Hyun Shin** (Sookmyung Women's University, Republic of Korea)  
*An Optimal Consumption, Gift, Investment and Voluntary Retirement Choice Problem with Quadratic and HARA Utility*

16:20-16:50 **Ken Siu** (Macquarie University, Australia)  
*A Self-Exciting Threshold Jump-Diffusion Model for Option Valuation*

**2 June 2017, Friday**

**Chair:** James Huang

**[V311]**

10:50-11:20 **Masaaki Fukasawa** (Osaka University, Japan)  
*Rough Volatility and Related Topics*

11:20-11:50 **Kyung Hyun Park** (Seoul National University, Republic of Korea)  
*Optimal Consumption, Portfolio and Life Insurance under Luxury Bequest motive and Inflation Risk*

**Chair:** Zuoquan Xu

**[V311]**

14:00-14:30 **Yan Zeng** (Sun Yat-sen University, China)  
*Ambiguity Aversion and Optimal Derivative-based Pension Investment with Stochastic Income and Volatility*

**Chair:** James Huang

**[V311]**

15:50-17:20 *Free Discussion*

# Workshop 1:

## Numerical Methods for Phase-field models

*Organizers:* Lili Ju (USC), Dong Li (HKUST), Zhonghua Qiao (PolyU)

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**31 May 2017,            Wednesday**

**Chair:** Zhonghua Qiao **[V313]**

11:20-11:50    **Jie Shen** (Purdue University, USA and Xiamen University, China)  
*A New Class of Linear, Decoupled, Energy Stable Schemes for  
Gradient Flows*

11:50-12:20    **Keith Promislow** (Michigan State University, USA)  
*Competitive Evolution of Multicomponent Amphiphilic Bilayer Networks*

**Chair:** Jie Shen **[V313]**

14:00-14:30    **Peter Jimack** (University of Leeds, UK)  
*The Application of Parallel, Adaptive, Multigrid to Phase-field  
Simulation*

14:30-15:00    **Qi Wang** (Beijing Computational Science Research Center, China and  
University of South Carolina, USA)  
*Generalized Onsager Principle and the Development of Numerical  
Schemes*

15:00-15:30    **Xiaofeng Yang** (University of South Carolina, USA)  
*A novel numerical approach to solve a class of nonlinear gradient flow  
Models*

**Chair:** Keith Promislow

[V313]

- 15:50-16:20 **Brian Wetton** (University of British Columbia, Canada)  
*A General Framework for High Accuracy Solutions to Energy Gradient Flows From Material Science Models*
- 16:20-16:50 **Tiezheng Qian** (Hong Kong University of Science and Technology, Hong Kong)  
*Phase Field Modeling and Simulations for Non-isothermal One-component Liquid-vapor Systems*
- 16:50-17:05 **Xuguang Yang** (The Hong Kong Polytechnic University, Hong Kong)  
*A Mass Conserving Lattice Boltzmann Scheme for 3d Diffuse Interface Model With Peng-robinson Equation of State*
- 17:05-17:20 **Huili Wang** (Huazhong University of Science and Technology, China)  
*Phase-field-based Lattice Boltzmann Model for Thermocapillary Flows*

**1 June 2017, Thursday**

**Chair:** Dong Li

[V313]

- 10:50-11:20 **Axel Voigt** (Technische Universitt Dresden, Germany)  
*Complex Dewetting Scenarios of Ultra-thin Films for Large-scale Nano-architectures*
- 11:20-11:50 **Sanqiang Shi** (The Hong Kong Polytechnic University Shenzhen Research Institute, China and The Hong Kong Polytechnic University, Hong Kong)  
*Phase-field Study of Hydride Morphology in Zirconium*
- 11:50-12:20 **Xiaoming Wang** (Florida State University, USA)  
*An Energy Stable Decoupled Scheme for the Navier-Stokes-Darcy Flow*

**Chair:** Axel Voigt

[V313]

14:00-14:30 **Chun Liu** (The Penn State University, USA)

*Diffusion in Biological Environments*

14:30-15:00 **Zhilin Li** (North Carolina State University, USA and Nanjing Normal University, China)

*An Augmented Adi Method for Heat Equations With a Discontinuous Coefficient and Singular Source Along an Arbitrary Interface*

15:00-15:30 **Shuyu Sun** (King Abdullah University of Science and Technology (KAUST), Kingdom of Saudi Arabia)

*Energy Stable Algorithms for Diffuse Interface Modeling of Partially Miscible Two-Phase Systems*

**Chair:** Chun Liu

[V313]

15:50-16:20 **Hui Zhang** (Beijing Normal University, China)

*Invariant Energy Quadrization Approach for Incompressible Smectic-A Liquid Crystal Flow*

16:20-16:50 **Zhengru Zhang** (Beijing Normal University, China)

*A Second Order Scheme and Numerical Analysis for the Three-dimensional Phase Field Crystal Equation*

16:50-17:05 **Xiao Li** (Beijing Computational Science Research Center, China)

*First- and Second-Order Stabilized Semi-Implicit Schemes for the Nonlocal Cahn-Hilliard Equation*

17:05-17:20 **Qiujin Peng** (Renmin University of China, China)

*Numerical Solutions for a Phase Field Model with Peng-Robinson Equation of State*

**2 June 2017, Friday**

**Chair:** Sanqiang Shi

**[V313]**

10:50-11:20 **Tongyi Zhang** (Shanghai University, China)

*Phase Field Simulations of Electrocaloric Effect in Perovskite  
Ferroelectrics*

11:20-11:50 **Cheng Wang** (University of Massachusetts Dartmouth, USA)

*Preconditioned Steepest Descent (PSD) Solver for Regularized  
 $p$ -Laplacian Equations*

11:50-12:20 **Dong Li** (Hong Kong University of Science and Technology, Hong  
Kong)

*Unconditional Stability of Semi-implicit Methods in Phase Field Models*

**Chair:** Lili Ju **[V313]**

14:00-15:30 Free Discussion

# Workshop 2:

## Big Data Analysis with Applications

*Organizers:* Xin Liu (AMSS), Zaikun Zhang (PolyU)

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**31 May 2017, Wednesday**

**Chair:** Zaikun Zhang

**[V314]**

11:20-11:50 **Aharon Ben-Tal** (Technion--Israel Institute of Technology, Israel)  
*Exact Robust Counterparts of Ambiguous Stochastic Constraints  
Under Mean and Dispersion Information*

11:50-12:20 **Man-Cho Anthony So** (The Chinese University of Hong Kong,  
Hong Kong)  
*On the Statistical Performance and Convergence Rate of the  
Generalized Power Method for Angular Synchronization*

**Chair:** Man-Cho Anthony So

**[V314]**

14:00-14:30 **Yanfei Wang** (Institute of Geology and Geophysics, Chinese  
Academy of Sciences, China)  
*Full Tensor Magnetic Gradient Data Inversion With Sparse Optimization*

14:30-15:00 **Shoham Sabach** (Technion--Israel Institute of Technology, Israel)  
*A Framework for Globally Convergent Methods in Nonsmooth and  
Nonconvex Problems*

15:00-15:30 **Shiqian Ma** (The Chinese University of Hong Kong, Hong Kong)  
*Geometric Descent Method for Convex Composite Minimization*

**Chair:** Shiqian Ma

**[V314]**

15:50-16:20 **Huiyan Sang** (Texas A&M University, United States)  
*Spatially Clustered Coefficient Regression Models for Large Data Sets*

16:20-16:50 **Jie Song** (Peking University, China)  
*A Simulation Optimization on the Hierarchical Health Care Delivery System Patient Flow Based on Multi-fidelity Models*

16:50-17:20 **Xin Liu** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, China)  
*A Parallel Approach for Orthogonal Constrained Optimization Problem*

**1 June 2017, Thursday**

**Chair:** Serge Gratton

**[V314]**

10:50-11:20 **Tiande Guo** (University of Chinese Academy of Sciences, Chinese Academy of Sciences, China)  
*Optimization Models and Algorithms for Fingerprint Recognition*

11:20-11:50 **Yanyan Lan** (Institute of Computing Technology, Chinese Academy of Sciences, China)  
*Deep Learning for Semantic Text Matching*

11:50-12:20 **Jiannong Cao** (The Hong Kong Polytechnic University)  
*Data-Driven Analysis of Human Dynamics Using Wi-Fi*

**Chair:** Tiande Guo

**[V314]**

14:00-14:30 **Zaiwen Wen** (Peking University, China)  
*Global Optimization with Orthogonality Constraints*

14:30-15:00 **Daniel Robinson** (Johns Hopkins University, United States)  
*An Evolving Subspace Method for Low Rank Minimization*

15:00-15:30 **Xiaoming Yuan** (Hong Kong Baptist University, Hong Kong)  
*How to Implement ADMM to Large-scale Datasets?*

**Chair:** Xiaoming Yuan **[V314]**

15:50-16:20 **Serge Gratton** (IRIT-ENSEEIH-T-INPT, Toulouse, France)  
*Large Scale Data Problems in Data Assimilation*

16:20-16:50 **Qing Ling** (University of Science and Technology of China, China)  
*Learn-and-Adapt Stochastic Dual Gradients for Network Resource Allocation*

16:50-17:20 **Yuan Yao** (Hong Kong University of Science and Technology, Hong Kong)  
*Boosting with Structural Sparsity --- A Differential Inclusion Approach*

## **2 June 2017, Friday**

**Chair:** Yuan Yao **[V314]**

10:50-11:20 **Mengdi Wang** (Princeton University, United States)  
*Stochastic First-Order Methods in Data Analysis and Reinforcement Learning*

11:20-11:50 **Xi Chen** (New York University Stern School of Business, United States)  
*Statistical Inference with Stochastic Gradient Descent*

11:50-12:20 **Chengcheng Huang** (University of Pittsburgh, United States)  
*The Space and Time of Neuronal Variability in a Spiking Neuron Network*

**Chair:** Yanfei Wang

**[V314]**

14:00-14:20 **Yuan Shen** (Nanjing University of Finance & Economics, China)

*An Alternating Minimization Method for Robust Principal Component Analysis*

14:20-14:40 **Leo Liberti** (CNRS LIX, École Polytechnique, France)

*Fast Decoding via Randomly Projected Sparse Retrieval*

14:40-15:00 **Roheet Bhatnagar** (Manipal University Jaipur, India)

*An Optimized Framework for Crop Yield Estimation based on Decision Support System for Agrotechnology Transfer (DSSAT v4.6) Model*

15:00-15:30 *Free Discussion*

**Chair:** Xin Liu

**[V314]**

15:50-17:20 *Free Discussion*

# Workshop 3:

## Modeling and Computation for Flow and Transport in

### Porous Media

*Organizers:* Shuyu Sun (KAUST)

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**31 May 2017,                      Wednesday**

**Chair:** Shuyu Sun **[V316]**

11:20-11:50    **Abbas Firoozabadi** (Yale University, United States)  
*Efficient Two-phase Compositional Fractured Reservoir Simulation in  
2D and 3D Unstructured Gridding*

11:50-12:20    **Yalchin Efendiev** (Texas A & M University, United States)  
*Multiscale Model Reduction for Flow and Transport in Porous Media*

**Chair:** Yalchin Efendiev **[V316]**

14:00-14:30    **Eric Chung** (The Chinese University of Hong Kong, Hong Kong)  
*Mixed Generalized Multiscale Finite Element Methods for Flows in  
Heterogeneous Media*

14:30-15:00    **Zhiwen Zhang** (The University of Hong Kong, Hong Kong)  
*A Class of Conforming Multiscale Finite Element Method for  
Elliptic Problems With Multiscale Coefficients*

15:00-15:30    **Rebecca Allen** (SINTEF, Norway)  
*MRST-co2lab: Rapid Prototyping of Engineering Solutions for  
Problems Related to Large-scale Aquifer-wide CO<sub>2</sub> Storage*

**Chair:** Abbas Firoozabadi

**[V316]**

15:50-16:20 **Jiří Mikyška** (Czech Technical University in Prague, Czech Republic)  
*Mathematical Modeling of Water Transport in Thermochemical Materials*

16:20-16:50 **Ahmed H. ElSheikh** (Institute of Petroleum Engineering, Heriot-Watt University, United Kingdom)  
*A Data-driven Multiscale Finite Volume Method for Uncertainty Quantification in Multiphase Flow Problems*

16:50-17:20 **Kai Bao** (SINTEF, Norway)  
*Polymer Flooding Simulation with MRST*

**1 June 2017, Thursday**

**Chair:** Jiří Mikyška

**[V316]**

10:50-11:20 **Hong Wang** (University of South Carolina, United States)  
*Fast Numerical Methods for Peridynamic Models*

11:20-11:50 **Rami Younis** (The University of Tulsa, United States)  
*Localized Solvers for Implicit Time-stepping*

11:50-12:20 **Yuanqing Wu** (Shenzhen University, China)  
*3D Parallel Wormhole Simulation With the Darcy-Brinkman-Forchheimer Framework*

**Chair:** Hong Wang

**[V316]**

14:00-14:30 **Hongxing Rui** (Shandong University, China)  
*Numerical Methods for Coupled Stokes and Darcy Flows With Transfer*

14:30-15:00 **Huangxin Chen** (Xiamen University, China)  
*Reduced Models for Flow in Fractured Porous Media: Adaptation and Two-scale Model*

15:00-15:30 **Haijian Yang** (Hunan University, China)  
*Active-set Reduced-space Methods With Nonlinear Elimination  
 for Two-phase Flow Problems in Porous Media*

**Chair:** Ahmed H. ElSheikh **[V316]**

15:50-16:20 **Liang Gong** (China University of Petroleum, China)  
*An Efficient Multiscale Method for Modeling Flow in Fractured  
 Vuggy Reservoirs*

16:20-16:50 **Jianchao Cai** (China University of Geosciences, China)  
*Fractal Characterization of Capillary Driven Flow in Porous Media*

16:50-17:05 **Jizu Huang** (Chinese Academy of Sciences Institute of Computational  
 Mathematics and Scientific/Engineering Computing, China)  
*A Lattice Boltzmann Model for Multiphase Flows With Large  
 Density Ratio on Rough Surface*

17:05-17:20 **Jiangyong Hou** (School of Mathematics, Northwest University,  
 China)  
*Stokes-dual-porosity Model and Finite Element Method for Coupling  
 Dual-porosity Flow and Free Flow*

**2 June 2017, Friday**

**Chair:** Liang Gong **[V316]**

10:50-11:20 **Jie Chen** (Xi'an Jiaotong University, China)  
*Adaptive Mixed-hybrid and Penalty Discontinuous Galerkin Method  
 for Two-phase Flow in Heterogeneous Media*

11:20-11:50 **Yi Wang** (China University of Petroleum – Beijing, China)  
*Acceleration of Single-phase Flow Simulation in Porous Media  
 Using Proper Orthogonal Decomposition*

11:50-12:20 **Zhaoqin Huang** (China University of Petroleum – East China, China)  
*Modeling of Thermal Transport in Metal Foam and Its Application*

**Chair:** Huangxin Chen

**[V316]**

14:00-14:30 **Jisheng Kou** (Hubei Engineering University, China)  
*Multi-scale Diffuse Interface Modeling of Multi-component Two-  
phase Flow With Partial Miscibility*

14:30-15:30 Free Discussion

**Chair:** Shuyu Sun

**[V316]**

15:50-17:20 Free Discussion



**Chair:** James Huang **[V321]**

15:50-16:20 **Juan Li** (Shandong University, China)  
*Representation of Asymptotic Values for Non-expansive Stochastic Control Systems*

16:20-16:50 **Zhiyong Yu** (Shandong University, China)  
*An Optimal Feedback Control-Strategy Pair of Zero Sum Linear Quadratic Stochastic Differential Game: the Riccati Equation Approach*

**2 June 2017, Friday**

**Chair:** Cedric Yiu **[V321]**

10:50-11:20 **Yiqing Lin** (Ecole Polytechnique Paris, France)  
*Quadratic Backward Stochastic Differential Equations Driven by G-Brownian motions: Discrete Solutions and Approximation*

11:20-11:50 **Tianyang Nie** (Shandong University, China)  
*Linear-Quadratic-Gaussian Mixed Games with Input Constraint Involving Major Agent and Heterogeneous Minor Agents*

11:50-12:20 **Yongsheng Song** (Chinese Academy of Sciences, China)  
*Stein Type Characterization for G-normal Distributions*

**Chair:** James Huang **[V321]**

14:00-14:30 **Mingshang Hu** (Shandong University, China)  
*Stochastic Global Maximum Principle for Optimization with Recursive Utilities*

14:30-15:00 **Xinpeng Li** (Shandong University, China)  
*Some Properties of G-Ito Process and Their Applications*

15:00-15:30 **Weidong Zhao** (Shandong University, China)  
*Numerical Schemes for Stochastic Optimal Control via FBSDEs*

**Chair:** Mingshang Hu

**[V321]**

15:50-16:20    **Shi Yue** (The Hong Kong Polytechnic University, Hong Kong)  
*Robust Portfolio Optimization Problems based on Laplace  
Distribution*

16:20-16:50    **Zikai Wei** (The Hong Kong Polytechnic University, Hong Kong)  
*A Novel Multivariate Volatility Modeling for Risk Management*